



Educational Technology and
Management Academy



CEMCA



Comprehensive Study of OER in NSOU and OSOU

Marmar Mukhopadhyay
Subhash Chander
Rajesh Kumar



Comprehensive Study of OER in NSOU and OSOU

Marmar Mukhopadhyay
Subhash Chander
Rajesh Kumar



**Educational Technology and
Management Academy**



CEMCA

Commonwealth Educational Media Centre for Asia (CEMCA)

The Commonwealth Educational Media Centre for Asia (CEMCA) is an international organization established by the Commonwealth of Learning (COL), Vancouver, Canada, to promote the meaningful, relevant and appropriate use of ICTs to serve the educational and training needs of Commonwealth member states of Asia. CEMCA receives diplomatic privileges and immunities in India under section 3 of the United Nations (privileges and immunities) Act, 1947.

Author: Prof. Marmar Mukhopadhyay, Dr. Subhash Chander and Dr. Rajesh Kumar Educational Technology and Management Academy

Copy Editing: Mr. B Natarajan, Deputy Registrar (Retired), Publications, IGNOU, New Delhi

Copyright © CEMCA, 2018.



The publication entitled Comprehensive Study of OER in NSOU and OSOU is made available under a Creative Commons Attribution-ShareAlike 4.0 License (international): <http://creativecommons.org/licenses/by-sa/4.0/> by CEMCA with permission of the authors.

For the avoidance of doubt, by applying this license Commonwealth of Learning and Commonwealth Educational Media Centre for Asia (CEMCA) do not waive any privileges or immunities from claims that they may be entitled to assert, nor do COL/CEMCA submit themselves to the jurisdiction, courts, legal processes or laws of any jurisdiction.

ISBN: 978-81-88770-34-2

While all efforts have been made by the Editor to check accuracy of the content, the representation of facts, principles, descriptions and methods are that of the author/s. Views expressed in the publication are that of the authors, and do not necessarily reflect the views of CEMCA/COL. All products and services mentioned are owned by their respective copyrights holders, and mere presentation in the publication does not mean endorsement by CEMCA/COL. Every effort has been made to acknowledge and attribute all sources of information used in preparation of this learning material. Readers are requested to kindly notify missing attribution, if any.

For further information, contact:

Commonwealth Educational Media Centre for Asia

7/8, Sarv Priya Vihar

New Delhi - 110016

<http://www.cemca.org.in>

Printed and published on behalf of Director, CEMCA by Mr. Dalip Kumar Tetri, Advisor (Administration and Finance), CEMCA, 7/8 Sarv Priya Vihar, New Delhi - 110016, India.

Contents

<i>Preface</i>	<i>iv</i>
<i>Acknowledgement</i>	<i>vi</i>
<i>Foreword</i>	<i>viii</i>
<i>List of Tables</i>	<i>x</i>
<i>List of Figures</i>	<i>xii</i>
<i>List of Boxes</i>	<i>xiii</i>
<i>Abbreviations</i>	<i>xiv</i>
<i>Executive Summary</i>	<i>xv</i>
1. Open Educational Resources: An Overview	1
2. Methodology	12
3. OER in NSOU and OSOU: Setting the Perspectives	22
4. Findings	33
5. Response to Research Questions	72
6. Conclusions and Recommendations	77
<i>References</i>	<i>85</i>
<i>Appendix</i>	<i>89</i>
<i>Appendix I: Assessment of Attitudes of Students towards OER</i>	<i>90</i>
<i>Appendix II: Questionnaire for Students</i>	<i>92</i>
<i>Appendix III: Attitude Scale for Counselors towards OER</i>	<i>99</i>
<i>Appendix IV: Questionnaire for Teachers</i>	<i>101</i>
<i>Appendix V: Interview Schedule: Vice Chancellor/Registrar</i>	<i>105</i>
<i>Appendix VI: Interview Schedule: OER Coordinators</i>	<i>106</i>
<i>Appendix VII: Interview Schedule for PO, CEMCA</i>	<i>107</i>
<i>Appendix VIII: Document Analysis</i>	<i>108</i>
<i>Appendix IX: Observation</i>	<i>109</i>
<i>Appendix X: Case Studies: NSOU Study Centers</i>	<i>110</i>

Preface

The term 'Open Educational Resource' (OER) was coined by UNESCO as early as in 2002 at the Forum on the 'Impact of Open Courseware for Higher Education in Developing Countries'¹. There have been multiple attempts to define OER. Most oft-quoted definitions are from UNESCO, OECD, and William and Flora Hewlett Foundation. COL played a remarkable role in collaboration with UNESCO to build an almost worldwide movement on OER. 'Open Educational Resources: Global Report 2017' registers more than 170 OER Repositories - a massive increase over the number of OER Repositories registered in the 2012 Global Report.

COL set targets of national policies on TEL and OER in six commonwealth countries; and 12 institutional OER Policies. CEMCA, which as a unit of COL for the Asian region serves Bangladesh, Darussalam Brunei, India, Malaysia, Pakistan, Singapore, and Sri Lanka, is also actively engaged in promoting OER policies and practices, especially at the institutional level. CEMCA targeted the facilitation of development of OER policies and repositories in five universities in the Asian region. These are Bangladesh Open University (Bangladesh), Uttarakhand Open University (India), Netaji Subhash Open University (India), Odisha Open University (India) and Open University of Sri Lanka (Sri Lanka) The number is steadily increasing as more and more universities are taking interest in OER.

ETMA was commissioned to make a comprehensive study of OER in Netaji Subhash Open University, (NSOU) Kolkata and Odisha State Open University (OSOU), Sambalpur. The primary objectives were to assess the progress, and recommend ways of improving the effectiveness of the project.

OER projects in NSOU and OSOU can be traced back to the middle of 2016 (June) when the initiatives for Institutional OER policy were undertaken. Development of OER repositories began in January 2017. Hence, what ETMA is evaluating are the developments of OER during the last 12 months. Remarkable progress has been made by both the universities; they have developed OER policies, created robust OER technology architecture; web portals have been populated with rich material - mostly containing study material of the concerned universities enriched with video and other types of learning material. OER portals also refer to a huge amount of open resources available on other sites.

¹UNESCO (2002), Forum on the Impact of Open Courseware for Higher Education in Developing Countries

During this period, a large number of teachers of both the universities were trained by CEMCA in creating OER material. Thus, thanks to CEMCA's initiative and leadership, an environment has been created for nurturing OER. This is evident as the number of universities taking interest in OER policies, practices and repositories have gone up to twelve.

The original emphasis of the study, as outlined by Vice President of COL, was on students' attitude towards OER. Scope of the study was enlarged to include awareness, access to technology and internet, attitude, accessibility and availability, utilization and impact on learning outcome. Respondent scope was enlarged to include VC, Nodal Officers of OER, Teachers, Counselors and Coordinators of study centers. Accordingly, research tools were developed and data collection was planned out.

The study got a little stumped as the majority of students were not aware of OER. During the interview, this was corroborated by the VCs of both universities. Awareness is the foundation to the assessment of other variables. Since students were not aware, they responded randomly to the structured questionnaires. Team of investigators adopted complementary exploratory research technique, especially in NSOU to study access to technology, especially mobile technology with Internet, ICT skills, and attitude and enthusiasm to use the technology-enabled learning system, accessibility and availability of material in OER. None of them were found wanting. The lack of awareness adversely affected utilization of OER; and hence its impact on learning outcome. With well-planned campaigns and advocacy of OER with students and counselors during 2018, utilization and impact of OER on learning outcome can witness a sea change; and CEMCA should be able to accomplish its 2021 target.

This study has flagged the achievements during the last one year with regard to OER in NSOU and OSOU; and also recommended ways and means to enhance utilization of OER and thereby create impact on the learning outcomes of students which are the ultimate goals of setting up OER repositories backed by OER policies.

We hope this study will be found useful to further the significant work done by the two universities, under the leadership of CEMCA, to fulfill the objectives of enriching student learning.

Prof. Marmar Mukhopadhyay

Chairman, ETMA Council and Team Leader

Acknowledgment

Our sincere thanks to

CEMCA for entrusting us with this Comprehensive Study of OER in NOSU and OSOU as one of the components of Midterm Evaluation of CEMCA's SYP 2015-21.



Prof. K. Balasubramanian, Vice President, Commonwealth of Learning, Vancouver, Canada for a detailed discussion, and setting the framework for this project focusing on OER in NSOU and OSOU.



Team CEMCA - Dr. Shahid Rasool, Director, Mr. R. Thyagarajan, Head, Administration and Finance and Dr. Manas Ranjan Panigrahi, Programme Officer (Education), for continuous academic and administrative support throughout the period of this study.



Prof. Subha Shankar Sarkar, Vice-Chancellor, NSOU for sparing his valuable time and sharing his vision of extending NSOU-OER to the students of the upcoming eight state universities in West Bengal with the research team, and Dr. Anirban Ghosh, Officer-in-Charge, School of Vocational Studies and School of Professional Studies, and Nodal Officer for OER in NSOU for sparing his time to shed light on the project, and providing administrative support for the field work. His meticulous planning deserves special appreciation.



Prof. Srikant Mahapatra, Vice-Chancellor, OSOU for taking keen interest in the study, sparing time to meet the students and the research team for detailed discussions. Dr. Mahapatra's rich experience in ODL was of special value to the research team. Dr. Jayanta Kar Sharma, Registrar, OSOU and Nodal Officer of OSOU for OER for providing full administrative and organizing support to the filed study in Odisha.

The field study could not have been done, but for the all-out support of Dr. Anirban Ghosh in NSOU and Dr. Jayanta Kar Sharma in OSOU. We are really grateful to both of them.

The students, teachers and counselors of both the universities who responded to the research instruments, on the spot exploratory exercises,

and actively participated in Focused Group Discussion and informal discussions.

Prof. Kutubuddin Haldar, Head, Department of Education, Calcutta University and his research scholars who extended their professional help for simultaneous data collection in urban and remote rural centers.



Prof. Madhu Parhar, Dr. Rajesh Kumar and Dr. Subhash Chander Arya were the members of the research team who carried on their shoulders all the responsibilities of designing the research instruments, field study, data management and drafting and reviewing the report. Thanking members of the team may not be in order, but nevertheless, they deserve compliments for their contributions.

With this study just behind us, we have a much better understanding of OER and its potential of extending quality higher education to a much larger number of education aspirants. Indeed, OER holds the potential of disrupting the conventional form of education and creating a far more powerful system.

Foreword

The governments play an important role in developing and implementing policies for higher education system. They have an interest in ensuring that public investments in higher education make a useful and cost-effective impact on teaching and learning process across the country. To ensure better equity and access to quality educational resources, developed with the public funds, governments require to ensure these resources, especially the course contents are made available under open licences. While there may sometimes be sufficient reasons to avoid open licensing, the sharing of educational materials under open licence mostly will prove advantageous and will have significant potential to improve the overall quality of education and accessibility to higher education. The Open Educational Resources (OER) are educational materials for free use of students, teachers and researchers. The materials are covered by copyright and open licenses, which support free use, reuse, remix, dissemination and sharing of knowledge, beneficial for better teaching and learning processes in the formal and informal education. For creation and use of OER and to boost the proliferation of OER in higher education, adoption of an effective OER policy by educational institutions is very crucial.

The Commonwealth Educational Media Centre for Asia (CEMCA), under the aegis of Commonwealth of Learning (COL) -an inter-governmental organisation, is serving to 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. This is done in association with educational institutions, experts, faculty members and students at large. The OER interventions of CEMCA have focused on developing institutional OER policies and their implementation through capacity building of faculty and other functionaries and providing access to the OER repositories in the universities of Commonwealth Asia. To study the effectiveness of CEMCA initiatives to promote OER in higher education, CEMCA commissioned a comprehensive study of OER in Netaji Subhash Open University, (NSOU) Kolkata and Odisha State Open University (OSOU), Sambalpur with special reference to accessibility, availability and usability of Open Educational Resource. The study was conducted through Educational Technology and Management Academy (ETMA).

The study reveals that, OER occupies adequate attention of the Vice Chancellors and other senior academic leaders in both the universities, however the awareness among the students about OER was found minimal. The study found that both the universities have developed OER with lot of care and consideration. The study recommended that for

ensuring adequate and effective utilization of this rich resource, universities shall have to make special efforts to design awareness and advocacy programmes.

The sincere professional efforts made by ETMA team, comprising Dr. Subhash Chander and Dr. Rajesh Kumar, under the close supervision and thought leadership of Prof. Marmar Mukhopadhyay, have resulted in this study, which is very well planned and executed following a systematic methodology and bringing out significant results. The report presents suitable recommendation for all the stakeholders for improvements in creation and use of OER. I compliment the ETMA team for this useful study.

The research study published in the book form may be useful to institutions, planners and policymakers in education system. With wider access to teachers and researchers, the book may open newer areas of research in the field of ODL/OER. We, at CEMCA, are looking forward to get your valuable feedback on this study and also on various CEMCA interventions in Higher Education.

Shahid Rasool

Director CEMCA

List of Tables²

- Table 2.1:** Sample Size
- Table 2.2:** Tools, Methods of Data Collection
- Table 2.3:** List of Study Centers
- Table 3.1:** Components of OER Policy of NSOU and OSOU
- Table 4.1:** Background of the Respondents
- Table 4.2:** Student access to Technology and Internet
- Table 4.3:** Frequency Distribution of Scores on Attitude Scale
- Table 4.4:** Attitude of students towards OER
- Table 4.5:** Availability of printed reading material from the university
- Table 4.6:** Availability of learning material on University website or a special portal
- Table 4.7:** Type of resources available on university website
- Table 4.8:** Facility to download the material
- Table 4.9:** Printing of learning material from the website
- Table 4.10:** Heard about open education resources
- Table 4.11:** Language of OER
- Table 4.12:** Awareness about creative commons licenses
- Table 4.13:** Accessing OER
- Table 4.14:** Frequency of accessing OER
- Table 4.15:** Place/Device used to access OER
- Table 4.16:** Use of OER if access is available
- Table 4.17:** Type of recourse accessed
- Table 4.18:** Difficulties in accessing University OER Repository

²This is a draft report. Page numbers are likely to change after revision based upon comments from CEMCA. Hence, revised page numbers for tables would be given in the final report.

- Table 4.19:** Language preferred for OER
- Table 4.20:** Awareness about availability of OER
- Table 4.21:** Adequacy of Material on OER
- Table 4.22:** Kinds of textual material available on the OER
- Table 4.23:** Coverage of available materials
- Table 4.24:** OER enhancing flexible learning opportunities
- Table 4.25:** OER enhancing quality of learning
- Table 4.26:** Use of OER Repository
- Table 4.27:** Frequency of accessing OER
- Table 4.28:** Reference related to OER during counseling
- Table 4.29:** Purchase of textbook apart from learning material
- Table 4.30:** Guidance related to OER
- Table 4.31:** Different platforms accessed
- Table 4.32:** Downloading/printing material from OER Repository
- Table 4.33:** Reason of downloading OER material
- Table 4.34:** Purpose of Accessing OER
- Table 4.35:** Reduction of Cost of Education through use of OER
- Table 4.36:** OER make Learning Interesting
- Table 4.37:** OER Help in better Learning
- Table 4.38:** Reason for using OER
- Table 4.39:** Ease of Language of OER for Understanding
- Table 4.40:** Impact on Learning Outcome
- Table 4.41:** Reasons for Accessing OER
- Table 4.42:** Recommendation of OER to others
- Table 4.43:** Impact of OER on result
- Table 4.44:** OER creation

List of Figures³

- Figure 4.1:** Students Access to Technology and Internet
- Figure 4.2:** NSOU Students' Attitude towards OER with Mean
- Figure 4.3:** OSOU Students' Attitude towards OER with Mean
- Figure 4.4:** NSOU and OSOU Students' Attitude towards OER with Mean
- Figure 4.5:** Availability of printed reading material from the university
- Figure 4.6:** Facility to download the material
- Figure 4.7:** Language of OER
- Figure 4.8:** Frequency of accessing OERs
- Figure 4.9:** Type of resources accessed
- Figure 4.10:** Awareness about availability of OER
- Figure 4.11:** OER enhancing quality of learning
- Figure 4.12:** Use of OER Repository
- Figure 4.13:** Guidance related to OER
- Figure 4.14:** Different platforms accessed
- Figure 4.15:** OER make Learning Interesting
- Figure 4.16:** Reason for using OER
- Figure 4.17:** Impact on Learning Outcome
- Figure 4.18:** Recommendation of OER to others

³This is a draft report. Page numbers are likely to change after revision based upon comments from CEMCA. Hence, revised page number for Figures would be given in the final report.

List of Boxes

Box 1: The Licenses

Box 4.1: Mission and Vision of NSOU-OER

Abbreviations

BOU	Bangladesh Open University
CEMCA	Commonwealth Educational Media Centre for Asia
CC	Creative Commons
COL	Commonwealth of Learning
ETMA	Educational Technology and Management Academy
GER	Gross Enrolment Ratio
KKHSOU	Krishna Kanta Handiqui State Open University
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MHRD	Ministry of Human Resource Development
NSOU	Netaji Subhash Open University
NROER	National Repository of Open Educational Resource
OER	Open Educational Resources
OECD	Organization for Economic Co-operation and Development
ODL	Open and Distance Learning
OUSL	Open University of Sri Lanka
OSOU	Odisha State Open University
PMMMNTT	Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching
SDG	Sustainable Development Goals
SWAYAM	Study Webs of Active Learning for Young Aspiring Minds
SYP	Six Year Plan
UNDP	United Nations Development Programme
VC	Vice Chancellor
UNESCO	United Nations Educational, Scientific and Cultural Organization
UGC	University Grants Commission

Executive Summary

Within the work space of higher education, one of the innovative areas of work of CEMCA was promotion of OER policy and setting up of OER repositories. CEMCA started its work in this area in June 2016 initially with the development of OER policies, later in setting up of OER repositories. CEMCA chose five universities from the region; three from India and one each from Bangladesh and Sri Lanka. Following are the universities:

1. **Bangladesh Open University, Dhaka**
2. **Open University of Sri Lanka, Colombo**
3. **Netaji Subhash Open University, Kolkata**
4. **Odisha State Open University, Sambalpur**
5. **Uttarakhand Open University, Haldwani**

As one of the components of midterm evaluation, CEMCA commissioned ETMA to conduct a comprehensive study on OER in Netaji Subhash Open University, Kolkata and Odisha State Open University, Sambalpur.

1. These universities have developed OER policies based on the broad guidelines developed by COL and provided by CEMCA.
2. For evaluation of OER, it was decided to study priority, awareness and attitude of students towards OER; accessibility and availability of OER material; and utilization of OER by students and its impact on learning outcome. The study also included teachers, counselors and coordinators of study centres with respect to attitude towards OER, awareness, accessibility and availability, and their perception of utilization by students and impact on learning outcome of students.
3. Two parallel studies were conducted on OER in NSOU and OSOU. The objective was to assess the progress of OER initiative and recommend how further improvements can be done.
4. Sample of the study comprised 277 (282 for attitude) respondents from NSOU and 155 (149 for assessment of attitude) respondents from OSOU. Beside the students, study was also conducted on coordinators of study centres, teachers and counselors; 11 in NSOU and 18 in OSOU participated in the study
5. Several different research tools were developed specially for the study. Various tools were questionnaires, attitude scale, interview schedule, and observation schedule, focus group discussion, and analysis of documents and records.



6. The students were asked to use their mobile phones with internet connectivity to visit OER web portal of the university to check access to technology, comfort level of accessing online materials and figure out availability of their own course material online.
7. Data were collected by two separate teams - one each for NSOU and OSOU - comprising senior academicians. Data were collected from four study centres of NSOU, and two centres of OSOU. Centres were selected in consultation with CEMCA and OER Coordinators of NSOU and OSOU to represent students from both rural and urban background.
8. Since the students were available only on Sunday, data had to be collected simultaneously by engaging teams of investigators in the selected centres.
9. Same research tools were used for data collection in both NSOU and OSOU. Hence, data have been tabulated in combined tables, primarily for brevity rather than for comparability.

► Findings

Findings of the study are presented under three broad categories, namely CEMCA, NSOU, OSOU, followed by Conclusions and Recommendations

► CEMCA

1. CEMCA provided financial as well as professional support in developing the OER policy and repository in NSOU and OSOU. The fact that the universities could draft, develop and get approval of the OER policies from different competent authorities in the concerned universities, and establish fully functional OER repositories within this short period of time is an indication of the efficaciousness of CEMCA's professional intervention.
2. As an important component of professional support, CEMCA provided several capacity building programs to the staff of OSOU and NSOU. As many as 193 staff members including counselors of NSOU were trained by CEMCA; in OSOU, 59 members were trained in OER. Reports of the capacity building programs are available on public domain for review - <http://cemca.org.in/resources/workshop-reports#.WthJli5uaUk>
3. During the interview with the vice chancellors, it was evident that OER occupies adequate attention of the vice-chancellors and other senior officers in both the universities. Both the vice chancellors mentioned lack of awareness among the students about OER that was found to be true during the field work. This also indicates deep involvement of the vice chancellors in this innovative movement.
4. A careful browsing of the OER repository revealed excellent preparedness. The

OER Policies with Vision and Missions are available on their respective portals.

5. There is a good stock of the learning material in text and video formats in the repositories. Textual materials are mostly the pdf format of printed study materials. Video lectures have been made especially for the OER.
6. NSOU repository provides five complementing verticals of Open Material, Open Courses, Open Textbooks, Open Images, and Open Video. Each vertical offers access to several OER Repositories. OSOU have given links to some Indian Portals/Repositories.
7. CEMCA's intervention has resulted in well-designed OERs and OER repositories within a short period of about one year, during 2017.

► NSOU

1. Almost 90% of students reported to have mobile phones with internet connection. However, during the face-to-face interaction, except one girl student, everyone had mobile phones with Internet connectivity. Hence, access to Internet enabled mobile phones is universal. Many of them had access to multiple devices like mobile phones, laptops or desktops, iPads and e-readers. Most of the teachers had mobile phones with 4G internet connection (72.73%).
2. In the assessment of attitude towards OER, 72.7% students of NSOU were within the range of M 1 or average. 15.96% students were above +1 demonstrating above average (positive) attitude, and 11.35% indicate negative attitude (below -1). On exploratory research with practical exercises, majority of the students readily, rather enthusiastically accessed OER material of the university on their mobile phones during the interaction. They were actually quite excited. There is no attitude deficiency of students towards OER.
3. Attitude of teachers was favorable towards OER but not all teachers were in favor of OER. Coordinators of study centers were rather neutral to OER. Their central concern was receiving printed study material on time and in the right quantity so that they don't have to face the displeasure of students. Though counselors were trained, as reported by CEMCA, they did not indicate their awareness. Also, they were not fully supportive to OER; their apprehension was that OER may interfere with their business of private tuition.
4. Practice of private tuition of NSOU students may be a point of conflict of interest for the counselors.
5. During the interview, VC estimated that only about 5% students were aware of OER. This was corroborated during the exploratory interactive session with students. In response to the structured question, approximately 53% of students indicated that they were either not aware or were not sure about what is OER.



6. Teachers were aware of OER for more than one reason. Firstly, they were trained during the capacity building programmes conducted by CEMCA. Secondly, many of the teachers were associated with production of material for OER. As mentioned earlier, Counselors were not very familiar with OER, though according to CEMCA, counselors were also trained.
7. Accessibility of material in the OER repository was tested with a sample of respondent students. They easily accessed the material on the repository. Also, they were able to access other resources with the links given on OER repository to other platforms. Members of the research team also accessed, and found easy accessibility.
8. Utilization of OER was minimal as visible from responses of students. They were not aware about OER repository so they had not utilized.
9. Approximately 80% of students said that they had not received any guidance related to the use of OER. OER is not used or referred by the counselors. This means that the efforts related to OER repository developments have not reached the end users.
10. Since students are not aware and OER has not been utilized, impact of OER on learning outcome cannot be assessed. Although a majority of the students agreed that OER would have a positive impact on their learning, it was more of an opinion. Majority of the teachers during interaction were positive about the OER's impact on learning. Since the design and development of repository and accessibility have been completed rather recently, it is too early for assessing the impact of OER on learning Outcome.

▶ OSOU

1. Almost all students have access to mobile phone/smart phone with internet connectivity. Laptop/desktop is available (47.5%). Some students also have access to tablets/iPads (9.4%), and some had e-readers also (22.3%).
2. Mean value for OSOU students on attitude towards OER is 90.88 and SD is 18.59. Thus, 73.15% students are within the range of M \pm 1 or average. About 10.32% students were above +1 demonstrating above average (positive) attitude; and 14.84% students were below M-1. Since they have not known and used OER, attitude is yet to be formed. During the FGD, it was evident that students had access to technology; they are skilled and enthusiastic about use of technology; and there is no attitude deficiency.
3. During discussion with the VC, he mentioned that not more than 10% students are aware of OER. From the data as well as FGDs, it was evident that students' awareness about OER and its contents are very limited.
4. The members of the research team checked the accessibility of material on OSOU-OER themselves. The team concluded that accessibility is well built-in. During the

hands-on exercise assigned by the investigators, students also did not find difficulty in accessing learning resources from the OER.

5. The OER Repository is rich with relevant learning resources in the form of text, video and multimedia.
6. The responses to the questions on utilization are random; and cannot be used for any meaningful conclusion. Since students are not aware of OER, question of utilization does not arise. Nonetheless, students are keen to use OER as this will help them access material anytime, anywhere and they don't have to depend upon teachers or counselors.
7. Since students are not aware of OER and they have not utilized OER, responses to impact of use of OER on learning outcome is still a utopia. Conclusion is, unless students actually use OER, its impact cannot be measured. However, students indicated keenness to use OER as they argued that OER will help them access material anytime, anywhere; and also reduce their dependence on timely distribution of printed study material.
8. During discussion with the VC, OSOU on the future role of OER, VC said that the university will consider introducing differential fee structure for students who need printed material, and those who don't and will read from the OER Repository. This differential fee structure implying fee concession to OER users would serve as an incentive to make better use of OER and contribute to one of the major goals of UNESCO/COL initiative on OER, namely reduction of cost of education.
9. Almost all teachers and counselors were aware about the OER's licensing system in one way or the other. Most of them have accessed OER. 17 out of 18 OSOU teachers are willing to develop courses under OER. This reflects the positive attitude of teachers/counselors towards OER.

► Conclusions and Recommendations

1. Since the OER has not been utilized, its impact on learning outcome cannot be assessed now. Students have given the responses to the structured questionnaire by choosing one or the other responses provided with the question.
2. During discussion with the Vice Chancellors, nodal officers of the OER, coordinators of study centers, and counselors, it was evident that serious effort for diffusion of innovation (OER) among the potential user (adopters) is still to be initiated.
3. In both the universities, OER is very well-developed with lot of care and consideration. For ensuring adequate and effective utilization of this rich resource, universities have to make special efforts to design awareness and advocacy programmes.



4. Though there are few statements of strategies, OER Policies in both the universities need to be backed -up with well -designed strategic plan of implementation.
5. It was observed that a large number of students enrolled, in NSOU in particular, take private tuition. Whereas OER materials are provided to improve learning, private tutors concentrate on scoring in examinations with or without learning. Private tuition poses a serious threat/challenge to the intentions and investments in OER.
6. Development component of the OER Project is strong. It still misses out on the research component. To get the best outcome of the project, CEMCA should consider launching and/or commissioning a few research studies such as experimentally assessing impact of OER on learning outcome, data analytic study of utilization of OER, etc.

► Introduction

Education in India has experienced some major policy shifts in recent years. These policy shifts have been inspired by the government's commitment for equity in quality education for all. Instead of the traditional concept of quality after equity, the new agenda is quality education for all (equity). This is true not only for elementary education but for higher education as well - expansion with quality. In the case of higher education, there are twin challenges. These are (a) creating leaders in all walks of the economic, social and political life of the nation and (b) strengthening India and translating her ambition for global leadership. Higher education is critically important for developing in-country and global leadership.

Higher Education in India has experienced a phenomenal expansion and diversification. The system now comprises of 799 universities, 39,071 colleges and hosting more than 34.6 million students making it the third largest system in the world. Government of India, Ministry of Human Resource Development has rolled out its agenda of enhancing GER in higher education to 15% by 2015 and 30% by 2020. Although these targets look modest compared to the GER achieved and targets set for the corresponding years in OECD countries and China, the shift is massive compared to the Indian GER a couple of years ago.

Whereas higher education in India has experienced phenomenal expansion, the quality of education poses a serious challenge, if not threat. That more than 80% engineering graduates are not employable speaks volumes on quality. Teachers and learning materials are rightly considered as the two critical inputs for quality education - both at school and higher education levels. India has been investing massive amounts of financial resources on quality improvement of teachers through various schemes, the latest being PMMMNMTT. Quality material is equally important. Beginning with some innovative efforts by a few universities making their material available to all, UNESCO and COL took this unique initiative to a larger scale - creating open access to high quality materials in textual, video and multimedia formats. These open access materials were designated as Open Education Resource (OER) with Creative Commons License.

► History of Open Educational Resource

The OER movement started in 1997 when California State University created MERLOT which provided free online access to materials in higher education. Another major initiative in OER was in 1999 when MIT, shared its content of all courses to the



world which is popular as MIT OCW. Mellon and Hewlett Foundations financially supported the MIT Open courseware to make the courses freely available online. Since 1997, OER has become one of the 21st century innovations in education (school as well as higher). The OER movement was recognized in a big way in 2002 when UNESCO held a forum of developing nations in Paris and the name Open Educational Resource was adopted. Members expressed their desire to together develop a universal educational resource available for the whole of human kind.

Much has been written about the history, development and trends of OER (OECD 2007, Wiley et al. 2014, Bliss and Smith 2017, Wikipedia 2018); and several organizations (UNESCO, William and Flora Hewlett Foundation, Cape Town Open Education Declaration, COL, OECD, OER Commons, Wikipedia) have defined OER. Much has been written about the various concepts (Open Access, Open Course, Open Source, Open Practices, Open Data, and Open Content) of OER.

A standard definition of OER from Hewlett website is: "OER are teaching, learning and research resources that reside in the public domain or have been released under the intellectual property license that permits their free use or repurposing by others".

Countries like USA (MIT Courseware), China (China Open Resource for Education), Japan (Japanese OCW Consortium), France (Paris Tech OCW), UK (Open Learn) and many others have released literally, thousands of courses and other resources which are being used by many educators to support teaching and learning in a range of subjects and levels.

There are numerous documents on the UNESCO Institute Website (<http://iite.unesco.org/publications/themes/oer/>), which shows that several countries (Germany, Kenya, France, Poland, Russia, People's Republic of China, Brazil, and Lithuania etc.) have come out with country reports on OER in the last few years. UNESCO and COL conducted a Survey in 2012 on Governments' Open Educational Resources (OER) Policies. The survey concludes that "different regions face different obstacles to OER adoption, whilst few explicit OER policies exist and there appears to be some confusion regarding an understanding of the concept and potential of OER". The report recommends "a more in-depth analysis on OER policies and practices; to conduct studies on the OER landscape in various regions, particularly noting its effectiveness, cost-effectiveness and impact to motivate and encourage countries to adopt policies and practices; further advocacy and information-sharing to motivate countries and institutions to harness OER is needed raising awareness and clear understanding of the concept of OER".

The first World OER Congress was organized in 2012 by UNESCO in Paris with the support of the Commonwealth of Learning (COL) and William and Flora Hewlett Foundation. The Congress established the Paris OER Declaration which called on governments to openly license educational materials produced with public funds. The second World Open Educational Resources Congress was held in 2017 in Ljubljana,

Slovenia in 2017. The Congress recommended an action plan which highlighted five strategic areas. These were:

1. Building the capacity of the users to find, reuse, create and share OER;
2. Language and cultural issues;
3. Ensuring inclusive and equitable access to quality OER;
4. Developing sustainability models; and
5. Developing supportive policy environments.

Open Educational Resources: A Global Report 2017 brought out by COL highlights the status of OER in various regions -- Africa, Middle East and North Africa, Asia, Pacific and Europe. The COL report is based on two surveys to understand the status of OER. One survey is for the Governments and other for stakeholders. The findings of the government survey shows that there is increased support for OER policies by nations though OER activities appear to be implemented through institutional initiatives and engaged individuals. The most popular reason for country engagement with OER is to promote open and flexible learning opportunities and to increase the efficiency and quality of learning resources. The few challenges faced by the countries are: Lack of users' capacity to access, reuse and share OER, lack of appropriate policy solutions and translation costs. The stakeholder's survey reveals that the majority are aware of OER. They believe that OER will lower cost of learning materials and thereby help developing countries in accessing quality materials. Survey shows that OER activity is at the tertiary education level. Stakeholders feel that the highly rated skills for use in OER are ICT skills, followed by the ability to find OER. Lack of a reward system for staff members devoting time and energy to OER initiatives, and lack of support from management is the biggest challenge faced by the stakeholders.

► What is OER?

As mentioned in the previous section, OER has been defined by several agencies/individuals. These definitions sum up OER as educational materials made freely and legally available on the Internet for anyone to Retain, Reuse, Revise, Remix, Redistribute and Retain (<http://opencontent.org/definition/>). These 5R activities are defined as:

- Retain - the right to make, own, and control copies of the content (e.g., download, duplicate, store, and manage)
- Reuse - the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video)
- Revise - the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language)

- Remix - the right to combine the original or revised content with other material to create something new (e.g., incorporate the content into a mash up)
- Redistribute - the right to share copies of the original content, revised and remixed contents with others (e.g., give a copy of the content to a friend)

► Licensing: Creative Commons

All the Open Educational Resources are licensed under Creative Commons (CC) and not copyright free. Creative Commons (CC) is an international, non-profit organization which provides free licenses for creators to use so that they can make their work available to the public. Need for this license is important as earlier whatever the work any individual created such as writing a book, or an article, developing a video or designing a picture, etc., was automatically protected as copyright. This copyright protects and prevents others from using the work as they desire. For this, creators used the statement “all rights reserved”. But Creative Commons licenses give users the right to use the materials and choose the conditions of use and modify the work by using various licenses. These licenses are (Box 1):

Box 1.1: The Licenses

The Licenses



Attribution

CC BY

This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials.



Attribution-Share Alike

CC BY-SA

This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms. This license is often compared to “copy left” free and open source software licenses. All new works based on yours will carry the same license, so any derivatives will also allow commercial use. This is the license used by Wikipedia, and is recommended for materials that would benefit from incorporating content from Wikipedia and similarly licensed projects.

Contd.



Attribution-No Derivs
CC BY-ND

This license allows for redistribution, commercial and non-commercial, as long as it is passed along unchanged and in whole, with credit to you.



Attribution-Noncommercial
CC BY-NC

This license lets others remix, tweak, and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.



Attribution-Noncommercial-Share Alike
CC BY-NC-SA

This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under the identical terms.



Attribution-Noncommercial-No Derivs
CC BY-NC-ND

This license is the most restrictive of our six main licenses, only allowing others to download your works and share them with others as long as they credit you, but they can't change them in any way or use them commercially.

Source: <https://creativecommons.org/licenses/>

Among the above six conditions, the first two licenses are recommended by UNESCO for OER as they are fully open licenses. Since the inception of CC, over a billion CC licensed works have become available on the Internet.

There is a multitude of OER which includes full courses, course materials, modules, textbooks, streaming videos, texts, software, and other tools contained in digital form from around the world. These can be found by searching on the GOOGLE/other search engines or through dedicated websites. These are:

- OER Repositories (e.g. Gyanagar, MERLOT, OER Commons, Open Course Library, NROER, etc.)



- Open Courses (Coursera, edX, LearningSpace from Open University, Open Courseware, and Saylor.org etc.)
- Multimedia (TED, HippoCampus, Khan Academy, etc.)
- Images (Creative Commons Search, Flickr etc.)

► Why OER?

So how will OER impact our education and learning? There are four major advantages. OERs will:

- Provide access to learning resources
- Provide quality learning material
- Reduce the cost, and
- Support collaboration.

Access to Learning Resources: Learners as well as educators will have access to resources as OER resources are freely available on the web. Resources can be downloaded by learners and educators as they are better skilled in technology. These resources can be integrated into their learning environment as they are available from different parts of the world.

Quality Learning Material: All OER material is quality assured and released under Creative Commons License. These will supplement the existing learning materials.

Cost Reduction: Accessing OER material will reduce the cost as learners need not purchase textbooks/reference books. Also, it will reduce tuition fees which the learners are spending on due to lack of quality teachers, infrastructure and poor quality books.

Support Collaboration: Collaboration is one of the important 21st century skills which each one needs to possess. OER will impact collaboration skills while developing curriculum across geographical areas, developing quality content, and developing collaboration among the educators to enhance teaching approaches, creating new knowledge, etc.

► OER Research Studies

There are several agencies (World Bank, UNESCO, COL, etc.) and foundations like William and Flora Hewlett Foundation, Andrew Mellon Foundation, which are funding investigation and research in order to promote the OER movement.

Open Education Hub (OER Hub) is a leader in conducting research on OER which is situated at the Open University, UK. OLnet is a joint project of OU-UK and Carnegie Mellon University doing research on the use of OER. IDRC, The University of Michigan, The UNESCO Chair in OER at the Open Universities of the Netherlands is

coordinating the Global OER Graduate Network (GOGN). Through this worldwide network, a wide variety of OER related studies are being reported.

Allen and Seaman (2014) conducted a study and published a report "Opening the Curriculum: Open Educational Resources in U.S. Higher Education, 2014". This report summarizes that "Most faculties remain unaware of OER, and OER is not a driving force for faculty decisions about which educational materials to adopt. The picture does include some promising signals, as results show that faculty finds the concept attractive: those who are aware of OER rate it roughly on par with traditional resources, and those who have not yet used it are very willing to give it a try".

The OER Research Hub came out with an OER Data Report 2013-2015 in 2015. Data were collected from approximately 7,500 users of OER around the globe. The report addressed issues such as performance, finance, educator reflection, improved access and the impact of openness. Four sectors were examined: K12, Community College, Higher Education and Informal Learning. In addition, the attitudes of both learners and educators were surveyed.

In the Hewlett Foundation's 2013 report: Ruminations on Research on Open Educational Resources, Smith classified research studies into nine research buckets. These are: Policy Research, Access and Use, Effectiveness, Innovation, Beyond Formal Education, Sustainability, Development and Improvement, Implementation and Infrastructure.

Shear, Means and Lundh (2015) conducted a study, "Research on Open: OER Research Hub Review Futures for Research on OER". Authors analyzed 78 OER-related articles that were published between 2012 and 2014 in the International Review of Research in Open and Distributed Learning (IRRODL). The articles are categorised into: Impact study, Empirical study, Implementation study, Policy study and other articles with no empirical outcomes. Review reveals that the maximum number of studies (33) were in the last category i.e., no empirical outcome. Authors expressed that the challenge to OER research is the lack of consensus, both among researchers and practitioners; research that is specific to the characteristics of OER is uneven with respect to what characteristics are selected for focus etc.

Falconer et. al. (2013) conducted a study for European Commission and published a report titled "Overview and analysis of practices with open educational resources in adult education in Europe". The Project aimed to provide an overview of Open Educational Practices in adult learning in Europe during 2012-13. The analysis reveals six factors that drive developing OER in adult learning; open versus free; traditional versus new approaches; altruism versus marketisation; community versus openness; mass participation versus quality; add-on versus embedded funding.

Besides the above few organizations, there are several other educators who are researching on the usability, accessibility, awareness and learning outcome of OER.



Quite a few studies are conducted on the first three variables but there are a few studies on learning outcome.

Few research studies by scholars are described below. Studies reported here are not comprehensive, but will provide a brief summary of the findings on the awareness, perceptions and impact of OER. A majority of these studies are surveys from the students and faculty members from various institutions.

Hilton et al. (2013), Bliss et al (2013b) and Delimont et al. (2016) surveyed students and faculty members who utilized OER. A majority of students recommended the OER to their classmates, and faculty members were also enthusiastic about the open materials and OER materials which they felt had the same quality as traditional text books.

Allen and Seaman (2014) found that only 34% of the faculty members expressed their awareness of OER. Chen and Panda (2013) studied the four variables of OER: awareness, needs, utilization, and constraints. The findings show that "the teachers were generally aware of OERs, they misunderstood all web resources as OER; the Chinese elaborate courses dominated the perception and use of OER; and those who used OER mainly required it for teaching content, relevant research, and for adopting teaching methods. Searching for OER, choosing appropriate OER and copyright issues were the common constraints to effective use of OER". Kursun, (2014) investigated faculty's perceptions from 56 universities in Turkey on incentives, barriers, and benefits to publishing their course materials for free within the open educational resources (OER) movement. Results showed that even though the majority of the participants' perceptions of OER benefits and their attitudes towards publishing their course materials were positive, legal issues were perceived as an obstacle to effective application.

Mishra (2017) in a study on "Promoting Use and Contribution of Open Educational Resources" found that teachers have a positive attitude towards OER; they were highly motivated to share OER and quality was a major concern. However results do not indicate overall correlations amongst teacher's attitudes, motivations and perceptions of OER quality.

There are quite a large number of studies on the Open Textbooks. Petrides et al. (2011), Feldstein et al (2012), Bliss et.al (2013a), Lindshield and Adhikari (2013), The California OER Council (2016), Cooney (2017), Jhangiani and Jhangiani (2017), and Watson, Domizi and Clouser (2017) surveyed the students who utilized OER. All the studies indicate that students prefer, and are positive towards the OER digital content. Reasons given by the students are that open text books are easy to use, not buying text books is a good idea, reading on the laptop computer is the preference, and quality of open text books is as good as traditional text books.

Allen and Seaman (2014), Pitt (2015), Jhangiani, Pitt, Hendricks, Key and Lalonde (2016) and Jung, Bauer and Heaps (2017) surveyed instructors and professors regarding the Open Textbooks. All these researchers found that the faculty expressed awareness of

Open Textbooks; Open Textbooks helped in meeting diverse learner's needs, and OER quality as comparable or superior to that of traditional materials and commercial text books. In one study, Morris-Babb and Henderson (2012), found that "only 7 % of the faculty members and administrators were 'very familiar' with open access text books.

► Learning Outcome

Lovett et al. (2008) measured the result of implementing an online OER component and found no statistically significant differences. Hilton et al. (2013) found that there were minor fluctuations in the final exam scores and completion rates. Allen et al. (2015) tested the efficacy of an OER and found no significant differences between the overall results of the two groups.

Bowen et al. (2012) compared the use of a traditional text book in a face-to-face class with that of OER and found that students who utilized OER performed slightly better in terms of passing the course. Hilton and Laman (2012), Feldstein et al. (2012) and Pawlyshyn et al. (2013) elected an open textbook as one of the text books as compared to commercial text books. Their overall results showed that students in the treatment group had a higher class GPA, a lower withdrawal rate, and higher scores in the department final exam, student learning appeared to increase. Islim and Cagiltay (2016) investigated the instructional effectiveness of Open Educational Resource (OER). Results indicated that students who used the OER experienced benefits to their learning processes. In line with their aim, the resources facilitated preparedness for the course. More than half of the respondents deemed supplementary resources unnecessary. On the other hand, self-motivated learners found, reviewed, and benefited from the resources. Four advantages of the OER were determined: preparation for topics in advance, facilitating learning, time saving, and improving grades.

► Status of OER in India

Though the OER movement started in 2002, its landscape in education in India is sketchy. The National Policy on Education 1986, the five year plans specially the XII plan, emphasized on innovation in the higher education sector. The National Knowledge Commission (NKC) recommended "Open and Distance Education and Open Educational Resources" in its report in 2009. The Project Advisory Board (PAB) of NMEICT adopted open licensing policy guidelines in the beginning of 2014. The guidelines' directive is to release all mission funded learning resources software and technology under the Creative Commons Attribution- Share Alike (CC BY SA) license to "foster an environment of openness, collaboration, and a culture of sharing, reuse and adaptation amongst institutions and teachers to enhance the quality of education in the country". (<http://www.sakshat.ac.in/Document/OER Policy.pdf>)

In 2017, a draft National Policy on OER for Higher Education was developed and presented to MHRD. The draft document describes that the 'policy is released to guide



and advise Indian Higher Education institutions regarding the integration of OER in their educational delivery". The document further adds that "the policy will apply to all universities established or incorporated by or under a Central Act, a Provincial Act, or a State/Union Territory Act, and all institutions recognized by or affiliated with such universities, and all institutions deemed to be universities under Section 3 of the UGC Act, 1956, that are supported partially or fully with the public funds". The document highlights the issues of Intellectual Property Rights, Curriculum Design and Material Development, Teaching and Learning, Capacity Building, Infrastructure and Connectivity and Quality Assurance. However, the OER Policy document awaits approval of the competent authority in the government.

The Indian Government has taken several initiatives (National Repository for Open Educational Resources (NROER) an initiative of NCERT, National Institute of Open Schooling (NIOS), Karnataka-Open Educational Resources (KOER), SHAKSHAT- (an academic portal), National Mission on Education through Information and Communication Technology (NMECIT), National Programme on Technology Enhanced Learning (NPTEL), OSCAR (Open Source Courseware Animations Repository), E-grid (E-Grid an educational portal, a project supported by MHRD at IIT, Kerala), National Science Digital Library (NSDL) etc.) for the use of OER.

The National Repository for Open Educational Resources (NROER) has hosted high quality digital resources for different subjects, across classes, in different languages. Educational resources for teaching and learning Science and Math, for Grades 1 to 10 has been provided by the Homi Bhabha Centre for Science Education (HBCSE), Tata Institute of Fundamental Research (TIFR), Maharashtra Knowledge Corporation Limited (MKCL) and Indian Consortium for Educational Transformation (I-CONSENT). National Institute of Open Schooling (NIOS), has created a wiki-based platform for Open Education Resources. Karnataka's Department of State Educational Research and Training (DSERT) has launched a project, Karnataka-Open Educational Resources (KOER), to create contextual teaching resources, for all grades and subjects for Karnataka school teachers, in English and Kannada.

Padhi (2018) stated in her study that "there is hardly any study conducted by any researcher to investigate acceptance and usability of OER in Indian higher education by the stakeholders (teachers, researchers, trainers, students, employers)", though there are a few studies available. Kumar (2009), Das (2011); Bansal, Chabra and Joshi (2013); Sharma (2013); Sharma, Mishra and Thakur (2014), and Venkaiah (undated) have provided insights into the status, trend and challenges of OER in India.

Panda and Santosh (2017) conducted an analysis of the perception of the faculty of Indira Gandhi National Open University of India (IGNOU) about openness and their attitude towards sharing of resources in academic institutions. The results indicate that "the faculty members valued sharing of resources in academic institutions; learning resources should be made available free of cost; there is a strong need for training on

intellectual property rights, copyright, and creation and use of OER; and there should be an institutional policy on OER for its effective use."

► OER in Indian Distance Education

In India at present there are 15 Open Universities of which one is national and the rest are State Open Universities. There are around 118 dual mode institutions which offer higher education through distance mode.

In the last few years Open Universities have taken the initiative of promoting OER. NSOU and OSOU have adopted OER policies; policy documents are available on their respective websites. NSOU and OSOU developed and implemented OER policy to enable all stakeholders to use OER under appropriate open licenses. The purpose to have the policy is clearly stated by the universities and is to: make materials available under creative commons licenses, participation of faculty in developing OER content, review OER materials prior to sharing to the world and allow access to the open content. Both the universities have their OER separate repositories - eGyanagar (OSOU) and NSOU-OER (NSOU). Uttarakhand Open University released some of their course materials on their e-learning portal. The repositories provide access to the learning resources (text, audio and video).

KKHSOU has released some of the course material on their portal, e-bidya under the license CC BYNC SA.

► Conclusion

As would be evident from the presentation above, the OER movement has come a long way during the last more than 15 years. There has been a tremendous expansion of OER repositories and contents of different types. Research has also grown along with the growth of OER movement. However, research is still inconclusive in terms of the reactions and reflections of students and teachers as well as its impact on the quality of learning outcome. There is an almost equal number of research studies that show positive impact and no impact of OER on learning outcome.

The Indian scenario on OER is still to mature. There are many instances of open resources without fulfilling some of the important criteria especially of quality. OER in open universities like OSOU or NSOU are of relatively recent origin. However, the potential of OER as an instrument of both increasing access and quality cannot be overemphasized.



CHAPTER 02

Methodology

► Introduction

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 the Commonwealth of Learning (COL -- an inter-governmental organization) is one such organization serving the cause of higher education especially the open and distance learning by designing interventions at different levels for the 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 organizations that have implemented and improved ODL systems and practices significantly, and enhanced learning opportunities, particularly for marginalized communities.

In order to fulfill the objectives of promotion and use of OER in the Commonwealth Asian region, CEMCA has introduced interventions at different levels which can be classified in the following categories:

- Development of a standard OER Policy for adoption by higher educational institutions;
- Hand holding of institutions to adopt a standard OER policy with customization, if required;
- Conducting consultative meetings for promotion and implementation of OER;
- Organization of workshops for capacity building of different institutional functionaries including faculty and staff in licensing policy in OER;
- Development of institutional OER repositories to provide access to learning resources.

Having implemented OER in these universities, CEMCA considered it important to conduct a comprehensive study of OER to understand its impact on accessibility and availability, and attitude towards OER leading to its utilization.

► Mid-term Evaluation: Study of OER

ETMA was commissioned, initially to undertake midterm evaluation of the higher education activities of CEMCA for SYP 2015-21. Later, scope and focus was limited to study of OER, one of the major interventions of CEMCA in three universities in Asia, namely NSOU, OSOU and BOU. ETMA was commissioned to undertake the study only on NSOU and OSOU.

The universities have developed OER policies based on the broad guidelines developed by COL and provided by CEMCA. Policies comprise vision, mission and the primary activities of the OER. However, the policies are not backed by an action plan. Similarly vision and mission have not been followed up with specifications of activities, outputs, and outcomes - outputs defined in terms of targets. COL, the mother organization of CEMCA follows the logic model. In such a case, the evaluation is conducted against a set of targets, outputs and extended to intangible outcomes. On specific targets and outputs, assessment is done in terms of missing targets, fulfilling targets, and overshooting the targets. In the case of OER in the two Indian universities, no targets, outputs and outcomes have been mentioned. As a result, any objective evaluation becomes difficult. What is feasible is a descriptive research indicating the status related to OER in the two universities. Following the principles of naturalistic enquiry, that would imply CEMCA to interpret and draw inferences from the description of the OER as practised in the two universities. Accordingly a set of research questions have been framed.

► Research Questions

Research questions of this study are:

1. Does OER occupy a place of priority in the Open University cognitive map and concerns?
2. What is the perception of students about OER?
3. What is the attitude of students towards OER?
4. How are the accessibility and availability of OER for students' learning?
5. What is the degree of utilization of OER by students and members of the faculty?
6. How are the understanding and disposition of teachers, counselors and study centre coordinators about OER?
7. How can utilization of OER be improved for enhancing quality of learning by ODL students?

► Research Objectives

The aim of this research is to make a comprehensive study of OER in NSOU and OSOU. More specifically, the objectives of the study are to:



1. Study the location of OER in the cognitive map of the University; in other words, relative importance of OER in the instructional systems design of the selected universities;
2. Study attitude of students, teachers, counselors, and study centre coordinators towards OER;
3. Study the perceptions, and reactions of students and teachers about OER;
4. Study accessibility, availability and utilization of OER by learners and teachers;
5. Study the perceived impact of OER on student learning; and
6. Recommend ways to improve utilization of OER and its impact on improving learning outcome.

► Methodology

The primary methodology of the study is case studies of OER in the two selected universities. As a pre-requisite, in-depth case studies were conducted on Netaji Subhash Open University's (NSOU) OER and Orissa State Open University's (OSOU) OER. Case studies, by nature are qualitative studies, though quantitative data are extensively used to respond to the questions associated with the innovative OER. In both the case studies, both quantitative data and qualitative information and observations have been used extensively. Just as quantitative data provides a semblance of objectivity for data based decision making, qualitative research provides the depth, especially when socially desirable responses become a serious challenge for the responses to research questions. In the instant case, awareness, attitude, utilization of the innovative material in OER are socially desirable responses.

At the first instance, two separate case studies were conducted - one each on NSOU and OSOU based on a common research framework developed and approved by CEMCA. Later, the two case studies are compared on a multiple case analysis framework to derive lessons across the two institutions. Nonetheless, the number of cases is far too small to derive much common learning parameters for OER management and optimization. Hence, instead of mechanically applying multiple case analysis, the technique would be applied selectively, especially since the objective of this interim evaluation is not labeling - either success or failure. The objective is to assess how far the innovative experiment with OER has arrived; what improvements can be done for better implementation; and in the process, mutually learning from each other.

► Variables

During the discussion with the Vice-President of COL and other senior members of CEMCA, focus was on the attitude of students towards OER. One important assumption was that a positive attitude should be a determinant of adequate utilization of OER. But the intention was rather clear - to make a comprehensive study of OER to

figure out what's going right and what needs improvement. Focus is on improvement of OER - constitution, delivery of services, utilization and impact on learning outcome. It is obvious, this is a multivariate situation; hence it needs careful study of several variables.

Systems behave differently while adopting bottom up evolving internal innovation compared to externally conceptualized and designed innovation laterally diffused into the adopting systems. Internalization is natural in the first case; in the second case, institutionalization (systemic decision to adopt) may happen with or without internalization (psychological acceptance by the end user). OER is an externally infused innovation conceptualized, designed and structured externally at a much higher level of policy by UNESCO and COL. Accordingly, we had to design the research and decide on the variables.

Based on the objectives of the study, the selected variables were:

1. Students' personal access to technology with Internet facility;
2. Importance of OER in the concerned universities;
3. Perception - Awareness, knowledge and understanding of OER by students and teachers;
4. Attitude of students and teachers towards OER
5. Accessibility of OER to the learners;
6. Availability of OER to the learners;
7. Utilization of OER by the learners; and
8. Perceived effects of OER on learning

► Sample and Sampling Techniques

Since the primary purpose of the study was to assess students' awareness, attitude, access, utilization and perceived effect on learning outcome, the primary focus of the sample had to be on students. But known conventional sampling techniques do not work on students of open learning systems. Students attend personal contact programmes only once in a week; and that's on a Sunday. Attendance to personal contact programmes is not compulsory. Majority of the students do not attend personal contact programmes. Hence, the sample had to be incidental -- those students who are available on that particular Sunday at the study centre. Both the universities went out of their way to get enough number of students to respond to the evaluation instruments. OSOU invited students for an interaction with the Vice Chancellor in Bhubaneswar and Cuttack. In NSOU, the OER coordinator made special efforts to organize students at the study centers. Nonetheless, although something was incidental, because of its large size, the total of 432 students, for the study would be meaningful and dependable.

Study centers in rural and urban areas were chosen by the universities concerned. The main criteria for stratification were rural and urban locations of study centers, and gender



- female and male students. Coordinators of study centers from where students sample was drawn were part of the sample.

In NSOU, sample respondents were drawn from Women Christian College, Kolkata, Howrah Girls College, Howrah, Burdwan Raj College, Bardhaman, and Panskura Banamali College, Panskura. It was also decided to conduct the study on Bagnan College, Bagnan. Because of Parliamentary Bi-election, the college was taken over by security forces. Hence, the centre had to be excluded. In all, 277 students were involved in the study. Out of 277 students, 177 students were female; 106 were from rural areas; remaining from urban and semi-urban areas.

In OSOU, the sample comprised of 155 respondents; 139 responded on the spot in the forms supplied to them; remaining 16 respondents responded through a mailed Google form. Out of 155, only 40 respondents were from rural areas, and the rest from urban or semi-urban areas: 61 respondents were female and 94 were male. Samples were taken from study centers in Bhubaneswar and Cuttack.

Besides the students, study was also conducted on coordinators of study centers; teachers were also courseware authors and counselors. Again, because the study had to be conducted on Sunday the number of coordinators of study centers, teachers and counselors were not too many.

Interviews were also held with the Vice Chancellor and with the project coordinator at both the universities. Teachers were selected randomly from different disciplines/courses as sample from each of the two universities for the study.

The final sample size is presented in the table given below:

Table 2.1: Sample Size

University	Vice Chancellor	OER Coordinator	Faculty	Study Center Coordinator and Counselor	Students
NSOU	1	1	11		277
OSOU	1	1	7	1 and 9	155
Total	2	2			432

► Choice of Courses

Out of the two universities, NSOU was established in 1997 and OSOU came into existence in 2015. NSOU has six schools (sciences, humanities, social sciences, vocational studies, education and professional studies) offering Ph.D., Bachelors, post graduate degree, diploma, post graduate diploma and certificate programmes. Whereas OSOU offers only certificate, diploma and postgraduate diploma programmes. In total, OSOU offers more than 25 programmes in the area of Journalism and Mass

Communication, Rural Development, Communication Skills, Language, Office Management, etc.

According to the OER policy, NSOU integrated OER in the programmes conducted by the three schools, namely a) School of Education b) School of Professional Studies and c) School of Vocational Studies. Hence, in NSOU, students of these three schools were chosen for the study. Choice of courses for OSOU was done in consultation with CEMCA.

► Research Instruments

Selection of research tools is an important step in any research process. The study required both qualitative as well as quantitative data. For quantitative data from students and teachers, questionnaires were designed covering the variables chosen and mentioned above. To get into the depth of the status of OER in each university, interviews were conducted. To triangulate the data, the research team obtained information by focused group discussions from students, study center coordinators and counselors.

Thus for this study seven different research tools covering students, teachers, coordinators of study centers, and university authorities like VC, and OER project coordinator were developed. Tools are described below and given in the appendix.

- a. Information Blank: Information Blank sought information on name of the learner, age, gender, phone number and email ID, employment status -- employed or unemployed, residential area -- rural/semi-urban/urban, previous/entry qualification, level of study (UG or PG), courses chosen, medium of instruction, access to technology like mobile phone, laptops, iPads, and Internet connectivity.

A separate Information Blank was developed for the teachers to collect data on their name, age, gender, phone number and email ID, subject specialization, and access to technology like mobile phone, laptops, iPads, and Internet connectivity.

- b. Questionnaires were developed with structured response patterns separately for assessing awareness, accessibility and availability, utilization, and impact on learning outcome. Each one being sought and being pin pointed, the questionnaires of would together in one single form. Thus there were two such questionnaires - one each for students and teachers.
- c. For measuring students' attitude towards OER, a Likert's Summated Rating Scale was developed. It comprised 30 items comprising positively and negatively keyed response patterns in equal number. Similarly, a rating scale was developed for assessing teachers and counselor's attitude towards OER.
- d. Separate Interview Schedules were designed for VC, OER Coordinator and study centre coordinators to collect data on the relative importance of OER in a list of priorities of the University



- e. **Observation Proforma:** An observation proforma was developed to record observations on personal explorations of OERs by the research team on accessibility, availability and utilization records.

► Data Collection

Data collection was planned to be carried out using structured questionnaires for assessing students' awareness, accessibility and availability, utilization and impact on learning outcome, and a Likert's Summated Rating Scale for assessing attitude towards OER. Similar but separate instruments were developed for teachers, counselors and study centre coordinators.

It should be obvious that awareness is the foundation for the rest of the variables to be assessed in this study. It was observed in all the study centers that, exceptions apart, students were not aware of OER, not even about its existence⁴. This lack of awareness in students about OER was further corroborated by the vice chancellors of both the universities under study, during an interview with them.

Thus, irrespective of the response to questionnaires, the state of awareness was fairly clear. For assessing the remaining variables, an innovative approach was adopted. Members of the research team who are themselves senior scholars made brief presentations on OER⁵. At the end of the presentation at NSOU, students were asked to use their mobile phones with Internet connectivity to visit the OER Repository of the University and figure out what is available on the OER about their own course. They readily took the exercise. Their enthusiasm was visible. This exercise provided several important understandings:

- a. Majority of the students had a smart phone with Internet connectivity. Hence access to technology was not an issue;
- b. The enthusiasm with which they searched the web portal of the material available on their own courses provided enough indication that students are technology savvy and do not have the attitudinal barriers for exploring OER;
- c. That each and every one of them could access the resources in the OER, is the indication that accessibility is well built-in within the OER architecture of both the universities;
- d. Students were happy to realize that all the study materials pertaining to their course are available on the OER in digital format; additionally, there are large numbers of video lectures by professors on the relevant topics of their subject of study. This

⁴At the first meeting, when the Investigator mentioned that they were there to study OER of their (students') university, most of them looked blank, a few asked frankly, "What's that?" "What's OER?"

⁵ Members of the research team were well acquainted with the OER of both NSOU and OSOU. They studied carefully as a preparation to data collection.

exercise proved the availability⁶ of the material in both textual as well as video formats, in both the universities.

- e. Awareness was developed automatically with these few exercises, although students may not be able to explain the licensing clauses under which the materials have been labeled as OER.

Since the students were not aware, the issue of utilization remains unresolved. Similarly assessment of impact on learning outcome has to be postponed till the students utilize OER.

The details of tools and data collection procedures with respect to objectives of the study are given in the table 2.2.

Table 2.2: Tools and Methods of Data Collection

Objective	Tools for Data Collection	Methods of Data Collection	Data Sources / Comments
Study the location of OER in the cognitive map of University; in other words, relative importance of OER in the instructional systems design of the selected universities	Interview Schedules	Personally conducted Interview	VC, HODs, Faculty Members & Coordinators of Study Centers
Study attitude of students, teachers, counselors, and study centre coordinators towards OER.	Attitude Scales	Personally administered Attitude Scale	Sampled students, teachers, counselors and study centre coordinators
Study the awareness, and reactions of students and teachers about OER.	Questionnaire, Document analysis & Personal Explorations	Personally administered questionnaire; accessed OER Repository; Consultants' reports and Workshop reports	Students, teachers, counselors and Study Centre Coordinators; Research Team Accessing OER Repositories; and CEMCA Resources
Study accessibility, availability and Utilization of OER by learners and teachers	Questionnaire; Document Analysis.	Personally administered questionnaire; Documents and online data available with NSOU & OSU and at CEMCA website; Consultants' and Workshop reports	Students, teachers, Counselors and Study Centre Coordinators; Documents available with NSOU, OSOU and CEMCA.

Contd.

Study the perceived impact of OER on student learning.	Questionnaire	Personally administered Questionnaire; Focused Group Discussion	Students, teachers, counselors and Study Centre Coordinators
Recommend ways to improve utilization of OER and its impact on improving learning.	Study Report	Consultations with leaders of NSOU, OSOU and CEMCA	ETMA

Data were collected using multiple methods such as administering the questionnaire, attitude scale conducting individual interview, focus group discussion and analysis of documents and records. The process of data collection is briefly explained below:

- ETMA formed two research teams. One team for each university. Each team consisted of two senior researchers. As the study centers in NSOU were spread geographically, help was taken from members of the faculty and research scholars from University of Calcutta. In OSOU, there were only two study centers where students gathered, hence the members of ETMA team collected data.
- Data were collected personally through field visits to the Universities and study centers. With the cooperation of the Vice Chancellors and OER coordinators of each university, the dates were finalized and the learners were brought to the study centers where the questionnaires and attitude scale were personally administered by the members of the research team of ETMA. The research team had to coordinate with the university because in open universities, students are available during the weekends only. It is important to mention that the dates were informed to CEMCA also. The centers are listed in Table 2.3:

Table 2.3: List of Study Centers

University	Study Centers	Research Team
NSOU	Women's Christian College, Kolkata; Howrah Girls College: Howrah; Burdwan Raj College, Bardhaman, Panskura Banamali College, Panskura.	ETMA Team and Research Associates
OSOU	BJB Autonomous College, Bhubaneswar and JKBK College, Cuttack	ETMA Team and few members from OSOU

Members of the study teams also interacted with the learners, in focused group discussion mode, to get into the depths of understanding about learners' perception, attitudes, utilization, etc. of OER.

- Interviews were conducted personally by the members of the research team with prior appointments with the VCs, and OER coordinators in a formal setting. Interview questions were focused and clear.

- Members of the research team accessed learning material from the OER repositories of both the universities for personally experiencing and verifying the accessibility and availability of educational resources. Relevant documents from CEMCA's Website were also seen.

► Data Tabulation and Analysis

A total of 432 questionnaires and 432 attitude scales were filled by students from both the universities. There were also questionnaires for the teachers which were administered personally by the research team.

Data were entered on Excel sheets. A data file was created that had information of each respondent on the spreadsheet. For questionnaires and attitude scale, responses were tabulated by assigning a numerical value. To study the attitude of students and teachers, range, mean and SD were computed. Focused Group Discussions gave combined perspectives and opinions of teachers, counselors and study center coordinators. Analysis of both the universities will give a comparative picture of the status of OER in each university. Analysis will also identify the patterns and trends of OER in each university.

► Conclusion

Evaluative research has certain special characteristics and complexities. The prepared plan may or may not match the situation. It needs contingencies to be kept ready to adjust to the prevailing situation in order to derive answers to the research questions. In other words, rather than following a fixed procedure, such studies require adaptive and resilient research techniques. In addition to the structured questionnaires prepared for the research, the research team used expert exploration of the OER web portals, focused group discussion with students; exploratory research with students; interviews with the vice chancellors and OER coordinators, and use of structured questionnaires and focused group discussion with teachers, counselors, and coordinators of study centers.



CHAPTER
03

OER in NSOU and OSOU: Setting the Perspectives

The Commonwealth of Learning (COL) established the Commonwealth Educational Media Centre for Asia (CEMCA) in 1994 to facilitate an effective exchange of information on educational media resources between educational and media organizations in the Asian region. CEMCA's mandate is to help Governments, Organizations, Civil Societies, Private Sectors, Educational Institutions and Development Agencies deliver quality lifelong learning opportunities using suitable educational media for Commonwealth citizens of Asia, principally marginalized groups and youth, thereby leading to sustainable livelihood.

One of the strategic goals and priorities of CEMCA as per the Strategic Plan 2015-2021, is to develop and promote Open Educational Resource (OER) for sustainable development.

To achieve this, CEMCA will help institutions and organizations implement ODL and OER systems and practices or significantly improve them, enhancing quality learning opportunities particularly for marginalized communities.

The Programme Officer of CEMCA reported that during 2015-2018, CEMCA will partner and support universities in developing OER Policy and the OER Repository. The universities are:

- Bangladesh Open University, Dhaka
- Open University of Sri Lanka, Colombo
- Netaji Subhash Open University, Kolkata
- Odisha State Open University, Sambalpur
- Uttarakhand Open University, Haldwani

In response to another question, "How many institutions have developed OER/ODL Policies?" and "What was CEMCA's role in developing OER/ODL Policies?", the Programme Officer, CEMCA reported that the following universities have OER/ODL Policies:

- Bangladesh Open University, Dhaka, Bangladesh
- Open University of Sri Lanka, Colombo, Sri Lanka
- Netaji Subhash Open University, Kolkata
- Odisha State Open University, Sambalpur
- Uttarakhand Open University, Haldwani
- Tamil Nadu Open University, Chennai

- B. R. Ambedkar Open University, Hyderabad
- U. P. Rajarshi Tandon Open University, Allahabad
- Pt. Sundarlal Sharma (Open) University Chhattisgarh, Bilaspur
- Central University of Himachal Pradesh, Dharamshala
- University of Hyderabad, Hyderabad
- K. K. Handiqui State Open University, Guwahati

CEMCA-COL developed an Institutional OER Policy Template. CEMCA conducted workshops on OER to draft institutional OER policies on the basis of the template. Further, institutions endorsed the policy as per their institutional mandate.

There, apparently, is a discrepancy in the response that needs to be sorted out. CEMCA in January, 2018 commissioned ETMA, to study the current state of OER in NSOU and OSOU. Since it is a midterm evaluation, the purpose was not to label the initiative as a success or failure. Instead, the purpose was to assess the achievements and recommend strategies to achieve better and exceed the targets during the SYP 2015-21.

As reported by PO, CEMCA supported the development of 10 OER courses. These are:

- Introduction to Video Editing
- Introduction to Audio Editing
- PG Diploma in Cyber Security
- Certificate in Cyber Security
- Course on Tailoring and Dress Designing
- Nursing Assistance
- Geriatric Care Assistance
- Course on Sound Technician
- Pre-Primary Teachers' Education Montessori
- Inclusive Education

This chapter is devoted to provide the perspectives of OER in NSOU and OSOU including the role of CEMCA, as a backdrop for the comprehensive study of OER in these two universities.

Netaji Subhash Open University

► Background

Netaji Subhash Open University (NSOU) was established through the W.B. Act (XIX) of 1997 and recognized by UGC. It is one of the 14 state open universities in India. On the website, the University provides a brief history of its functioning and achievements during the last two decades. However, there are no statements on the vision and mission



of the university on its website.

There are six 'schools' through which the University runs all the courses:

- School of Science
- School of Humanities.
- School of Social Sciences.
- School of Professional Studies.
- School of Education and
- School of Vocational Studies

The University has established specific 'centers' by some of the 'schools' like the 'Centre for Language, Translation and Culture Studies'. Diverse activities through these 'centers' are undertaken that strengthens the profile and reach of the University.

The University offers a range of courses - from vocational and undergraduate to Ph.D. levels. Courses such as the two year advanced diploma in tailoring and dress designing, PG Diploma in Disaster Risk Management, B.Ed. Special Education, certificate course in Women Studies and Women Empowerment programme, etc. Vocational and professional education is given emphasis. These courses are of different durations.

The student enrollment of the university in 2015-16 was 53,942. The number of students enrolled in PG courses alone (2017) was 17,585. Students of NSOU are serviced through a network of 120 study centers.

Development of OER Policy and OER repository is one of the major initiatives taken by NSOU in collaboration with CEMCA. The initiative was started in 2016. ETMA was assigned the study when the OER initiative was just one-year old.

► OER in NSOU

Mission and Vision statements are important in understanding the intentions of an institution and its policies and projects. Drawing from the template prepared by CEMCA-COL, NSOU-OER made specific Vision and Mission Statements in their OER Policy. The statement is reproduced in Box. 3.1:

Box 3.1: Mission and Vision of NSOU-OER

- NSOU-OER Repository is a model of low-cost OER platform to support equitable and sustainable teaching-learning system by using a regional language for approx. 210 million Bengali learners worldwide;
- Ease of availability of educational resources from anywhere, at any time, by anyone;

Contd.

- Using technological innovations in the distance learning environment to bridge the gap between learners and teachers;
- To make the university a model for state universities of India for learning practice and skill development in order to enrich the quality of education as per the global standard;
- Sustainable improvement of resources in order to achieve excellence in the educational sector.

After the initial understanding between CEMCA and NSOU, the whole programme of OER policy and OER repository development was initiated. NSOU conducted capacity building workshop in June 2016 on Institutional OER Policy. During this workshop, with the support of CEMCA, the University adopted the OER policy for the courses under three schools of studies. Later in August, skill based open and distance learning courses using OER were developed and in September, NSOU conducted one sensitization programme for ODL professionals on adoption of OER.

The NSOU-OER repository was finalized in February and launched in May 2017. At the risk of repetition, NSOU's OER was less than one year old when ETMA was called upon to evaluate.

The OER policy document clearly defines the purpose of the policy

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

The purpose of the document is:

- Make materials available under the Creative Commons licenses;
- Support voluntary participation of faculty and others in developing OER content;
- Clarify publication rights and licensing issues;
- Provide guidance in the development and review of OER materials prior to sharing them on a worldwide scale, and
- Define collaborations within and without the university with the intent to allow access to the open content.

The policy document also defines the Quality Assurance and Review System which is:

- The NSOU OER Repository strives to provide resources of the highest quality. The reviewing process will be carried out at different levels.
- The curriculum based learning resources developed through peer review and a strict quality assurance mechanism inbuilt in the course development process will not require further reviewing for uploading on the repository. All other contributions will be peer reviewed within the department before uploading on the OER Repository.



- The OER Board will adopt a set of quality assurance guidelines and indicators to help teachers focus on the quality of OER.
- At the university level, an OER Board will be created to review policy as well as the production, delivery and access processes of OER.
- Such an OER Board will constitute the members: Vice-chancellor, Chairperson of the Board, Director/ Officer-in-Charge of the Schools of Studies, Two OER experts nominated by the Vice-Chancellor.
- The OER Board shall have a three-year term, and will report annually to the Academic Council through the Vice Chancellor.

As reported by CEMCA (PO), NSOU developed the following three courses using OER. Enrolment against each OER course is indicated in parenthesis.

- Tailoring and Dress Designing: Learners = 1080 (2018)
- Pre-Primary Teachers' Education Montessori: (Learners = 993 (2017)
- Inclusive Education: (First batch with 22 learners completed the course in February, 2018)

CEMCA further reported that 193 teachers including counselors of NSOU have been trained in OER.

Odisha State Open University

► Background

The Odisha State Open University (OSOU) was established through an Act of the State Legislature in 2015. OSOU has its jurisdiction over the whole of the State of Odisha. The mandate of the University is on education, research and training by diversity through distance and continuing education, including the use of new educational technology available to the common man at an affordable cost. OSOU has clearly stated its Vision and Mission statements on its website which are:

VISION
<ul style="list-style-type: none"> ✓ To strive for excellence in the field of Higher Education by using the latest methods & technologies; ✓ To provide best quality materials supplemented by training, workshops, hands-on practices, contact programmes, using audio-video resources available through OER & MOOCS; ✓ To give emphasis on skill-based vocational courses for promoting employment opportunities

Contd.

- ✓ To collaborate with the best Universities/Institutes/Centers of Excellence for the advancement of knowledge and skills;
- ✓ To make full use of educational technologies
- ✓ To adopt the best practices available in the field;
- ✓ To promote innovation in teaching, learning, training and research;
- ✓ To establish centers of excellence in different fields following the methods of Open & Distance Learning.

MISSION

- ✓ To provide quality education at affordable costs;
- ✓ To reach out to people living in rural/remote locations in the State;
- ✓ To create awareness among the people of the State about their rights & duties and to adopt scientific methods for socio-economic growth;
- ✓ To collaborate with all Government Departments/ State Resource Centers/NGOs in all our endeavors to reach the unreached.

The University offers Post Graduate Diploma, Diploma, and Certificate Programmes through its Regional Centers and Study Centers in almost all the districts of Odisha. The University lays emphasis on skill based and vocational courses to enhance employability of the students. As per its website, the University offers 9 certificate, 13 diploma and 4 postgraduate diploma programmes and has taken several initiatives in using technology. These are:

- Online admissions,
- Online filling of forms,
- Digitized grade cards,
- Provided online student support services,
- Internet radio, and
- Produced large number of videos.

Another major initiative the university took was to sign an agreement with CEMCA for developing content in OER. The University adopted and formulated OER policy in 2017.



▶ OSOU OER

OSOU developed the OER policy under the guidance of CEMCA. The draft OER policy document of OSOU was finalized in the workshop held in October 2016 by OSOU on "Institutional OER policy". By November, 2016 the university adopted the OER policy and started practising it. Before developing the policy, OSOU also organized training of ODL professionals of Odisha on OER.

Adoption of OER policy would create the enabling environment for all the stakeholders of Odisha State Open University to create and use OER in the production of educational resources and enable them to share these under appropriate open licenses. The vision and mission of this OSOU - OER policy is:

VISION

- a. To play a positive role in the development of the State through education, research, training and capacity building.
- b. To give emphasis on skill based vocational courses for promoting employment opportunities.
- c. To introduce courses that are need-based.
- d. To ensure access and equity in higher education, particularly for disadvantaged groups.

MISSION

- a. To make a positive contribution to increase the Gross Enrolment Ratio (GER) in higher education in the State.
- b. To create a state-wide network of Skill Development Centers and Study Centers to reach out to all parts of the state and all segments of society.
- c. To create University-Industry interface in skill-based education.
- d. To promote inclusiveness in higher education by targeting women, SC/ST, physically challenged and other disadvantaged social groups

The policy document clearly defines purpose of the policy as defined below:

- Make materials available under Creative Commons licenses
- Support voluntary participation of faculty and others in developing OER content
- Clarify publication rights and licensing issues

- Provide guidance in the development and review of OER materials prior to sharing them on a worldwide scale
- Define collaborations within and without the university with the intent to allowing access to the open content.

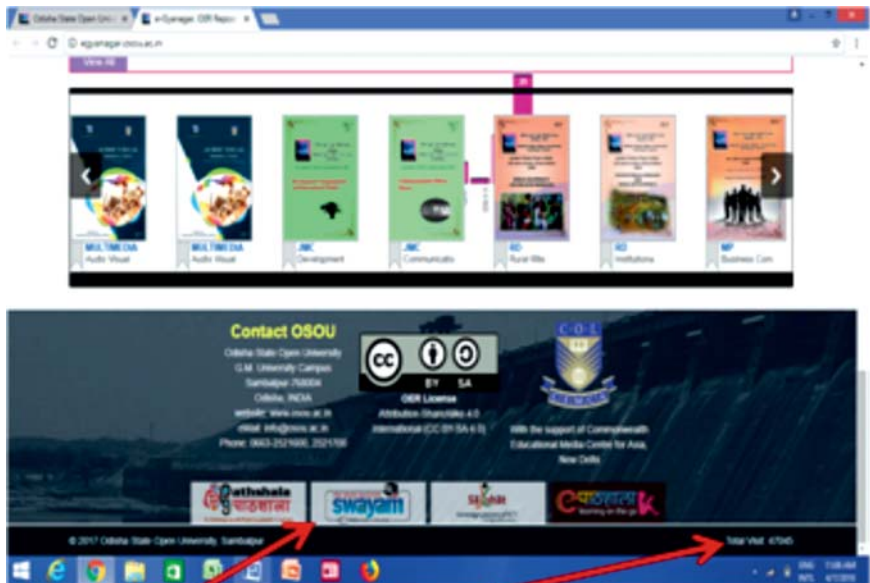
The OSOU OER policy is applicable to the following:

- All content developers within the university and those engaged by the university for writing materials on short-term basis as subject matter experts for payment of certain fees or for free;
- All types of learning materials released in any physical or electronic format.

In cases where the material is developed in collaboration/ partnership with other institutions, the guidelines governing that collaboration as indicated in the MOU/ MOC will prevail. However, any such agreement should duly consider the OER Policy before any deviation is agreed upon with justification approved by the competent authority of the University.

Odisha State Open University launched "e-Gyanagar", OER Repository of OSOU in its second Foundation Day on 10th January 2017. Again, it is important to point out that this evaluation is being conducted when OSOU OER Repository is only one-year old. The e-Gyanagar can be accessed at the URL <http://egyaganar.osou.ac.in/>

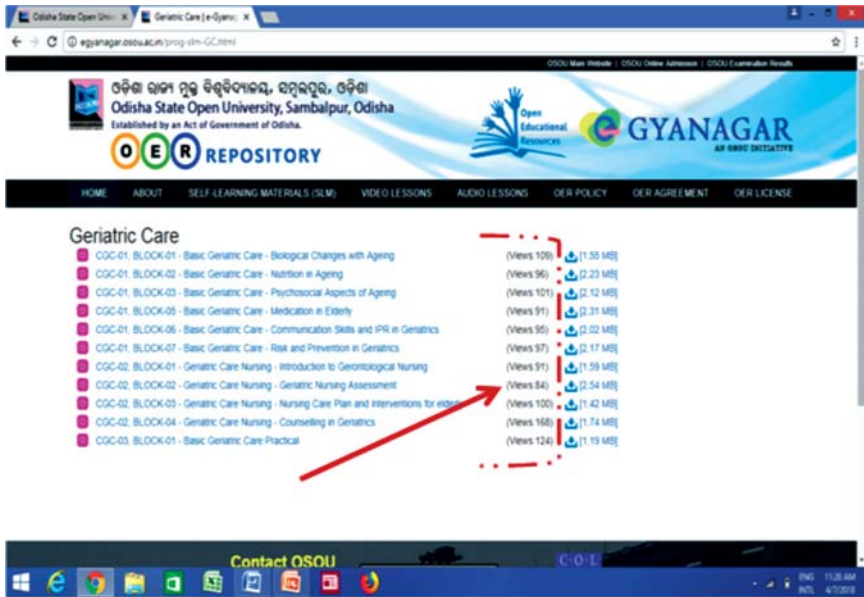
The OER repository has given links to four other repositories (Sakshat, SWAYAM and e-Pathshala)



Links

As on 6th April 18

Important information displayed in the repository is the number of users of SLM. These views are given Block wise. It reveals, how many students have viewed the Block from each course.



Geriatric Care

Block ID	Description	Views	File Size
CGC-01, BLOCK-01	Basic Geriatric Care - Biological Changes with Ageing	109	1.55 MB
CGC-01, BLOCK-02	Basic Geriatric Care - Nutrition in Ageing	96	2.23 MB
CGC-01, BLOCK-03	Basic Geriatric Care - Psychosocial Aspects of Ageing	101	2.12 MB
CGC-01, BLOCK-05	Basic Geriatric Care - Medication in Elderly	91	2.31 MB
CGC-01, BLOCK-06	Basic Geriatric Care - Communication Skills and PPI in Geriatrics	90	2.02 MB
CGC-01, BLOCK-07	Basic Geriatric Care - Risk and Prevention in Geriatrics	97	2.17 MB
CGC-02, BLOCK-01	Geriatric Care Nursing - Introduction to Gerontological Nursing	91	1.59 MB
CGC-02, BLOCK-02	Geriatric Care Nursing - Geriatric Nursing Assessment	84	2.54 MB
CGC-02, BLOCK-03	Geriatric Care Nursing - Nursing Care Plan and interventions for elderly	100	1.42 MB
CGC-02, BLOCK-04	Geriatric Care Nursing - Counselling in Geriatrics	168	1.74 MB
CGC-03, BLOCK-01	Basic Geriatric Care Practical	124	1.19 MB

The repository also gives the subject -wise status of SLM in a graphical form.



AN ONLINE COLLECTION OF OPEN EDUCATIONAL RESOURCES OF THE UNIVERSITY

SUBJECT WISE SLM STATUS

Subject	SLM Status (Views)
MP	44
BCA	15
CS	22
IB	33
JMC	29
BCO	18
COM	10
ACT	11
DFHT	14
DOLC	13
CEG	14
CT	11
GC	11
DM	4
SSITS	3

Programme-wise audio status is also given which shows that the maximum number of audio lessons are in the course DJMC. Both the Vice Chancellor and the OER Coordinator (Registrar) deserve credit. Credit for preparedness of the OER portal goes to the Registrar and the creators of the material. The repository is easy to access.

To conclude, eGyanagar, the repository of OSOU is well designed.

OSOU: Adopted two courses as OER from Uttarakhand Open University and Karnataka Open schooling.

- Certificate in Cyber Security (Learners = 32)
- Geriatric Care Assistance (Learners = 19)

Studying the background of the university and the process of implementing the OER policy a few relevant observations are listed:

1. OSOU established in 2015 is in its early stage whereas NSOU (in 1997) has reached its steady state.
2. The comparisons in the student enrolment, the number, level and type of courses, the number of counselors and study centers will not be valid.
3. The development and adoption of OER policy in both the universities started in the middle of 2016, a year later than the beginning of CEMCA's Strategic Plan 2015-2021. But OER Repositories were established in both the universities in 2017. By the time CEMCA commissioned this study to ETMA, OER Repositories were less than one year old.
4. Within one year, both universities had developed a complete robust architecture of the OER Repository; developed and/or adapted OER courses and populated the repositories with multiple types of learning resources. Though some OER courses have been offered to students, students are still not aware about OER and that the courses offered are OER courses.
5. Though both the universities used CEMCA's template to develop the policy, the OER documents are different in content (Table 3.1). This is shown in the following table:

Components	NSOU	OSOU
Preamble	✓	✓
Vision	Available under one Heading	✓
Mission		✓
Definitions	✓	✓
Purpose of Policy	✓	✓

Contd.



Applicability	✓	✓
Types of Licenses	✓	✓
Quality Assurance and Review System	✓	✓
Liability	✓	✓
Role of the Faculty/Teachers/Content Developers	✓	✓
Institutional arrangements	✓	✓
University Position	✓	✓
Review	No separate heading. Described under Quality Assurance	✓

- OSOU defined its vision and mission statement whereas NSOU combined both in one single statement. NSOU described the Quality Assurance and Review under one head whereas OSOU explained both the points under separate headings.
- OSOU released all its courses under OER whereas NSOU released courses developed under three schools. The remaining schools of studies have not released the learning material as OER.
- Participation of faculty and other stakeholders is encouraged by both the universities through workshops. Teachers are creating learning material for OER repository. As some of the teachers were already engaged in developing study materials in e-format in different courses, their interest in development of new OER is also there.
- One of the important observations is that the main stakeholders, the students, are not given appropriate importance in the development and use of OER.

► Conclusion

OER policies took shape by the end of 2016. OER Repositories were ready by the end of 2017. The development of repositories of quality assured material is just one-year-old. The evaluation of OER done by ETMA should be conscious of this limitation of time.

CHAPTER
04*Findings***► Introduction**

NSOU was established in 1998 and OSOU in 2015. In terms of the levels of development as organizations, OSOU is in the early stage of development, and NSOU is already in the steady state of development. NSOU has developed a large chain of study centers with a large enrolment in certificate, diploma, undergraduate, and postgraduate levels. OSOU has initiated programmes at the certificate, and diploma levels focusing on skill development for enhancing youth employability. OSOU has still to recruit regular staff.

There is also an interesting difference in the leadership that determines the future course of development of an institution. The Vice Chancellor of NSOU was formerly the Director of Public Instruction of Government of West Bengal; in that capacity, he was in charge of the entire higher education system of the state. His vision and ambitions are large and broad; he intends to make efforts to align the curriculum of the upcoming eight (or nine) State Universities with NSOU so that a very large number of students can benefit from its OER. The Vice Chancellor of OSOU is a reputed expert in ODL having worked in different leadership positions in IGNOU, a mega university in the world. His depth of understanding of the dynamics of ODL and new developments especially technology enabled learning systems like OER is of great significance for the University. Whereas the NSOU vision is guided by equity concerns, OSOU vision is inspired by quality concern and concern for livelihood and thereby targeting sustainable development.

The two universities can be compared only in terms of time and duration of induction of OER. Both universities had their first orientation in the middle of 2016 when at the instance of the leadership and professional support of CEMCA, they started working on OER policy. They also started setting up OER repository in the beginning of 2017. Both the universities spent nearly one year working on OER repository. In the case of NSOU, OER repository was developed for a selected few applied courses such as MSW, B.Ed. etc. without covering all the subjects it offers at the undergraduate and postgraduate levels, and certificate, and diploma levels. OSOU's OER repository is relatively comprehensive covering the few courses being offered by the University at certificate, and diploma levels.

This midterm evaluation of the OER component of CEMCA's Higher Education Programme does not necessarily have a comparison of the two universities as a goal. The major agenda is to assess the achievements so far in the OER Project and recommend a

future course of action so that the long-term agenda of OER is achieved. Since the variables and instruments for data collection are also common, it has been decided to present the data in a combined table for brevity. Though not intended, occasional comparisons may become unavoidable. However, it must be emphasized that OER projects in OSOU and NSOU have to be seen independently.

Although the initial emphasis was on assessment of students' attitude towards OER, a more comprehensive study of OER including students' attitude was conceptualized. Hence, this comprehensive study covers:

1. Background of Students
2. Students Access to Technology
3. Students' Attitude towards OER
4. Students' Awareness about OER
5. Accessibility to OER and Availability of Learning Resources in the OER
6. Utilization of OER Resources, and
7. Impact of Use of OER on Student Learning.

It was also decided to involve teachers, counselors, and coordinators of study centers in this study on OER as they have important roles to play.

► A. Background of Students

With regard to background of the respondent students, data were collected on an information bank on age (by cohorts), gender, employment status, course offered, and rural versus urban background. Data are presented in Table 4.1 below.

Table 4.1: Background data of the Respondents.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
Age			
1.	<20	0 (0)	20 (12.90)
2.	21-25	113 (40.79)	64 (41.29)
3.	26 - 30	75 (27.08)	26 (16.77)
4.	31- 35	28 (10.11)	17 (10.96)
5.	>35	37 (13.36)	28 (18.06)
6.	Not responded	24 (8.66)	0 (0)

Contd.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
Gender			
1.	Female	177 (63.89)	61 (39.36)
2.	Male	97 (35.02)	94 (60.64)
3.	Not responded	3 (1.08)	0 (0)
Employment Status			
1.	Employed	60 (21.66)	63 (40.64)
2.	Unemployed	195 (70.39)	92 (59.36)
3.	Others	22 (7.94)	0 (0)
Course Offered			
1.	U.G.	26 (9.39)	0 (0)
2.	P.G.	196 (70.76)	0 (0)
3.	Certificate	2 (0.72)	91 (58.71)
4.	Diploma	29 (10.47)	64 (41.29)
5.	Others	24 (8.66)	0 (0)
Rural-Urban Background			
1.	Rural	106 (38.27)	40 (25.82)
2.	Semi Urban	52 (18.77)	21 (13.54)
3.	Urban	79 (28.52)	94 (60.64)
4.	Not responded	40 (14.44)	0 (0)

There may not be any need to describe the table as it is self-explanatory. However, a few comparative dimensions are flagged below.

- a. In NSOU, 67.9% students were below the age of 30 compared to 87% in OSOU. OSOU has a sizeable 12.90% students below the age of 20. Percentage of learners in NSOU and OSOU above the age of 30 was 23% and 29% respectively. The highest recorded age was that of an 80-year-old student in OSOU.
- b. Women constituted 63.89% in NSOU compared to less than 37% male; gender composition in OSOU was 39.36: 60.64 (female: male in percentages). Unlike NSOU, percentage of female participants is low in OSOU.
- c. In NSOU, only 21.66 % of the students were employed, compared to 59.3% employed students in OSOU.



- d. NSOU offers Certificate, Diploma, UG, and PG Courses whereas OSOU offers only Certificate, and Diploma courses. As many as 70.76% students in NSOU are from post graduate courses. UG, Certificate, and Diploma courses accounted for 9.39, 0.72, and 10.47% respondents, respectively. In OSOU, 58.7% respondents were studying for a certificate programme, and the remaining 41.2% a diploma course.
- e. About 74% respondents from OSOU belong either to urban or semi-urban areas. Only 28.5% are from rural areas. Compared to that, 38.27% NSOU students are from rural areas; and 57% students are from urban/semi urban areas. Also, some of the NSOU respondents reported that when they took admission, the centers were closer to their homes, but after some centers were merged for contact classes, the students had to travel to different centers.

▶ B. Access to Technology

Access to technology is necessary for accessing learning resources from OER. Students were asked whether they have mobile phones/smart phones, computers like Desktop and/or laptops, Internet, Tablets, iPads, e-readers. Data are presented in Table 4.2 below

Table 4.2: Student Access to Technology and Internet.

Response	Frequency (Percentage)	
	NSOU	OSOU
Mobile Phone/Smartphone	228 (82.31)	90 (58.06)
Laptop/Desktop	122 (44.04)	74 (47.74)
Internet	125 (45.13)	77 (49.68)
Tablet/iPads	22 (7.94)	15 (9.68)
e-readers	26 (9.39)	35 (22.58)

**Multiple responses were possible for this question.*

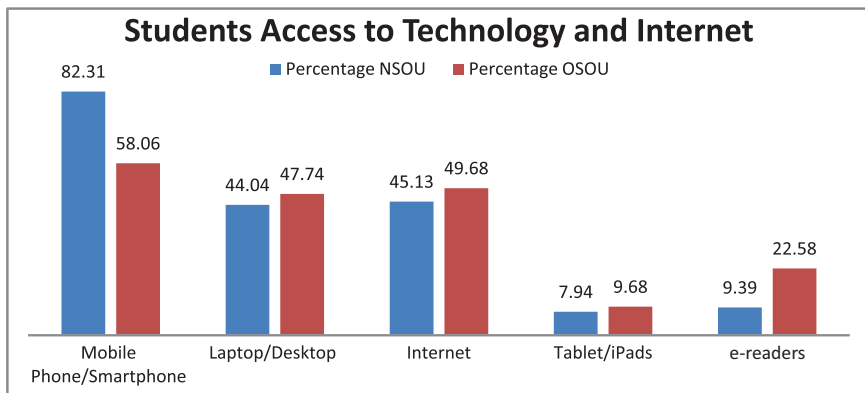


Figure 4.1: Student Access to Technology and Internet.

The table is self-explanatory, and does not require a description. There are a few important points that deserve to be flagged. Most important is the near universal access of students to internet enabled technology, especially mobile phones. Except on mobile phones and e-readers, the access to different types of technology of students of NSOU and OSOU are comparable. However, there is a contradiction between the stated access to technology (table above) and the observed access to technology. Except one girl student, the team of investigators did not find any other among the 432 respondents without a mobile phone in Odisha and West Bengal. All of them had internet connectivity on their mobile phones. Similarly, their understanding of internet seems to be restricted to computing devices. Since all students could access OER repository both in NSOU and OSOU centers, all had access to Internet.

► C. Attitude of students towards OER

A Likert Type (Likert's Summated Rating Scale) Attitude scale was administered on students of NSOU and OSOU. Number of complete and usable response sheets were 282 and 149 respectively from NSOU and OSOU. The frequency distribution of the respondents is given in Table 4.3 followed by visual presentations of the distribution (Figures 4.1, 4.2 and 4.3). Since the total numbers of respondents are unequal, percentages of respondents in each class interval are also given for comparative purposes.

Table 4.3: Frequency Distribution of Scores on Attitude Scale.

Class Interval	Frequency		Percentages	
	NSOU	OSOU	NSOU	OSOU
40-49	0	6	0	4.02
50-59	0	9	0	6.04
60-69	1	8	.35	5.37
70-79	6	4	2.13	2.68
80-89	25	24	8.87	16.11
90-99	115	49	40.78	32.88
100-109	90	33	31.91	22.15
110-119	32	12	11.35	8.05
120-129	12	1	4.26	.67
130-139	1	3	0.35	2.01

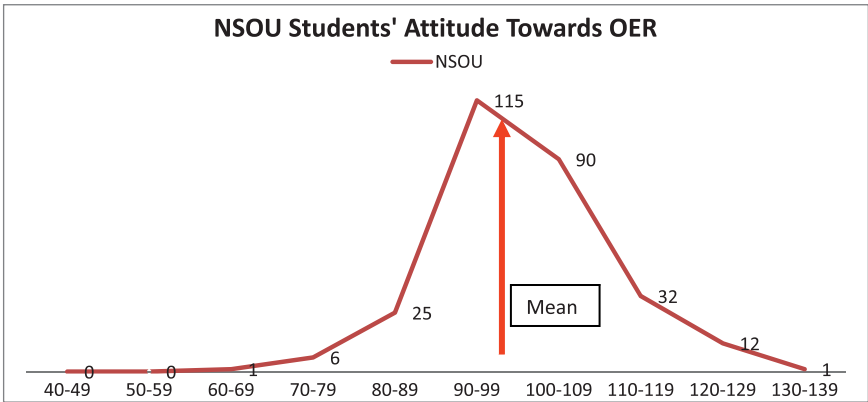


Figure 4.2: NSOU Students' Attitude towards OER with Mean.

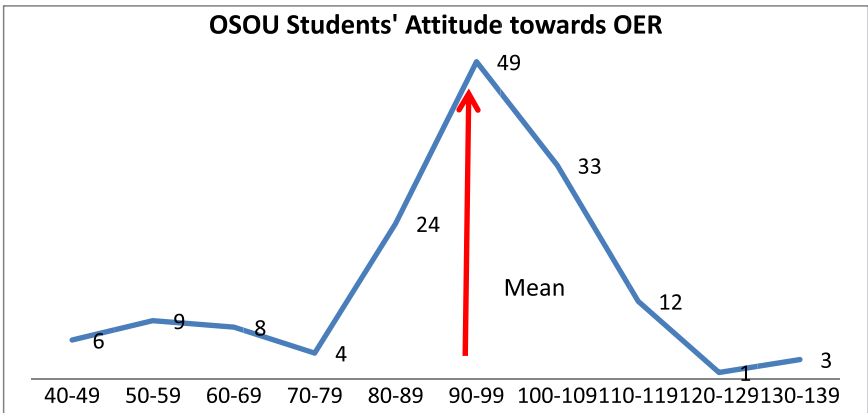


Figure 4.3: OSOU Students' Attitude towards OER with Mean.

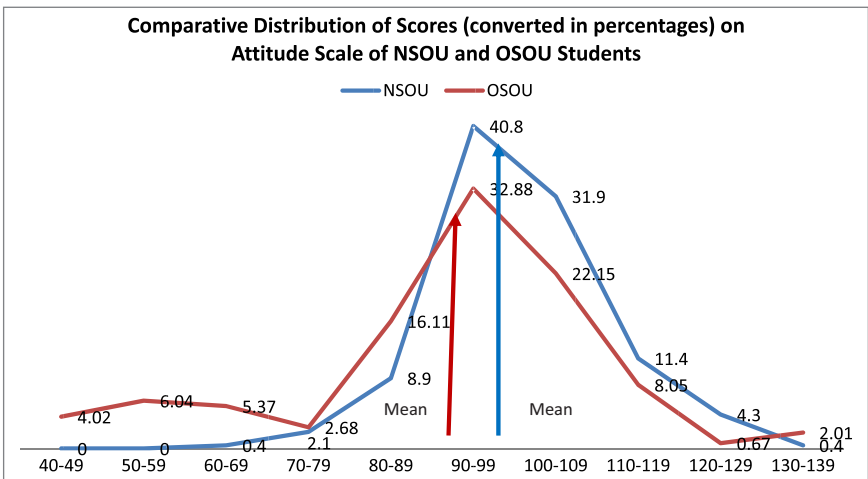


Figure 4.4: NSOU and OSOU Students' Attitude towards OER with Mean.

Means and Standard Deviations were also calculated (Table 4.4).

Table 4.4: Attitude of students towards OER

N	282	149
Mean	99.86	90.88
SD	10.19	18.59

In the case of NSOU, Mean is 99.86 and SD is 10.19. Hence, almost 205 or 72.7% students are in the range of Mean \mp σ i.e. 110.05 to 89.67 or 110-90. In the case of normal distribution, 72.7% students' attitude towards OER is average; attitude scores of 15.96% were above average (positive) attitude, and scores of 11.35% students are below the mark of average. In other words, almost 89% students are either average or above average in the attitude score.

Mean value for OSOU students is 90.88 and SD is 18.59. Thus, range of Mean \mp σ is 72.29 to 109.47. There are 109 out of 149 (73.15%) respondents in this range. Thus 73.15% students' attitude towards OER is average; attitude scores of about 10.32% is above average (positive) attitude, and scores of 14.84% students are below the mark of average. In other words, more than 83% students are either average or above average in the attitude score.

The mean of scores of NSOU students was higher than that of OSOU. Mean of scores of students of OSOU was lower with higher SD. Thus, dispersal of scores was higher than that of NSOU. The test of significance of mean difference was not applied as comparison between the two samples, and therefore, was not an agenda of this mid-term evaluation of OER. Thus, in both NSOU and OSOU, students' attitude towards OER is not an obstacle in implementing OER.

Although quantitative presentation looks more precise and authentic, this needs to be corroborated with qualitative research, especially since students are not aware of OER. Attitude towards a person, a phenomenon, an innovation, a practice can develop with both understanding as well as without actually understanding. VCs, during the interview with them, mentioned that only a small percentage of students were familiar with the concept of OER. During FGD with students, this was verified by the investigators. VCs' assessments were corroborated.

IN OSOU, the VC himself oriented the students for nearly an hour on OER. In NSOU, the investigator made a brief statement on OER at each centre, and asked the students to use their mobile phones and browse the NSOU web portal and the OER on the Internet. Their special attention was drawn to explore video lectures. Students displayed tremendous enthusiasm. They 'discovered' print materials and video lectures. Each one was keen to demonstrate to others what great resource, he/she had discovered. During discussion, as and when the enthusiasm settled down, they lamented 'Why did they not

know it!', 'Why did they not access OER rather than wait for study material that often reached late?' and so on.

Enthusiasm and skill of accessing study materials and videos demonstrated by the students, clearly demonstrated that attitude and skills are not wanting. In fact, their actual attitude far overshoots the quantitative data formulated using their response to the items on the scale without understanding what OER was all about. The qualitative research exercise also indicates a lack of awareness about OER.

► D. Awareness

Awareness about OER was decided to be assessed through a few questions. The disadvantage of a structured question on awareness is that it would have some answers that may or may not be dependable, because, the response can be either random checking against structured response with or without understanding. When students were asked whether they knew about OER of their university, question was shot back to the investigators, "What's OER? We don't know."

To study the awareness of students about OER, nine questions were framed. Responses to these questions are given below.

Q1: Do you get printed reading/learning material from the university?

Students of both the universities were asked whether the printed learning material is available from their respective universities. Table provides the responses below:

Table 4.5: Availability of printed reading material from the university.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	249 (89.89)	125 (80.64)
2.	No	21 (7.58)	30 (19.36)
3.	Not Responded	7 (2.52)	0 (0)
	Total	277	155

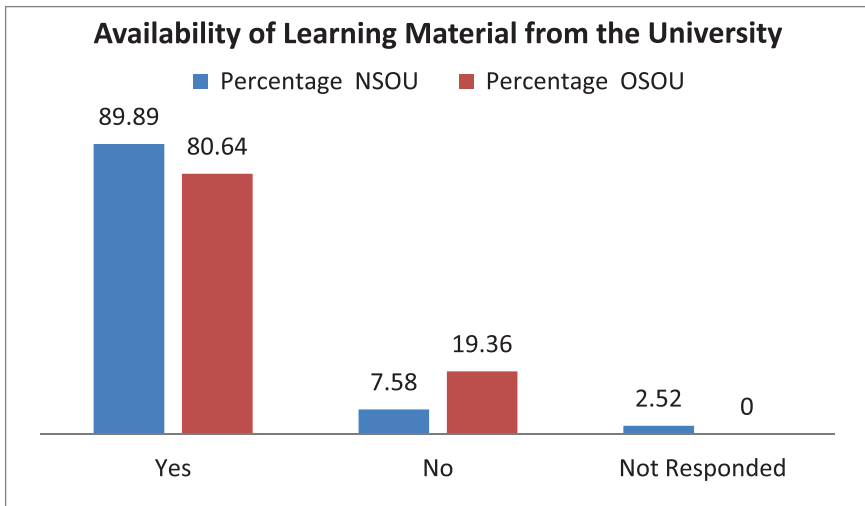


Figure 4.5: Availability of printed reading material from the university.

All respondents from OSOU responded to this question whereas 2% students from NSOU didn't respond. 89% of respondents from NSOU said that they get printed materials from the university whereas 80% students from OSOU said that they get the material.

Q2: Do you get your reading/learning materials on University website or a special portal?

Table 4.6: Availability of learning material on University website or a special portal.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	111 (40.07)	111 (71.61)
2.	No	82 (26.60)	17 (10.97)
3.	Not sure	42 (15.16)	16 (10.32)
4.	Don't know	27 (9.74)	11 (7.10)
5.	Not responded	15 (5.41)	0(0)
	Total	277	155

Response to this question from NSOU was divided; approximately 40% students said "Yes" and approximately 51.5% students were either not aware or not sure. 5.41% students did not respond. As many as 71% OSOU students mentioned that they get



learning material from the university website or a special portal. However, remaining 28.4% either mentioned that they did not know about it (7.1%), or they were not sure about it (10.3%).

During discussion with the VCs, VC of NSOU and VC of OSOU mentioned that not more than 5% and 10% students respectively are aware of OER. Thus, students' response is contradictory to VC's assessment of the situation. Understanding from FDG is closer to VC's assessment than students' response.

Q3: What types of resources are there in your course(s) on university portal?

Table 4.7: Type of resources available on university website

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Study material (in text format)	215 (77.62)	118(76.13)
2.	Video	51(18.41)	61(39.35)
3.	Audio	23(8.30)	51(32.90)
4.	Internet references (URLs)	37(13.36)	27(17.42)
5.	Any other (please specify)	12	24
	Total	338*	281*

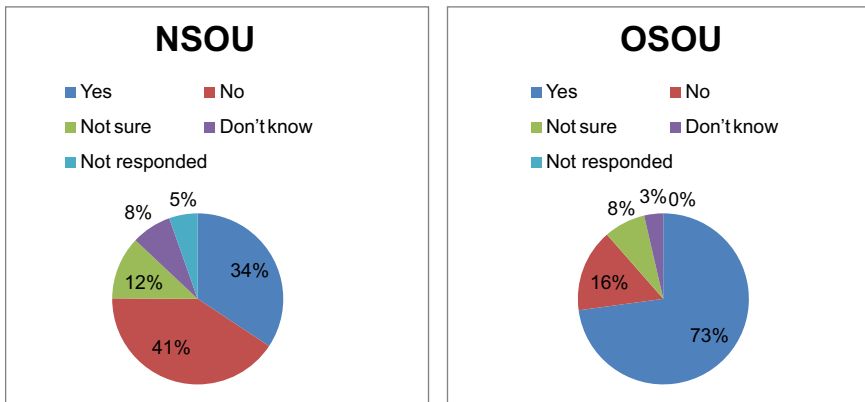
**Multiple responses were possible for this question.*

In response to this question, students of NSOU and OSOU's response was various types of materials were available. Majority of them from NSOU (77.62%) and OSOU (76%) said that study material in text format is available. This is reflected in many other questions as well as during their FGDs. About availability of Videos, 18.41% of students from NSOU, and 39.35% from OSOU confirmed this. As many as 32.90% students from OSOU and 8.30% students from NSOU mentioned availability of audio materials. All this material is actually available on the website but very few NSOU students were aware of the video programmes.

Q4: Can you download the materials from the university portal and save on your computer?

Table 4.8: Facility to download material from university portal.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	95 (34.29)	110 (77.96)
2.	No	113 (40.79)	26 (16.77)
3.	Not sure	33 (11.91)	13 (8.39)
4.	Don't know	21 (7.58)	6 (3.88)
5.	Not responded	15 (5.41)	0 (0)
	Total	277	155

**Figure 4.6: Facility to download the material.**

34.29% students from NSOU responded that they can download and save the learning material on their computer. Rest of them reported that they cannot, or they are not sure whether they can. On the other hand, OSOU students (77.9%) mentioned that they are able to download the learning material from the University website or a special portal. This is an indication of relevant ICT skills of students; and also, probably awareness. However, the remaining students either did not know about it (3.9%), or they were not sure about it (8.4%), or they said that they cannot download learning material from the website (16.7%).

The responses to this question matched with the reply to the earlier question, i.e., whether the learning material is available on the website or not.

Q5: Can you print your study/learning materials from the online sources?

Table 4.9: Printing of learning material from the website.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	119 (42.96)	105 (67.74)
2.	No	90 (32.49)	33 (21.30)
3.	Not sure	54 (19.49)	17 (10.96)
4.	Not responded	14 (5.05)	0 (0)
	Total	277	155

42.96% students of NSOU said that they can take prints. And approximately 52% students were either not sure or said no to this question. As many as 67.74% OSOU students replied to this question in the affirmative. Rest of the 21.3% of the students said that they cannot print the learning material from the website, and 10.96% were not sure about it.

Q6: Have you heard of OER?

Table 4.10: Heard about open education resources?

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	107 (38.63)	104 (67.10)
2.	No	108 (38.99)	36 (23.22)
3.	Not sure	40 (14.44)	15 (9.68)
4.	Not responded	22 (7.94)	0 (0)
	Total	277	155

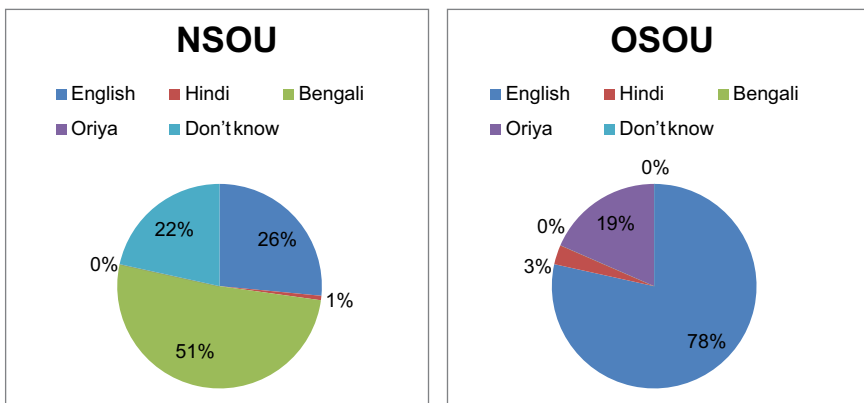
Majority of the respondents from NSOU (approx. 53%) were either not aware or not sure about OER, and only 38% said 'Yes'. Compared to NSOU responses, 67.1% students from OSOU mentioned that they have heard about OERs; 32.9% students either did not know or were not sure.

These responses in both the universities could have been influenced by the prior discussion the students had with the facilitators and the Vice Chancellors of the Universities. At the start of the FGDs also when students were asked about OER, response from both the universities was different.

Q7: In which language are the OER materials available?

Table 4.11: Language of OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	English	75 (27.07)	102 (65.80)
2.	Hindi	2 (0.72)	4 (2.59)
3.	Bengali	145 (52.34)	0 (0)
4.	Oriya	0 (0)	24 (15.49)
5.	Don't know	61 (22.02)	0 (0)
	Total	283*	155

**Figure 4.7: Language of OER.**

In NSOU, all the materials are available only in English, except for a few video programmes in Bengali. When asked about the language in which the OER materials are available, as many as 52.34% responded 'Bengali'. Since students in NSOU are not aware of OER, they would have seemingly indicated their preference of language/medium. This was reflected in the FGDs when respondents were highlighting the inadequacy of material in their own language. Although in one of the groups some of the respondents highlighted, *“Our medium of communication is English and the material provided to us is not adequate to us and we are unable to get any other material in English from anywhere.”* When they checked the OER repository on their mobile phone, they got very excited that they can now get relevant material in their English from an authentic source.

On the other hand, 65.8% of the students from OSOU responded that these are available in English medium. However, it cannot be said confidently whether they were referring to the OERs, or material available on the Internet in general. Rest of the students had no idea about it. 15.5% said that it is available in Oriya. Some material is available in Oriya too. 2.6% said that these are available in Hindi, which is not correct. This again brings to the surface a lack of awareness of OER among students in both the universities.

Q 8: Are you aware of the Creative Commons Licenses?

Table 4.12: Awareness about Creative Commons Licenses.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	38 (13.71)	39 (25.16)
2.	No	142 (51.26)	64 (41.30)
3.	Not sure	82 (29.60)	52 (33.54)
4.	Not responded	15 (5.41)	0 (0)
	Total	277	155

This question was asked to validate responses of the previous question. Majority of the respondents were not aware about the Creative Commons Licenses (more than 75%) in NSOU as well as in OSOU.

This leads to a clear indication that ethical usage of the online material is an aspect that needs to be emphasized with these learners. It also indicates that students were replying to the questions related to OERs, rather vaguely. However, it is not necessary to understand the meaning of Creative Common Licenses to know the meaning of OERs. In the case of these students, it appears that they were confusing OERs with any material available on the Internet

► E. Accessibility and Availability of OER

To assess accessibility and availability of OER, 13 questions were asked to the students. Since, a majority of the students were not familiar with OER, their response would be random. Hence, members of the Evaluation Team accessed OERs of both the Universities themselves and checked their accessibility and availability. Further, during exploration on awareness, students easily accessed the learning material on the OER on their mobile phones. Comparative pictures are presented in Tables 4.13. to 4.25 interspersed with brief explanations.

Q 1: Do you access OER?

Table 4.13: Accessing OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	127 (45.84)	100 (64.51)
2.	No	127 (45.84)	55 (35.49)
3.	Not responded	23 (08.30)	0 (0)
	Total	277	155

Since students are not aware of OER, it is unlikely that they have ever actually accessed OER. Given the situation, it can be interpreted in two different ways. One possible way is accessing learning resources from the Internet considering it to be OER. Second possibility is willingness to access OER when they are familiar and provided guidance. In case of NSOU, respondents were equally divided in their response except 8.30% chose not to respond. In case of OSOU, more than 64% responded in the positive.

Q2: How frequently do you access OER?

Table 4.14: Frequency of accessing OERs.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Everyday	28 (10.10)	17 (10.96)
2.	Once a week	71 (25.63)	37 (23.88)
3.	Once in a month	19 (6.85)	17 (10.96)
4.	Rarely	28 (10.10)	37 (23.88)
5.	I don't access OER	117 (42.23)	47 (30.32)
6.	Not responded	14 (5.05)	0 (0)
	Total	277	155

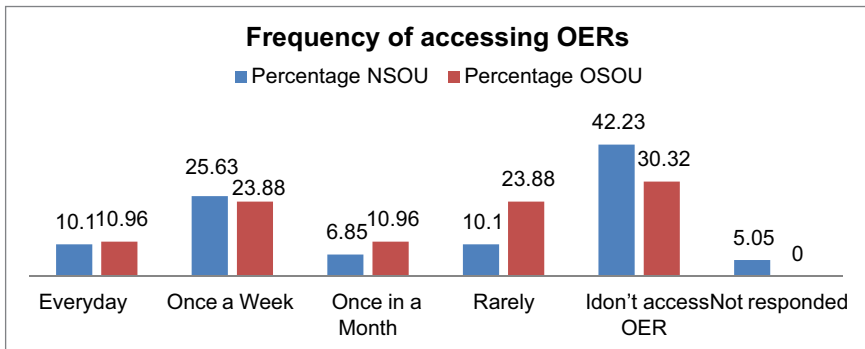


Figure 4.8: Frequency of accessing OERs.

The number of respondents with reference to frequency of accessing OER is almost similar in the case of the first two categories of responses. More than 50% students in both the universities responded that they either don't access OER or they rarely access. Whereas this should have been a point of concern, at the moment this needs to be ignored as students are not familiar with OER; and these responses are some kind of random response.

Q3: Where do you access OER?

Table 4.15: Place/device used to access OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Personal computer at home	57 (20.57)	63 (40.5)
2.	Cyber Café	27 (9.74)	9 (5.8)
3.	Study Center	80 (28.88)	21 (13.7)
4.	Any other (please specify)	51 (18.41)	62 (40)
5.	Not responded	62 (22.38)	0 (0)
	Total	277	155

With reference to this question related to the place of accessing OER, most of the students from both the universities accessed at their own home computers. Responses to this question also confirm that the students were actually replying randomly to this set of questions as many of those replied that they access OER at study centers, although Study Centers do not provide any such facilities

Q4: Will you use OER if access is available to you?

Table 4.16: Use of OER if access is available.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	167 (60.28)	110 (70.97)
2.	No	46 (16.60)	14 (9.03)
3.	Not sure	44 (15.88)	31 (20.00)
4.	Not responded	20 (7.22)	0 (0)
	Total	277	155

This question is rather meaningful as it has a premise that some kind of access would be available to students for using OER. Responses from both the universities show keen interest towards this as a large number of students responded in the positive. Here too, the students of OSOU outnumbered NSOU students by more than 10%. However, the proportion of students who were not sure about using OER is higher in OSOU

Q5: Which kind of resources do you access the most?

Table 4.17: Types and frequency of resources accessed.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Text	183 (66.06)	97 (62.58)
2.	Videos	67 (24.19)	62 (40.00)
3.	Multimedia	38 (13.72)	41 (26.45)
4.	Images	37 (13.36)	30 (19.35)
5.	Quiz	20 (7.22)	21 (13.55)
6.	All	60 (21.66)	10 (6.45)
7.	None	19 (6.86)	27 (17.42)
8.	Nothing	0 (0.00)	28 (18.06)
	Total	424*	316*

*Same student would opt for more than one type of resources.

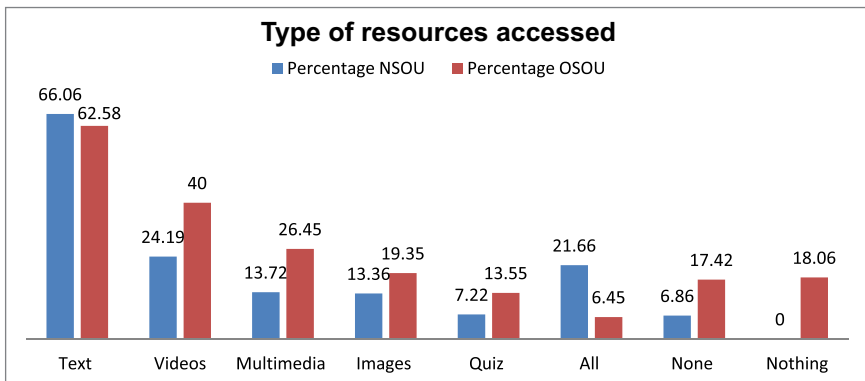


Figure 4.9: Type of resources accessed.

More than 60% students in both the universities prefer text material. New generation learning resources such as videos, multimedia images, etc. are not so popular. However, there is a definite trend that more students of OSOU prefer new generation technology-based resources compared to those in NSOU. However, this scenario witnessed a dramatic shift indicating preference for videos when students were provided some kind of guidance and facility to access OER, and they actually started using these.

Q6: What difficulties do you face accessing the university repository

Table 4.18: Difficulties in accessing the university OER repository.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Technological problems in downloading resources	72 (25.99)	48 (30.97)
2.	Not aware of the resources	101 (36.46)	26 (9.39)
3.	Printing the OER materials	65 (23.47)	17 (10.97)
4.	Finding Wi-Fi connectivity	52 (18.77)	1 (0.65)
5.	Finding a device to access the site in Study Center	48 (17.33)	10 (6.45)
6.	Lack of skills (can't operate computer devices)	34 (12.27)	6 (3.87)
7.	No Problem	35 (12.63)	38 (24.52)
8.	Any other. Please specify	16 (5.78)	30 (19.35)
	Total	423*	176*

**Same student would opt for more than one type of difficulties.*

This question was asked to identify the problems faced by the students while accessing OER. Not too many students from both the universities found technological problem a major difficulty. This was apparent as the number of respondents pointing it out from NSOU and OSOU were only 25.99 and 30.97% respectively. Interestingly, there was no similarity in the pattern of responses of the students up to universities in any other category of response. Whereas 24.52% students of OSOU did not find any problem, corresponding percentage of students in that category were 12.63% in NSOU. Another striking difference was in finding Wi-Fi connectivity; in OSOU, it was less than even 1% compared to almost 19% in the case of NSOU. More NSOU students (12.27%) found themselves deficient in ICT skills when compared to OSOU students (3.87%).

Q7: In which language are you comfortable when accessing OER?

Table 4.19: Language preferred for OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	English	86 (31.05)	109(70.32)
2.	Hindi	11 (3.97)	29(18.70)

Contd.

3.	Bengali	204 (73.65)	3(1.94)
4.	Oriya	2 (0.72)	3(1.94)
5.	Any other Language (please mention)	3 (1.08)	11(7.10)
6.	None	13 (4.69)	0(0)
	Total	319*	155

**Same student would have chosen more than one language.*

Bengali and Odiya are the mother tongues of most of the students, exceptions apart, of NSOU and OSOU, respectively. There is a remarkable difference in the choice of medium of the learning material. As many as 70.32% students of OSOU opted for English medium whereas 73.65% students of NSOU opted for Bengali (mother tongue) medium. Again, 18.70% of OSOU students opted for material in Hindi compared to less than 4% of NSOU students. This difference of preference for English and Hindi is of great significance because that provides access to the all-India job market and beyond. In a subtle way, this shows the changing aspirational attitudes of the students of Odisha.

Q8: What kinds of learning material are available on the OER?

Table 4.20: Awareness about various material available on OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Text	145 (52.35)	99 (63.87)
2.	Audio	37 (13.36)	0 (0.00)
3.	Video	69 (24.91)	68 (43.87)
4.	Multimedia	24 (8.66)	44 (28.39)
5.	Graphics	8 (2.89)	27 (17.42)
6.	Reading References	31 (11.19)	23 (14.84)
7.	Viewing/Video References	20 (7.22)	17 (10.97)
8.	Any other	8 (2.89)	0 (0.00)
9.	Don't Know	63 (22.74)	32 (20.65)
	Total	405*	310*

**Students chose multiple responses.*

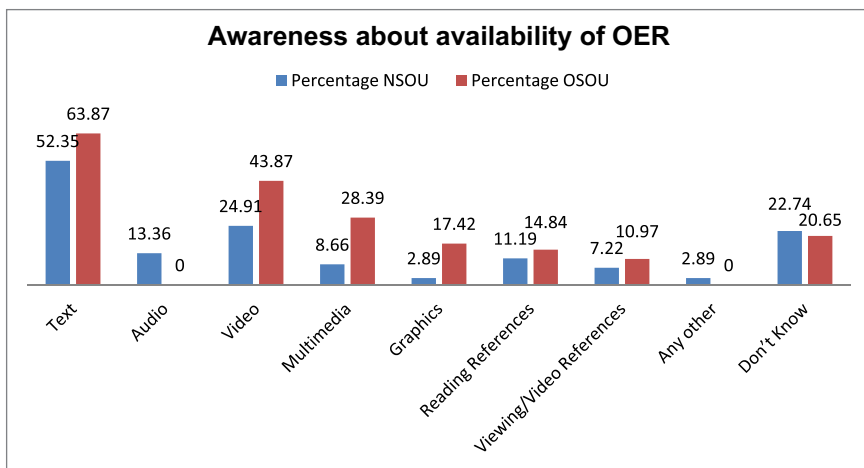


Figure 4.10: Awareness about availability of OER.

The table is self-explanatory. Since they have actually not accessed OER, their awareness about the availability of different kinds of material is insignificant. The value of the responses could be, at best, their preferences. Among all the types of materials, text and video materials received greater priority among the students. The preference for textual material was also indicated in Q5 above. Consistent with the trend, more students from Odisha prefer technology mediated material such as video, multimedia, and graphics compared to their counterparts from West Bengal.

Q9: Are the materials available on OER adequate?

Table 4.21: Adequacy of Material on OER.

Type of Learning Material			Text	Audio	Video	Multi media	Graphics	Any other	Don't Know
Frequency (Percentage)	NSOU	Fully Adequate	61 (22.02)	24 (8.66)	31 (11.19)	20 (07.22)	9 (3.25)	18 (6.49)	10 (3.61)
	OSOU		46 (29.68)	26 (16.78)	27 (17.41)	21 (13.54)	18 (11.61)	11 (7.10)	0 (0)
Frequency (Percentage)	NSOU	Good enough	56 (20.21)	25 (9.02)	28 (10.10)	22 (7.94)	12 (4.33)	7 (2.52)	8 (2.89)
	OSOU		41 (26.46)	32 (20.64)	32 (20.65)	19 (12.25)	13 (8.39)	12 (7.74)	0 (0)
Frequency (Percentage)	NSOU	Just enough	22 (7.94)	21 (7.58)	19 (6.86)	10 (3.61)	14 (5.05)	8 (2.88)	9 (3.25)
	OSOU		7 (4.51)	6 (3.88)	13 (8.38)	8 (5.17)	14 (9.03)	10 (6.45)	0 (0)
Frequency (Percentage)	NSOU	Not enough	27 (9.75)	16 (5.78)	19 (6.86)	17 (6.14)	21 (7.58)	3 (1.08)	8 (2.88)
	OSOU		7 (4.51)	17 (10.96)	14 (9.04)	15 (9.68)	14 (9.03)	7 (4.51)	0 (0)
Frequency (Percentage)	NSOU	Not sure	32 (11.55)	46 (16.60)	42 (15.16)	44 (15.88)	48 (17.33)	53 (19.13)	60 (21.66)
	OSOU		13 (8.39)	13 (8.39)	69 (44.52)	30 (19.36)	30 (19.35)	31 (20.00)	0 (0)
Frequency (Percentage)	NSOU	Don't know	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	OSOU		41 (26.45)	61 (39.35)	0	62 (40.00)	66 (42.59)	84 (54.20)	0 (0)

The table is self-explanatory. Since the students have not accessed and used OER, their response pattern is random; and hence no serious and dependable conclusion can be drawn. This exercise needs to be repeated only after the students have accessed and evaluated the adequacy or otherwise of different kinds of material on the OER.

Q 10: What kinds of textual material are available on the OER?**Table 4.22: Kinds of textual material available on the OER.**

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Study material only	106 (35.21)	113 (72.9)
2.	Study material and other text material	88 (29.23)	3 (1.91)
3.	Text material but not study materials	107 (35.54)	12 (7.74)
4.	No Response	0 (0)	27 (17.42)
	Total	301*	155

**Same student would opt for more than one type of resources.*

In case of both the universities, only the soft copies of the study material have been kept on OER. So, the students who said, 'only study material' are right. Students who responded 'text material but not study material' made a wild guess; this is not correct. One of the verticals in NSOU OER provides other text material. However, this must be noted that these answers are based on guesses as students have not yet accessed and utilized OER in either of the two universities.

Q 11: Do the available materials cover all topics of your course?**Table 4.23: Coverage of available materials.**

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes, it covers all	56 (20.21)	64 (41.30)
2.	It covers most of the topics, but not all	71 (25.63)	36 (23.22)
3.	It covers many topics, but many are missing	26 (9.38)	9 (5.80)
4.	It covers only few topics.	8 (2.88)	10 (6.46)
5.	No, it's not enough	67 (24.18)	36 (23.22)
6.	Not responded	49 (17.68)	0 (0)
	Total	277	155

Answers to this question can be given only after students have accessed and utilized OER in their respective universities. These are also random responses and there is no consistency. Similar question was asked in Q9 above. A fairly small percentage of students responded that the material on OER is not enough; with regard to this question



that response pattern has gone beyond 23% in both the universities. The contradiction is evident.

Q12: Would OER enhance open and exible learning opportunities?

Table 4.24: Would OER enhance exible learning opportunities?

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	150 (54.15)	94 (60.65)
2.	Not sure	90 (32.49)	9 (5.80)
3.	Not	17 (6.13)	52 (33.55)
4.	Not responded	20 (7.22)	0 (0)
	Total	277	155

In general, awareness of OER would have been adequate to respond to this question, though experiencing OER through accessing and utilizing would have provided more sound basis to respond. Nonetheless, a majority of students in both the universities point that OER will enhance flexible learning opportunities. Another very interesting difference between students of NSOU and OSOU is their decisiveness. Whereas 32.49% students of NSOU were not sure, only 5.80% students from OSOU fell in that category. As many as 33.55% students of OSOU were categorical that OER will not enhance flexible learning opportunities. A closer look would indicate that the percentage of students who are not sure in NSOU matches closely with students of OSOU who are sure that OER will not enhance flexible learning opportunities.

Q13: Would OER increase efficiency and quality of learning?

Table 4.25: Would OER enhance quality of learning?

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	148 (53.42)	92 (59.36)
2.	Not sure	85 (30.68)	5 (3.23)
3.	Not	16 (5.77)	58 (37.41)
4.	Not responded	28 (10.11)	0 (0)
	Total	277	155

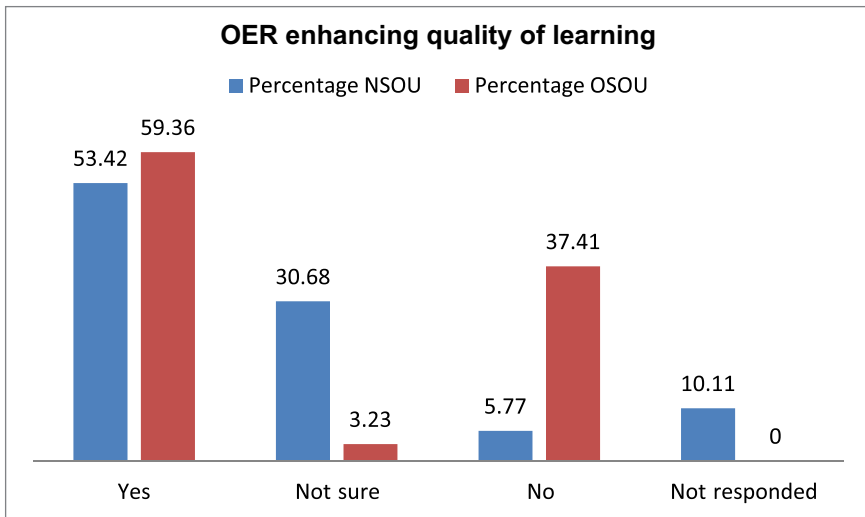


Figure 4.11: OER enhancing quality of learning.

This is another question that is largely seeking opinion. Opinion could have been more matured if students would have experienced OER themselves. Nonetheless, almost a comparable majority of students from both the universities thought that OER would expand learning opportunities. More Odisha students were categorical that OER will not expand learning; whereas similar percentage of students in West Bengal was not sure. This again shows the decisiveness of students of OSOU.

► Conclusion

As mentioned earlier, besides seeking students' responses on questions about the accessibility and availability, members of the research team themselves explored NSOU and OSOU OER portals to assess accessibility and availability. It was fairly conclusive that accessibility was well built-in as a user-friendly, barrier free mechanism. OER has several important resource verticals. For example, NSOU OER gives access to Open Material, Open Courses, Open Textbooks, Open Images, and Open Video. Each vertical gives access to a variety of resources. Just for example, Open Video gives access to YouTube, Video, TED, Wikimedia Commons, Khan Academy, and Public Domain Projects. There is enough material available on both the OERs for the students to access and benefit. Since students have not actually accessed the OER of their respective universities their responses have to be taken with caution. Universities will do well to create awareness among students so that they actually access the availability of different kinds of material on the OERs. A repeat study after one year of rolling out and use of OER by students would provide a much more dependable basis for conclusion

► F. Utilization of OER

Q1: Have you used the University's OER Repository?

Table 4.26: Use of OER Repository.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	98 (35.37)	85 (54.83)
2.	No	135 (48.73)	70 (45.17)
3.	Not responded	44 (15.88)	0 (0)
	Total	277	155

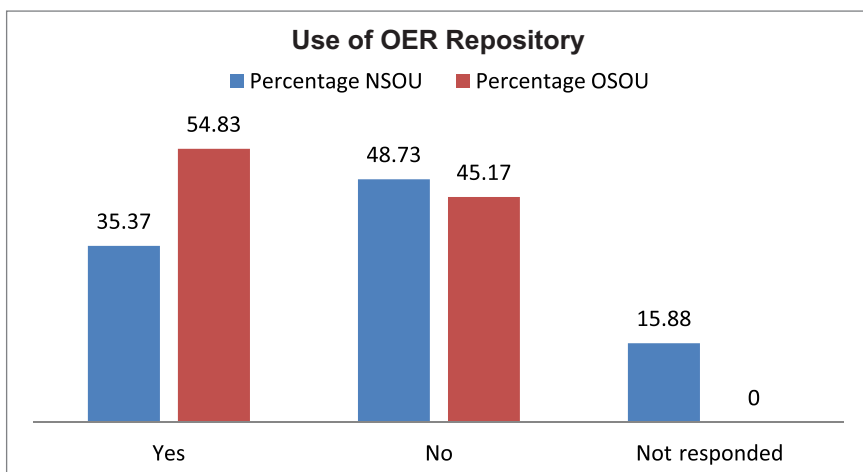


Figure 4.12: Use of OER Repository.

NSOU and OSOU had uploaded OER repositories on their website during the last few months but as the awareness about its existence was not there among the enrolled students; its utilization was also limited. Respondents used their mobile phones to access the OER repository link during the data collection. Few respondents had accessed it prior to the data collection as told by them during FGDs. Though 35 and 55% students of NSOU and OSOU, respectively claimed to have accessed OER, it's unlikely as they didn't know about the OER. One answer to this could be students confusing accessing free learning material on the Internet with accessing OER.

Q2: How often do you use the University OER Repository?**Table 4.27: Frequency of accessing University OER Repository.**

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Everyday	14 (5.05)	18 (11.62)
2.	Once a Week	77 (27.79)	55 (35.49)
3.	Once in a Month	34 (12.27)	17 (10.97)
4.	Never	62 (22.38)	38 (24.51)
5.	Don't maintain any record	41 (14.80)	27 (17.41)
6.	Not responded	49 (17.68)	0 (0)
	Total	277	99.97

As many of the students had no prior experience of accessing OER repository of the universities, 22 and 25% of NSOU and OSOU students chose the option 'Never', other 15 and 17% students don't maintain any record. Those who responded with higher frequency are suspect of confusion with accessing and browsing internet.

Q3: How often is OER referred to during Counseling Sessions?**Table 4.28: Reference to OER during counseling.**

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Very often	33 (11.91)	29 (18.70)
2.	Most often	29 (10.47)	28 (18.06)
3.	Sometimes	57 (20.58)	26 (16.78)
4.	Rarely	28 (10.11)	19 (12.26)
5.	Never	79 (28.51)	53 (34.20)
6.	Not responded	51 (18.41)	0 (0)
	Total	277	155

The number of students who responded negatively to the question was much higher than those who chose to respond positively in both the universities. During the FGDs it was mentioned very clearly that OER repository was not mentioned to them during their classes or during their visits to the centre. During discussions with the counselors taking

sessions with the students in different centers, it became obvious that a majority of them were not aware about the OER repository itself.

Q4: Do you purchase text books of your course in addition to the Self-Learning Material

Table 4.29: Purchase of textbooks apart from learning material

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	115 (41.51)	40 (25.80)
2.	For some subjects	74 (26.71)	33 (21.29)
3.	No	61 (22.02)	82 (52.91)
4.	Not responded	27 (9.74)	0 (0)
	Total	277	155

Majority of the students in both the universities purchase books for at least some subjects. Purchasing additional books apart from the self-learning material was considered important by the students as they found that study material is limited, and they wanted a better understanding of the subjects. During FGDs it was also mentioned by the students that lack of learning opportunities made them search for more options. OSOU courses being new and innovative, one is not sure whether text books are actually available on those certificate and diploma course subjects.

Q5: Did you receive any guidance on how to use OER?

Table 4.30: Guidance to use OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	56 (20.21)	55 (35.48)
2.	Not sure	48 (17.32)	33 (21.30)
3.	No	144 (51.98)	67 (43.22)
4.	Not responded	29 (10.47)	0 (0)
	Total	277	155

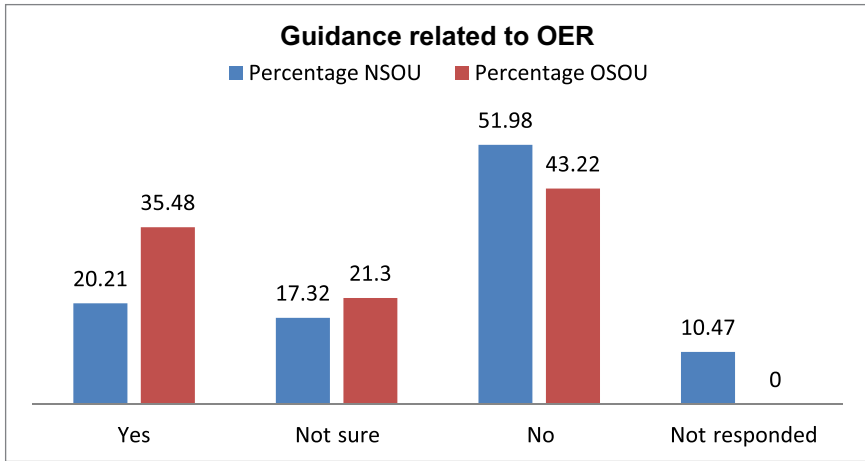


Figure 4.13: Guidance to use OER.

Majority of the students responded negatively to this question. Fact is they don't receive guidance about use of OER, otherwise they would have been aware of OER. The responses are either random or influenced by the social desirability effect. During FGDs some of the students suggested that they get regular SMS messages related to the course and examination, etc. and they could have benefitted had they got one related to OER repository. There appeared to be a lack of communication regarding the OER repository to those who were directly dealing with the students. Also, there was no direct contact with the learners related to OER repository.

Q6: Which of the following OER Repositories have you accessed?

Table 4.9: Printing of learning material from the website.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	eGyankosh	6 (2.16)	46 (29.67)
2.	eGyanagar	3 (1.08)	0
3.	NSOU-OER	133 (48.01)	15 (9.67)
4.	MITOCW	1 (0.36)	0
5.	Khan Academy	2 (0.72)	17 (10.96)
6.	Any Other	19 (6.85)	0
7.	None	77 (27.79)	77 (49.67)
8.	Not responded	36 (12.99)	0
	Total	277	155

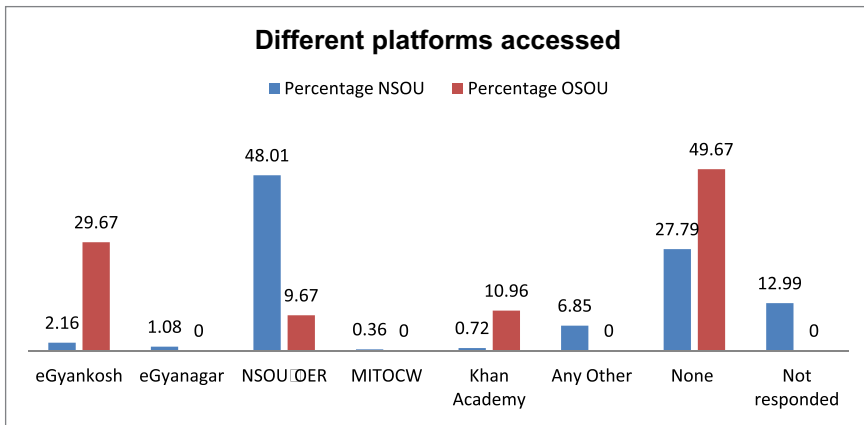


Figure 4.14: Different platforms accessed.

48.01% of the learners in NSOU responded that they have accessed OER of NSOU which was mainly because a majority of them opened it during the data collection process and checked it. Otherwise the number of students who have accessed any of the mentioned OER was limited. It was evident from some of the FGDs that students do not use OER for their respective courses. It may be due to lack of guidance and information related to the use of OER for learning.

Q7: Have you downloaded/printed material from the University OER Repository?

Table 4.32: Downloading/printing material from OER Repository.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	98 (35.37)	77 (49.68)
2.	No	149 (53.79)	78 (50.32)
3.	Not responded	30 (10.83)	0 (0)
	Total	277	155

Although the response was divided in this case between positive and negative ones, it was evident that, as a majority of them have not accessed OER repositories, the responses were random.

Q8: Why do you download OER Material?

Table 4.33: Reason for downloading OER material.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	I learn better if I read printed material	113 (40.79)	99 (61.87)
2.	I did not receive study material from University	24 (8.66)	31 (19.37)
3.	Internet is not accessible, so have to read offline	41 (14.80)	30 (18.75)
4.	Any Other	28 (10.10)	0 (0)
5.	Not responded	71 (25.63)	0 (0)

About 41% students of NSOU and 62% of OSOU said that they learn better with printed material. It may be that they don't have the habit of on-screen reading. When some of the students accessed videos from the OER repository they were very excited about the possibilities of learning that it can bring. They said that it would be beneficial for them as they can get the desired material as well as classes on specific topics online.

Many of the students said that they did not receive study material on time. It was one of the major issues among the learners as they felt it delays their learning.

Q9: Since you have study material in print, why do you need to access OER?

Table 4.33: Reason for downloading OER material.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	It's easy to read	91 (32.85)	82 (50.30)
2.	Just for fun	12 (4.33)	17 (10.42)
3.	To demonstrate smartness	9 (3.24)	12 (7.36)
4.	I don't have to carry material; I can read wherever I am	61 (22.02)	30 (18.40)
5.	OER has much more than Study materials	53 (19.13)	22 (13.49)
6.	Not responded	51 (18.41)	0 (0)
	Total	277	163

The responses of the students were based on some discussion related to OER prior to the collection of data. Although, many of the students responded that they do read online and watch videos online for the purpose of understanding concepts, it contradicts their response to the previous question indicating preference for printed materials. Ease of carrying and accessing material and variety of resources figured much more prominently in the responses apart from it being easy to read.

Q 10: Has OER reduced the cost of your education?

Table 4.35: Reduction of Cost of Education through use of OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	103 (37.18)	81 (52.26)
2.	Not sure	109 (39.35)	53 (34.20)
3.	No	38 (13.71)	21 (13.54)
4.	Not responded	27 (9.74)	0 (0)
	Total	277	155

About 37 and 52% students of NSOU and OSOU respectively said yes to this question when actually fee concession for those who opt for online materials is still to be introduced. VC of OSOU mentioned during the interview with him that he proposes to introduce fee concession to reduce the cost of education. VC of NSOU, during interview, did not mention any such concession as in his assessment, course fees were already low. Large number of students, during the FGDs, said that if they get relevant material on their specific subjects it would at least reduce the cost of purchase of additional material as well as taking help from other sources.

► G. Effect of OER on Learning Outcome

The OER movement is changing the way students are learning. Earlier students were dependent on lecture notes by the teachers or visits to libraries to study further on a topic and prepare for examinations. But with the availability of OERs, there will be an impact on students. There were eight questions in this section, and the results from the data are presented below.

Q 1: Does OER make Learning Interesting?

Table 4.36: Does OER make Learning Interesting.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	136 (49.09)	82 (52.90)
2.	Sometimes	89 (32.12)	42 (27.10)
3.	No	13 (4.69)	31 (20.00)
4.	Not responded	39 (14.08)	0 (0)
	Total	277	155

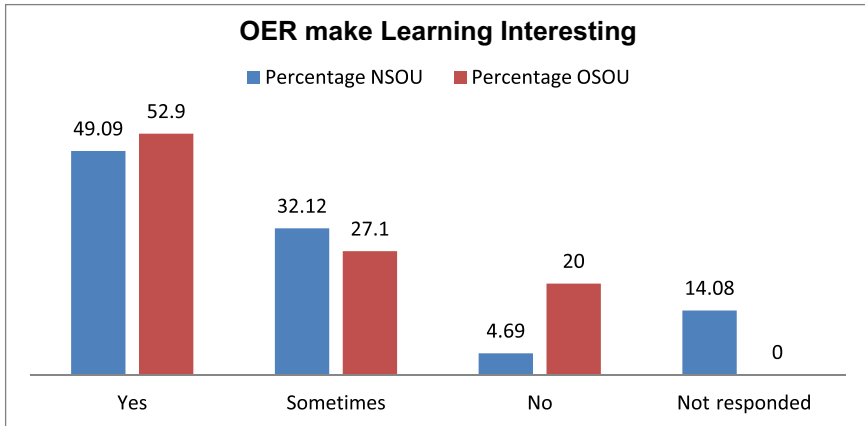


Figure 4.15: Does OER make Learning Interesting.

49.09% of the students from NSOU and 43% students from OSOU said that it would make learning interesting. If response 'sometimes' is added, this percentages go up to 71% and 80% respectively. However, 20% OSOU students responded in the negative compared to less than 5% from NSOU.

Q2: Does OER help you learn better?

Table 4.37: Does OER Help in better Learning.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	144 (51.98)	88 (56.77)
2.	Sometimes	83 (29.96)	37 (23.88)
3.	No	13 (4.69)	30 (19.35)
4.	Not responded	37 (13.35)	0 (0)
	Total	277	155

When asked whether OER will help in better learning, a majority of the learners (51.98%) from NSOU and (56.7%) from OSOU said that OER would help them learn better. More than 80% students including sometimes, responded positively. Almost 20% OSOU students responded in the negative compared to less than 5% students from NSOU. Very few students from both the universities said that it would not help them learn better. It's evident from the responses that students assume the effectiveness of having OER as an additional learning resource.

Q3: What is the reason for using OER?

Table 4.38: Reason for using OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Increasing Knowledge	124 (44.76)	98 (52.68)
2.	Understanding Specific Concepts	82 (29.60)	46 (24.73)
3.	Writing Assignments	45 (16.24)	27 (14.51)
4.	Higher score in examinations	55 (19.85)	15 (8.06)
5.	Any Other	30 (10.83)	0
	Total	336*	186*

**Same student would opt for more than one reason.*

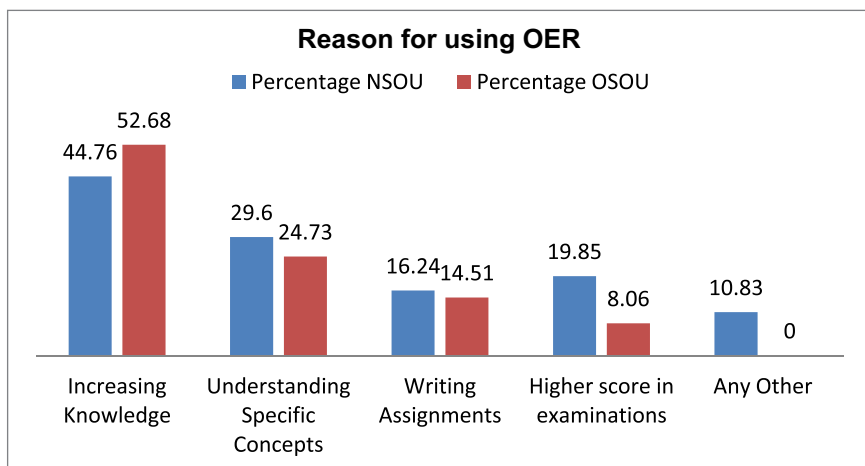


Figure 4.16: Reason for using OER.

In this multi-response question, the students were given four choices to pick from as the reasons for using OERs, and they were also given opportunity for an open reply. Among the four, majority of the students from both the universities said that increasing their knowledge; and understanding concepts as their main reasons for using OER. Few said that OERs help them in writing assignments; few others mentioned that OERs help them score better in examinations although during discussions, students showed greater confidence about using relevant material from OER to address their examination-related needs. Interestingly, a substantially higher percentage of NSOU students checked against “Higher Score in Examination” compared to their OSOU counterpart.

Q4: Is the Language of OER easy to understand?

Table 4.39: Language of OER for easy Understanding.

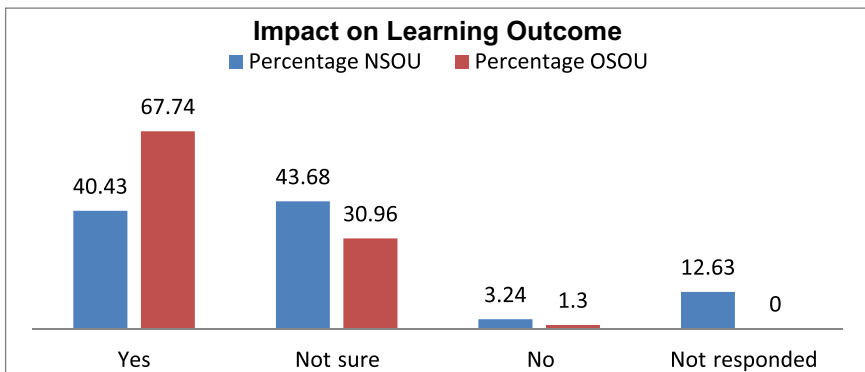
Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	126 (45.48)	105 (67.74)
2.	Not sure	105 (37.90)	48 (30.96)
3.	No	18 (6.49)	2 (1.30)
4.	Not responded	28 (10.11)	0 (0)
	Total	277	155

Approximately 45.48% of the students from NSOU responded in the affirmative. The percentage response to this question was more from the students of OSOU (68%). The materials are available only in English – neither in Odiya nor in Bengali. In terms of preference, as responded to another question earlier, NSOU students overwhelmingly preferred Bengali as the medium of the material and OSOU students preferred English. There is a consistency between their preferred medium and ease of language of OER for understanding.

Q5: Does OER improve your results (learning outcome)?

Table 4.40: OER's Impact on Learning Outcome.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	112 (40.43)	105 (67.74)
2.	Not sure	121 (43.68)	48 (30.96)
3.	No	9 (3.24)	2 (1.30)
4.	Not responded	35 (12.63)	0 (0)
	Total	277	155

**Figure 4.17: OER's Impact on Learning Outcome.**

The table is self-explanatory, and description may not be necessary. Impact of OER on learning can be ascertained only after prolonged exposure of students to OER, especially after they actually use OER. Students are not aware of the OER of their respective universities and had not used it, and their responses are at best assumptions. Further, learning outcome is a multivariate phenomenon and it is not easy to single out the impact of OER on learning outcome. For serious concern whether OER impacts learning outcome, it will be necessary to undertake an experimental form of research where it would be possible to assess impact of other variables and/or partial out effect of other variables.

Q6: Why do you access OER?

Table 4.41: Reasons for Accessing OER.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	There is a variety of learning material	82 (29.60)	84 (28.37)
2.	Get materials on same topic by different authors	55 (19.85)	36 (12.16)
3.	Open educational resources make me feel more engaged with my learning	38 (13.71)	38 (12.88)
4.	I can pick and choose what I want to learn	30 (10.83)	23 (7.77)
5.	I can pick and choose how I want to combine my study material	25 (9.02)	21 (7.09)
6.	OER addresses my needs	23 (8.30)	10 (3.37)
7.	I feel OER helps me improve my creativity	49 (17.68)	84 (28.37)
	Total	302*	296*

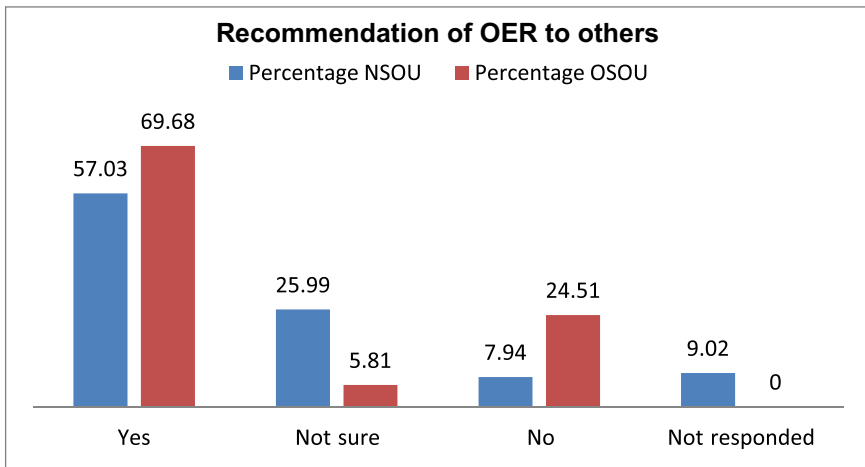
**Same student would opt for more than one type reasons.*

In this multi-response question, the students were given 7 options to choose from. When asked about the reason for accessing OER repository, the maximum number of students from both the universities (30%) chose variety of learning material over other reasons. There are certain similarities in terms of percentage of students choosing the same kind of response. A special feature is about OER helping to improve creativity. 28.37% students from OSOU chose this reason compared to 17.68% from NSOU.

Q7: Would you recommend other students to use OER?

Table 4.42: Recommending OER to others.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	158 (57.03)	108 (69.68)
2.	Not sure	72 (25.99)	9 (5.81)
3.	Not responded	22 (7.94)	38 (24.51)
4.	No	25 (9.02)	0 (0)
	Total	277	155

**Figure 4.18: Recommendation of OER to others.**

Majority of the students (57.03%) from NSOU and OSOU (69.8%) said that they would recommend OER to others, which is a significantly high number of students. In keeping with the trends pointed out earlier, almost 26% NSOU students are not sure compared to less than 6% of students from OSOU. Further, indicating the decisiveness of OSOU students, almost 25% said no compared to about 8% students from OSOU.

Q8: Have your examination scores increased due to OER?

Table 4.43: Impact of OER on exam results.

Sl. No.	Response	Frequency (Percentage)	
		NSOU	OSOU
1.	Yes	86 (31.04)	84 (54.20)
2.	Not sure	124 (44.76)	67 (43.22)

Contd.



3.	Not responded	25 (9.02)	4 (2.58)
4.	No	42 (15.16)	0 (0)
	Total	277	155

Since students of NSOU and OSOU were neither familiar with OER nor had they accessed and utilized OER, it was not possible for them to estimate whether OER had impacted their results or not. Since it was a structured question, they had chosen some response randomly making their response a mere assumption. Going by this assumption, comparable percentage of students of NSOU and OSOU are not sure about its impact. Whereas 54% OSOU student responded positively, only 31% NSOU students did so. Further, the impact of OER on examination results, cannot be a matter of assumptions or students' guess. This needs to be ascertained under well-structured experimental conditions.

► Conclusion

To find out the impact of OER on Learning Outcome, 8 questions were asked from students of both the universities. OER repository was launched in NSOU and OSOU in 2017. Data were collected in January 2018. Almost 50% of students from both the universities said that OER will make learning interesting, will help in better learning, language of OERs is easy to understand, and that they will recommend OERs to other students. On the question whether OERs increased examination scores, around 50% students from NSOU were not sure, whereas around 55% of students from OSOU agreed that OERs have increased examination scores. When asked about the reasons for accessing OERs, students from both the universities said that there is a variety of material available on OERs and it helps in increasing their knowledge.

► Analysis of Responses of Teachers, Counselors and Coordinators

Since teachers, counselors and coordinators of study centers exert influence on students' response to OER, they were also consulted. They were asked a series of questions related to their awareness about OER, their attitude towards OER, accessibility to OER and availability of material in the OER, utilization of OER and its likely impact on student learning.

Since the study had to be conducted on a Sunday, very few teachers and counselors were available. The total number of respondents in this category was 29 -- 11 from NSOU and 18 from OSOU. They were given a structured questionnaire and also engaged in FGD. Since the number is rather small, quantitative data may not make much sense. However, a qualitative analysis that depicts the spirit of their disposition and understanding of OER is important. A few important findings and issues are flagged in the next few pages.

- Since OSOU was established only in 2015, all the respondents were of less than five years experience in the University. More importantly, university was yet to recruit its regular staff. Majority of the respondents were on contractual assignment as consultants. In NSOU, three respondents had more than 10 years experience and seven had less than five.
- The teachers of both universities had opportunity to attend training/orientation programmes on OER conducted by CEMCA. Hence, all the teachers were familiar and aware about OER; because all of them were contributing to OER by developing course materials. This awareness was not found among the counselors and coordinators of study centers. Another important point was the relatively superficial understanding of OER by the teachers. In fact, despite the training by CEMCA, not all the respondents accessed OER. As many as 78% respondents of OSOU reportedly accessed OER; on the other hand, only 27% of NSOU staff accessed OER.
- Almost 2/3 of the respondents of both the universities claimed to have created courses using OER. However, there was no evidence found to justify the claim. All the same it's a very positive feature that the two universities and CEMCA need to promote among the teachers.
- In response to the question of what type of OER has been prepared by the teachers, there was a variety of responses (Table 4.44).

Table 4.44: Creating OER.

Sl. No.	Response	Frequency	
		NSOU	OSOU
1.	Print Material	9	13
2.	Audio Files	2	4
3.	Videos	3	6
4.	Images	1	4
5.	Animations	2	2
6.	Any Other	2	0
7.	None	0	3
	Total	19*	32*

**Multiple responses by the respondent*

- Most of the teachers have recorded that they have used OER for creating print material i.e., the study material. Some have also created audio, video, images, and animation. Further, almost all teachers, except one in OSOU preferred to convert



their material into OER. In terms of awareness, a majority of the teachers claim to be aware of creative common license, copyright, etc. In further probing about their preference for the type of creative common license, only two respondents from NSOU responded and indicated their preference for CCBY and CCBY-ND. All the respondents from

- OSOU indicated their preferences – 12 preferred CCBY-SA and six preferred CCBY.
- A very large majority of the respondents of both the universities observed that OER repository has enhanced the reputation of the University. Since reputation is not measurable, this is perception that might have been influenced by their affiliation to the institution. They also believe that OER has been instrumental in creating learning communities.
- An overwhelming majority of the respondents hold the view that OER has reduced the cost of development and time of learning material. However, there is no factual study on this issue. The case of development cost and time due to OER needs to be studied carefully; and not be dependent upon opinion as it's an important domain of management of OER. Except one teacher from OSOU, all teachers recommended publication of their teaching learning resources as OER.
- Both the universities are also producing educational videos for OER. As many as 56% respondents from OSOU and about 36% from NSOU have contributed to the production of a video for OER. The team of investigators observed a number of educational videos produced by these universities. Most of them are well produced, except for the length of the video. Almost all of them are in the lecture format. On enquiry, it was found that the teachers do not come prepared with a written script. Instead, they prefer lectures based on PowerPoint slides. The videos need to be scripted and well planned to be more effective, maintaining the quality of production as it has been able to achieve.
- Majority of the teachers have not written any research paper using OER. Probably, this question is premature as the history of OER is only about a year old.
- Many of the teachers from both the universities reported that they have used other OERs apart from the one available on their University website. On this issue, the number of such teachers was little more in the NSOU, may be because NSOU OER provides access to a large number of resources through the various verticals, mentioned earlier.
- Several teachers in OSOU have recorded that they have been given training in OER as compared to only one in NSOU. It was informed to the research team that training programmes were organized for teachers and counselors of both the universities to give them orientation in OER.

- Some teachers (16.66%) of OSOU, and more than half of NSOU respondents reported that the counselors at the study centers discuss OER with them. This needs further verification as most of the counselors were not found aware of OER.
- An overwhelming majority of teachers wanted some incentive to develop OER; some of them wanted IT support and training in OER.

► **Formidable Challenges before OER**

The teachers/counselors identified cooperation from the organization and staff, availability of internet, non-availability of material in certain subjects like Agricultural Development and Planning, time required to prepare material for OER, skill to access OER, etc. as some of the major challenges.

► **Conclusion**

Detailed discussion with teachers, counselors and coordinators of study centers indicates certain distinguishing trends. Teachers are enthusiastic about OER, they have the right kind of attitude. They need more intense training as a majority of them come from conventional higher education systems. Surprisingly, they expect incentive although it is part of their activities during the normal duty hours.

Coordinators of the study centers are rather neutral about OER. The central concern continues to be receiving the right kind of material in the right quantity from the University headquarters and distributing it to the students. This is natural as the coordinators face the students' displeasure and anger caused by the late arrival of study material.

Counselors are in direct contact with the students. They are drawn from the conventional universities and colleges. They neither access OER, nor guide students in using OER, nor possess the right kind of attitude towards this innovative resource. On the contrary, at least in NSOU, there is a subtle resistance from counselors as they suspect that the OER may adversely affect their revenue through private tuitions. This is a serious matter that needs to be addressed by the University through a well-crafted strategic plan.

CHAPTER
05

Response to Research Questions

While studying OER in NSOU and OSOU, we searched for answers to a few research questions. In this chapter, an effort has been made to respond to these research questions as the situation stands now.

1. Does OER occupy a place of priority in the NSOU and OSOU cognitive map and concerns?

Yes, it does. The architecture and the contents of OER in both the universities are clear indications of how much effort and organizing skill has been invested by the coordinators of the OER in both the universities. Vice chancellors also took serious interest in OER. Two instances are worth mentioning. During this study, students of OSOU were invited to meet the Vice Chancellor. Vice Chancellor addressed them for more than half an hour on OER. This instance can be interpreted in more than one way. Usual negative interpretation would be stage management when the research team is in station. But, the important positive signal is Vice Chancellor's personal interest in talking about OER to students. He took this opportunity to interact with students taking time out of his otherwise busy schedule of building up a fresh new University.

The instance is significantly different in the case of NSOU. Government of West Bengal has decided to set up eight new state universities. Vice Chancellor of NSOU is exploring the possibility of aligning these new universities with the curriculum of the NSOU. The primary agenda is to extend the OER developed by NSOU to students of these new universities, and thereby reduce the cost of education of the aspiring students. Further, NSOU has also set up two separate studios for the production of video lectures on the courses being offered by the University.

A special mention needs to be made of the six OER verticals in the NSOU OER portal giving access to very large and useful learning resources.

Hence, it is safe to infer that OER is not just one of the many activities of the university, but has been seriously and carefully nurtured by the relevant and important authorities of the universities.

2. What's the perception of students about OER?

Vice chancellors of both the universities mentioned that not more than 5 to 10% students are aware of OER. This statement was found to be prophetic during the interaction and administration of research tools to the students. During the face-to-face oral interaction they frankly admitted that they are not familiar with OER. When they

were administered the structured questionnaire to test awareness, it became obvious that they were making random responses.

Mentioned in previous chapters, members of the research team made a brief presentation on OER to the students, and also they were given certain exercises to explore the web portal of the concerned university. This brief exercise was provided to experience OER. Students took active interest. They are not familiar still with the purpose of OER, nuances of its architecture and construction, creative common license, or history of OER, and the like. Awareness about OER, indeed, is weak.

3. What's the attitude of students towards OER?

Since the students were not familiar with OER, their attitude could not have been formed. It would be safe to conclude that they were neutral. This would have been true if the research team did not make an intervention to explore what would have been the attitude of students towards OER if they were familiar. Once the research team exhorted the students to explore the OER web portal of their respective universities on their mobile phones, every student showed keen interest, and also demonstrated necessary skills to explore the contents of the OER.

From this exercise, it becomes obvious that attitude would not be a disabling factor in utilization of OER once the students are fully familiar with OER - how it functions, what are the advantages, how it could contribute to smarter learning, etc.

4. How accessible and available is OER for student's learning?

As the students were not familiar with OER, they did not access and look into the availability of relevant material. However, members of the research team, as a preparation to the study had accessed and checked availability of relevant material in OER. The inferences of the research team were learning resources are easily accessible in both the OER repositories. Also, there is enough useful learning material available on both the OER portals.

Further, exploratory exercises undertaken by the research team with the students in all the study centers, especially in NSOU, on accessing learning material and assessing the availability also corroborated the findings of the research team. Students were able to access the material on their smart phones. They were also able to find that there is adequate textual as well as video material on the web portals. In fact, all the printed learning material is available in PDF format on the OER portal. So students could access the material anytime, anywhere without having to carry the printed material.

Conclusive remarks are that accessibility is well built-in into the web portals. Second observation is there is enough material available on the OER repository. Besides universities' own textual study materials, and videos, there are references to a large number of learning resources duly classified under different heads such as open text, open video, etc.



5. What's the degree of utilization of OER by students and members of the faculty?

Since students are not familiar about the OER, there is no utilization of OER. During the interaction with the counselors and coordinators of study centers, it became obvious that materials in OER are not referred to by the counselors.

6. How is the understanding and disposition of teachers, counselors and study centre coordinators about OER?

The response to the three categories of people on this question cannot be combined. The central concerns for coordinators of study centers were admission and registration of students, getting the printed relevant learning material on time in adequate number, distributing the learning material to students, conducting personal contact programmes, managing examinations, etc. They were really concerned about managing the conventional components of open and distance education entrusted to study centers. They were neither familiar about OER, nor had they any opinion about the OER.

Counselors do not refer to OER during their lectures in the personal contact programme. This issue is extremely important because it is only the counselors who are in direct contact with the students for their course work, neither the teachers in the university nor the coordinators of the study centers. Counselors hold the key to better utilization of OER by the students. As of now, any positive contribution of counselors in OER is missing.

Teachers of the University belong to a different category because they are directly involved in preparing the learning material. It is the same learning material that is printed and also uploaded on the OER portal. Whereas the printed learning material has a limited circulation among the registered students of the concerned university, the OER portal is open to the world. Anybody from anywhere can access this material. Hence, quality of the material is a serious issue when it is loaded onto the OER portal. It can no more be restricted to the level of quality of the university it is happy about. For example, NSOU has made several good video lectures on relevant topics. Besides the long duration, many of the programmes miss out on certain quality parameters of video lectures. That the university refers to open video in its own portal providing access to Khan Academy, TED, and such other reputed sources, there is the risk of comparison. Both the universities need to look at the quality of material being uploaded onto the web portal keeping in mind that access is not limited to their own students.

7. How can utilization of OER be improved for enhancing quality of learning by ODL students?

Before any substantive statement is made on how to improve the utilization of OER, we need to make a few statements about adoption of innovation. In the language of Diffusion of Innovation, COL and CEMCA are resource organizations engaged in

innovating, processing, packaging and diffusing to potential adopter systems for improving quality of education, ODL in particular. Beginning with pioneering research on diffusion of innovation by Mathew Miles in early 1960s, there have been literally thousands of research on diffusion and adoption of innovation. The common denominator is that adoption of innovation is not automatic. While people and organizations prefer to stay in their zone of comfort in a state of dynamic equilibrium, innovation essentially imbalances the equilibrium and disrupts the organization. Any improvement is essentially a disruption of the status quo. Hence, innovation as a disruptive practice is necessary, whether we call it evil or divine. Further, characteristics of innovation itself are a serious determinant of its acceptability, adoption, institutionalization and effect. More complex the innovation more complex is the process of adoption and internalization. OER is a revolutionary but complex innovation. Its adoption has the potentiality of dramatically altering the process of open and distance learning. The beginning point of adoption of innovation is the dissemination of the idea, and its installation in the institutional system.

Dissemination of an idea like OER is a multi-tier process. And the minimum expected is communicating the information that there is an OER which both the universities under study do through SMS. The purpose of such dissemination of information is not convincing, but just informing, leaving the exploration, trial, evaluation and adoption to the potential adopters like the students. For CEMCA, adopting system comprises of universities such as NSOU, OSOU, BOU, and others. In the higher level of dissemination of information, is the advocacy when the innovating resource organization not only disseminates but promotes the innovation to the potential adopters through dialogues, capacity building, material and financial incentives, and so on. These can be observed in the promotion of OER in the Asian countries by CEMCA. It has not only engaged with the selected universities, but also provided professional and financial support. That only two of the 14 Indian State Open Universities have adopted OER is the indication that dissemination of information for such a complex and revolutionary innovation is not adequate. It needs advocacy, persuasion, support and incentive.

Drawing from the experience, the first step towards beginning to utilize OER by the students is advocacy. Advocacy is not only providing information but also influencing the students to take the decision in favor of using OER. Our limited experience of interacting with 432 students is: students need exposure. The exposure should provide a very strong input for developing the conviction. As they say, seeing is believing. This is exactly what we experienced while interacting and engaging with students in the exploratory research technique. We suggest the following steps towards facilitating adoption of OER by students.

1. While continuing with SMS messages from time to time, a page in every printed learning material should be devoted to concept, contents and how to access learning resources in OER repository.



2. With the support of CEMCA, both NSOU and OSOU should develop a promotional video on OER in Bengali and Odiya respectively with English subtitles. This promotional video should be available in all study centers, and with counselors and teachers of the University. This video should be used in the first orientation of students. The video can also be uploaded on YouTube and the information provided to students through SMS as well as printed on the study material.
3. QR should be introduced in all printed learning material referring to learning resources in the university OER and other OERs referred to in the university OER.
4. Financial incentive is an important instrument for adoption of innovation. During admissions students may be asked to opt for printed or digital medium. Certain reduction of fees can be given to those who choose digital medium. Vice Chancellor of OSOU mentioned about such a fee concession. It's quite logical. A fairly large proportion of expenditure of any open learning system is on paper and printing. Besides, cumbersome management of printed materials, this doesn't add anything to the University revenue. But providing 30 to 50% of the actual cost of printing and production of the material as the fee concession becomes an important incentive for the students. This is particularly important because unlike the formal system, open learning system is not subsidized by government. As can be seen from the data given in the text of the report, a majority of the students in both these universities are actually unemployed. Substance of the proposal is the need for a formal strategic plan to promote OER for ensuring its utilization through advocacy, building it into the instructional systems, and providing incentives in the form of fee concession.
5. CEMCA has been providing professional support in the form of training and capacity building of the faculty of both the universities. In order to ensure impact of OER on learning outcome, some kind of learning management system needs to be developed.

► Conclusion

OER is an important innovation that not only influences the quality of education in open and distance education but also in the formal system which is an articulated agenda of the Vice Chancellor of NSOU. Along with promotion, advocacy and incentive for adoption, CEMCA should consider launching research linked to adoption, utilization of OER and its impact on learning outcome of students.

This is a comprehensive study of OER in NSOU and OSOU collaborated with and advised by CEMCA. The objectives of the study are to assess students' awareness and attitude towards OER, accessibility and availability of learning materials on OER, utilization and impact on learning outcome of students; also to recommend strategies and action steps to improve effectiveness of the project.

In terms of a framework, the pre-condition was the university's preparedness and students' awareness. Supportive conditions were awareness, attitude and advocacy and integration of OER with learning systems by coordinators, teachers and counselors. Based on the findings, following are the conclusions and recommendations.

► Conclusions

1. Discussion and interview with Vice Chancellors of both NSOU and OSOU indicated the importance assigned to the OER projects. It is one of the central concerns of both the universities. VC of NSOU has a vision of extending the use of OER to students of the eight new universities being set up by the State government. VC of OSOU is considering reducing course fees to help more students to study by using OER.
2. From the review of the web portal/site as well as discussion and interview with the nodal officer of OER in both the universities, it was evident that there have been serious and sincere efforts to build the OERs.
3. CEMCA's professional support in developing the OER is far too obvious to elaborate. It has done a good professional job of assisting the universities in developing the OER policy and setting up the OER repositories.
4. A careful browsing of the repository revealed excellent preparedness. The OER Policies with its Vision and Missions are available on the portals, though there are differences in details. There is good stock of the learning material in text and video formats in the repository. Textual materials are mostly the pdf format of printed study materials. Video lectures have been made especially for the OER. Majority of the video materials are well produced; however, most of them are rather too long for holding attention. Nonetheless, considering conventional preference for lectures as medium of learning, it's an important component. There are no QRs in the textual material except in one course developed and launched in 2018 by OSOU. However, the NSOU repository provides five complementing verticals of Open Material,



Open Courses, Open Textbooks, Open Images, and Open Video. Each vertical offers access to several OER Repositories. OSOU has given links to some Indian Portals/Repositories. Considering all these aspects, it is safe to conclude that OERs are well designed and strong OER Repositories.

5. Vice Chancellors of both the universities as well as the nodal officers of OER in the universities rightly mentioned that not more than 5 to 10% of the students are familiar or aware of the OER. Irrespective of the results of quantitative data collected through questionnaires, the focused group discussion and face-to-face interaction with participants also indicated that only a few students are familiar about OER of their respective universities.
6. Important requirement of accessing and utilizing OER is personal access to technology. The response to questionnaires indicated that a majority of the students have access to more than one kind of technology with Internet connectivity. During the focused group discussion and face-to-face interaction it was found that except very few students, everyone had smart phones with Internet connectivity. That they instantly accessed the OER portals of the respective universities also reveals the required ICT skills among the students.
7. Response to the attitude scale indicates that a majority of the students are attitudinally neutral towards OER. However, during the focused group discussion and face-to-face interaction, students responded instantly on the exercises given by the research team to access textual and video material on the OER portal. Students not only accessed relevant material, but also showed enthusiasm and excitement in finding such good resources within their reach. In fact their (positive) complaint was, had they known that such rich material and all the study materials are available online, they would not have faced problems due to non-availability of printed study material on time. The conclusive evidence is that students have a positive attitude towards OER; and they are quite enthusiastic about it. Students of OSOU access the repository on OSOU mobile app which is available on the Play Store for free download. The objective of this app is that students can access educational resources anytime and anywhere.
8. Since the students are not aware of the existence of OER, despite their positive attitude and interest in accessing material, instances of actual accessing OER are negligible. Responses to the questionnaire are rather random and not dependable for any serious conclusion. However, that students could access material from the OER portal on their phone without much problem is the indication that accessibility is very well built-in into the architecture of the OER. The research team also accessed material on the OER portals primarily to evaluate the accessibility. Hence, though a majority of the students have not actually accessed OER portals, accessibility is not at all a problem.

9. Similarly, relevant materials are available on the web portals quite in abundance. Besides the course material uploaded in the pdf format, there are complementing verticals mentioned above that open up new vistas of large amounts of material in a variety of forms from both Indian and international sources.
10. As mentioned above, as awareness was seriously limited, the OER portal so far has not been fully utilized. An enormous potential for changing the learning paradigm and quality has thereby been missed so far.
11. Since the OER has not been utilized, its impact on learning outcome cannot be assessed, although students have given the responses to the structured questionnaire by choosing one or the other responses provided with the question. If their responses are treated as assumptions, then students assume that OER will contribute to better learning outcome.
12. During discussion with the Vice Chancellors, nodal officers of the OER, coordinators of study centers, and counselors, it was evident that no serious effort has so far been made for diffusion of innovation (OER) among the potential user (adopters) except sending SMS (NSOU) and e-mails and WhatsApp messages (OSOU) to students. In the printed material, there was no mention about the online material. The only mention was about the kind of CC license which made little sense to the students. Since the architecture and contents of the OER repository are very strong, students have access to technology and the positive attitude towards OER, the missing link is advocacy, and incentives to students.
13. Another important issue is about the language of the resource material on the OER. In NSOU, according to the Vice Chancellor, students prefer material in Bengali. Students' response also indicated preference for material in Bengali. The university is finding it difficult to render the material in Bengali. This also is a hindrance in effective utilization of resources in the OER repository.
14. In case of OSOU, Vice Chancellor mentioned that students express preference for material in the English language. Though the linguistic skills of the students enrolled in OSOU may not be so strong in English, students' preference indicates their aspiration to catch up with the language that enhances employability.
15. In both the universities, OER is very well developed with a lot of care and considerations. For ensuring adequate and effective utilization of this rich resource, universities have to make special efforts to design advocacy programmes.
16. As discussed with the Programme Officer of CEMCA, OER policy and OER development has not been backed by any strategic plan and monitoring and evaluation framework, except for a few statements in the OER policy. That's a big gap that needs the immediate attention of CEMCA as well as NSOU and OSOU.
17. It was observed that a large number of students enrolled in NSOU in particular, take private tuitions. Whereas OER materials are provided to improve learning,



private tutors concentrate on scoring in examinations with or without learning. Private tuition poses a serious threat/challenge to the intentions and investments of OER.

► Recommendations

As mentioned under 'Conclusion', OER Repositories are well developed in both the universities. Students have access to technology, possess requisite ICT skills and are enthusiastic about using OER. The missing link is students' and counselors' awareness of the existence of such powerful learning resources; and a strategic plan on the part of the universities for diffusion and adoption of this educational innovation. As a result, OER repositories remain grossly under-utilized.

Adoption of innovation is never automatic. OER cannot be an exception. It needs a carefully designed plan of action for diffusion and adoption, backed by monitoring and evaluation. So is the case of implementation of OER policies. Successful adoption of any educational policy needs a sound strategic plan. In both the universities, the missing link is a strategic plan of implementation of the OER policies, although there are a few structural statements on strategy such as advisory committee, number of meetings, etc. A more detailed strategic plan is necessary. Accordingly, a few recommendations are being made under a few heads. These are:

- Research
- Policy and Plan of Action
- Capacity Building
- Advocacy
- Quality of OER
- Ensuring Inclusiveness and Infrastructure
- Incentives

► Research

Generally speaking, this OER project is strong on development dimension; it's rather weak in research back up. A project of such major educational implication must be backed up by carefully designed research projects.

Both the universities have done commendable work on developing OER. Research component is, however, still missing. We recommend that both the universities should create provision for research as a back up to the OER development activities. Research should serve at least three purposes. First is to assure quality as OER materials are accessible by anyone, anywhere in the world. Hence, competitive global standard is necessary; the use of materials on OER cannot be restricted to the standard of the concerned university. Second purpose of research should constitute of process studies -

how and where to integrate OER in the overall instructional design to optimize the learning outcome of students. Third purpose of research is related to output studies, e.g. students' utilization of OER, teachers' and counselors' contribution and utilization of OER, actual impact of OER on learning outcome, and economics of OER. CEMCA as well as both the universities should consider allocation of funds and research grants for research on OER.

As mentioned in the foregone pages, students lack awareness about OER; hence, OER is still to be utilized. As a concerted effort is being launched by both the universities under active guidance and supervision to actually roll out OER to students and ensure its utilization, CEMCA should undertake a similar study assessing awareness, attitude, accessibility and availability, and utilization and impact on learning after one year.

Understanding the impact of OER on learning and cost of education is important. Also, these are complex issues. It needs an evidence base. Opinion and questionnaire based surveys would not be able to create evidence. Experimental and/or multivariate analytic study would be needed.

The data on the window in the web portal is often misleading. Even one time touch without actually accessing OER provides one count. A data analytic study of OER is strongly recommended to assess nature of actual use, kind of users, etc.

► **Policy and Plan of Action**

Both the open universities were supported by CEMCA in developing OER policy. Policy was designed using the COL Template. Based on the nature of the universities, and their stated vision and missions, universities need to develop their own OER policies on the COL template representing the uniqueness of the respective universities. A careful study would indicate the difference between NSOU and OSOU as given in chapter 3.

Policy alone is not sufficient. Policies must be backed by a carefully developed plan of action that strategizes the development and quality assurance of OER, a research and development in OER utilization and impact of OER on learning outcome, medium and language of OER materials ensuring value for money. This plan of action should be based on the intentions stated in the policy.

► **Capacity Building**

Education, including open learning system is human intensive. Hence, it is necessary to invest in human resource development. This is especially necessary in the case of OER as it is a complex innovation of tremendous potentiality. Hence, capacity building of all people involved in developing, promoting, utilizing and managing OER is an important factor for the success of OER policy. Capacity building of Study Center Coordinators, Counselors and Course Writers is, hence, strongly recommended. This would enhance their awareness about the potential of OER for achieving quality education, and also



develop skills of using OER, and contributing to OER. Also, they would be able to navigate other repositories for content for teaching and learning. An important issue is attitude. Capacity building programmes should also focus on attitude, especially of the counselors who are in direct contact with the students.

► **Advocacy**

As evident from the report of the study, a very large majority of students are not aware about OER. As a result, the rate of utilization of OER is extremely limited despite great potential of OER contributing to enriching learning experience and learning outcome of students. As mentioned earlier, adoption of innovation is not necessarily achievable by transmission of information. It needs advocacy; advocacy with counselors, course writers, study centre coordinators and students. Advocacy comprises dissemination of information and going beyond to convince the end-users of the materials. The combination of information and influencing can be done through a series of planned interventions. A few examples of such interventions are given below.

One page flyer on OER

NSOU and OSOU are recommended to develop one page ad flyer. One page flyer should have multiple uses. It should be either printed in or provided separately with the prospectus. Alternatively, a copy of the flyer should be provided with the admission documents once a candidate has taken admission.

An adapted version (B/W) of the flyer should be printed on a page in the printed study material.

An audio bite on OER

The audio bite on the OER should be developed with the statements of the Vice Chancellor and OER coordinator that will provide authenticity of the information and academically sound background on the ways to use and its likely benefits. The audio bite can be used in the FM channels, community radio and/or educational channels in the mainstream radio.

Mobile app on OER

Mobile app should be extensively used since accessibility to smart phones is almost universal among the students enrolled in both the universities. OSOU has already developed a mobile app on OER.

Short promotional video

The promotional video should be developed by a professional agency. This video should be available with all study centers and PCP centers. Every student can also be provided a copy, since cost of the copy is negligible. It should also be used to promote OER by using cable television.

Short video bite

The short video bite is the visual version of audio bite. Preferably, persons from positions of both academic and organizational authority like the Vice Chancellor and the professor in charge should be the presenters. It should be subjected to multiple uses as suggested in the case of audio bite.

CEMCA: Video on OER

There are videos on OER in YouTube. CEMCA should also consider developing a generic short promotional video on OER. Since more than six universities are now working on OER with CEMCA, and they are likely to face similar problems of awareness and utilization, CEMCA should consider investing in developing the promotional video, and sharing it with all the universities working in collaboration with CEMCA on OER and beyond.

► **Quality of OER**

We have mentioned under 'Research' about the issue of quality of OER. This needs to be reemphasized. OER Policy document of each university has a section on Quality Assurance of OER. Both the universities must ensure that the instructional material released as OER are of high quality as these are in the public domain. Third parties (researchers, course writers and students from other open universities, etc.) can reuse, repurpose and remix the resources. All stakeholders must be responsible for assuring the quality. Universities should update the content to maintain the quality of the course material uploaded in the respective repositories. Universities should set up a mechanism of quality assessment and quality assurance. The procedure should also contain quality control - unless a material passes the quality criteria prescribed by the university or CEMCA, the material may not be uploaded as OER.

CEMCA has developed quality criteria for OERs which can be used and/or adapted as per the requirement by both the universities.

► **Ensuring Inclusiveness and Infrastructure**

OER repositories of both the universities should be easily accessible to the users with various kinds of disabilities.

It is also recommended that technology infrastructure should be improved in order to enhance the utilization of OERs in the study centers. Study centers must have reliable and affordable high speed internet connectivity so that the repositories are accessed by the learner.

► **Incentives**

One of the important objectives of promoting OER is to reduce the cost of education. An open university often spends more than 50% of the student fees on printing the study



material. This amount is actually passed on to the paper dealers and printers; university also spends from its own resources on storage and retrieval.

Students should be given an option to choose between printed and online study material. Those who opt for online material should be given fee concession of 20 to 30% to be decided by the university. This has been proposed by OSOU VC. NSOU should also consider. Unlike the conventional system, open learning system does not receive government subsidy. Entire cost is borne by the students, a large majority of whom belong to the lower socio-economic status. Hence, without any loss to the university revenue, university should be able to provide relief on cost of education that will work as an incentive for use of OER.

► Conclusion

In this chapter, an effort has been made to draw the conclusions based on the study in the two open universities, namely NSOU and OSOU, and recommend a few steps to improve upon the present state of the project.

Important conclusions are: there have been serious and sincere efforts in developing OER in both the universities. The OERs provide a very useful and strong learning resource system to the students, counselors and coordinators of study centers. However, in the absence of awareness about the OER among both students and counselors, it remains grossly under-utilized.

The recommendations are all about filling this gap of awareness, and improving the utilization of OER for better cost benefit to the students. Simultaneously, efforts have been made to draw the attention of the two universities and CEMCA that the materials available on the OER are accessible to anybody, anywhere in the world. Hence quality assessment, quality control and quality management of OER material is extremely important.

References

Allen, G., Guzman-Alvarez, A., Molinaro, M., & Larsen, D. (2015). Assessing the impact and efficacy of the open-access ChemWiki textbook project. *Educause Learning Initiative Brief*. January 2015. <https://net.educause.edu/ir/library/pdf/elib1501.pdf>

Allen, I. E., & Seaman, J. (2014). *Opening the curriculum: Open educational resources in US higher education, 2014*. Pearson: Babson Survey Research Group.

Bansal, T., Chabra, S. Q. & Joshi, D. (2013). Current initiatives and challenges to OERs in Indian higher education. *Asian Journal of Distance Education*, 11(1), 4-18. Retrieved from <http://www.asianjde.org/2013v11.1.Bansal.pdf>

Bliss, T., Hilton, J., Wiley, D., & Thanos, K. (2013a). The cost and quality of open textbooks: Perceptions of community college faculty and students. *First Monday*, 18, (1).

Bliss, T., Robinson, T. J., Hilton, J., & Wiley, D. (2013b). An OER COUP: College teacher and student perceptions of open educational resources. *Journal of Interactive Media in Education*, 17(1), 1-25.

Bliss, T. J and Smith, M. (2017). A Brief History of Open Educational Resources. In: Jhangiani, R S and Biswas-Diener, R. (eds.) *Open: The Philosophy and Practices that are Revolutionizing Education and Science*. Pp. 9-27. London: Ubiquity Press. License: CC-BY 4.0

Bowen, W. G., Chingos, M. M., Lack, K. A., & Nygren, T. I. (2014). Interactive learning online at public universities: Evidence from a six-campus randomized trial. *Journal of Policy Analysis and Management*, 33(1), 94-111.

California Open Educational Resources Council. (2016). *OER Adoption Study: Using Open Educational Resources in the College Classroom*. <http://tinyurl.com/WPOERAdoption040116>

Chen, Q. & Panda, S. (2012). Needs for and utilization of open educational resources in distance education: A Chinese survey. *Educational Media International*, 2, 1-16.

Cooney, C., (2017). What Impacts do OER Have on Students? Students Share Their Experiences with a Health Psychology OER at New York City College of Technology. *International Review of Research in Open and Distributed Learning*, Volume 18, Number 4

Das Anup Kumar (2011) "Emergence of open educational resources (OER) in India and its impact on lifelong learning", *Library Hi Tech News*, Vol. 28 Issue: 5, pp.10-15,



Delimont, N., Turtle, E. C., Bennett, A., Adhikari, K., & Lindshield, B. L. (2016). University students and faculty have positive perceptions of open/alternative resources and their utilization in a textbook replacement initiative. *Research in Learning Technology*, 24. Retrieved from <http://www.researchinlearningtechnology.net/index.php/rlt/article/view/29920><http://dx.doi.org/10.3402/rlt.v24.29920>

Falconer Isobel, McGill Lou, Littlejohn Allison, & Eleni Boursinou (2013). Overview and analysis of practices with open educational resources in adult education in Europe. European Union

Feldstein, A., Martin, M., Hudson, A., Warren, K., Hilton III, J., & Wiley, D. (2012). Open textbooks and increased student access and outcomes. *European Journal of Open, Distance and E-Learning*. Retrieved from <http://www.eurodl.org/index.php?article=533>

Hewlett Foundation. (2013). Open educational resources. <http://www.hewlett.org/programs/education-program/open-educational-resources>

Hilton III, J. L., & Laman, C. (2012). One college's use of an open psychology textbook. *Open Learning: The Journal of Open, Distance and e-Learning*, 27(3), 265-272.

Hilton III, J. L., Gaudet, D., Clark, P., Robinson, J., & Wiley, D. (2013). The adoption of open educational resources by one community college math department. *The International Review of Research in Open and Distributed Learning*, 14(4), 37-50.

Islim, Omer Faruk & Gurel Koybasi, Nergis & Cagiltay, Kursat. (2016) Use of Open Educational Resource: How Why and Why Not. *International Journal of Teaching and Learning in Higher Education*. 28(2)

Jhangiani, R. S., Pitt, R., Hendricks, C., Key, J., & Lalonde, C. (2016). Exploring faculty use of open educational resources at British Columbia post-secondary institutions. BCcampus Research Report. Victoria, BC: BCcampus.

Jhangiani R., and Jhangiani, S., (2017). Investigating the Perceptions, Use, and Impact of Open Textbooks: A Survey of Post-Secondary Students in British Columbia. *International Review of Research in Open and Distributed Learning*, Volume 18, Number 4

Jung E., Bauer C., and Heaps A., (2017). Higher Education Faculty Perceptions of Open Textbook Adoption. *International Review of Research in Open and Distributed Learning* Volume 18, Number 4

Kumar M.S. V., (2009). Open Educational Resources in India's National Development *Open Learning: The Journal of Open, Distance and e-Learning*. 24(1)

Kursun, E., Cagiltay, K., Can, G., (2014). An investigation of faculty perspectives on barriers, incentives, and benefits of the OER movement in Turkey. *International Review of Research in Open and Distributed Learning*. Vol 15, No 6

Lovett, M., Meyer, O., & Thille, C. (2008). The open learning initiative: Measuring the effectiveness of the OLI statistics course in accelerating student learning. *Journal of Interactive Media in Education*, (1), Art-13.

Lindshield, B., & Adhikari, K., (2013). Online and campus college students like using an open educational resource instead of a traditional textbook. *Journal of Online Learning & Teaching*, 9(1), 1-7. Retrieved from http://jolt.merlot.org/vol9no1/lindshield_0313.htm

Mishra, S., (2017). *Promoting Use and Contribution of Open Educational Resources*. New Delhi. CEMCA

Morris-Babb, M., & Henderson, S. (2012). An experiment in open-access textbook publishing: Changing the world one textbook at a time. *Journal of Scholarly Publishing*, 43(2), 148-155.

OECD. (2007). Giving knowledge for free: the emergence of open educational resources. Retrieved from: <http://www.oecd.org/edu/ceeri/38654317.pdf>

Padhi, N., (2018). Acceptance and Usability of OER in India: An Investigation Using UTAUT Model. *Open Praxis*, 10(1).

Panda, S. and Santosh, S. (2017), Faculty Perception of Openness and Attitude to Open Sharing at the Indian National Open University, *IRRODL*, 18(7), Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/2942/4444>

Pawlyshyn, N., Braddlee, D., Casper, L., & Miller, H. (2013). Adopting OER: A case study of cross-institutional collaboration and innovation. *Educause Review*, <http://www.educause.edu/ero/article/adopting-oer-case-study-cross-institutional-collaboration-and-innovation>

Petrides, L., Jimes, C., Middleton-Dezner, C., Walling, J., & Weiss, S. (2011). Open textbook adoption and use: Implications for teachers and learners. *Open Learning*, 26(1), 39-49.

Pitt, R. (2015). Exploring the impact of open textbooks around the world [Presentation]. Retrieved from: <http://www.slideshare.net/BeckPitt/exploring-the-impact-of-open-textbooks-around-the-world>

Panda, Santosh and Sujata S., (2017). Faculty Perception of Openness and Attitude to Open Sharing at the Indian National Open University, *International Review of Research in Open and Distributed Learning*, Volume 18, Number 7

Sharma, M., Mishra, S. & Thakur, A. (2014). Development and Validation of a scale to measure faculty attitudes towards open education resources. *Proceedings of the 28th AAOU Annual Conference, the Open University of Hong Kong, 28-31 October* (pp. 618-624).



Sharma, R. C. (2013). Open Educational Resources: Strategies to enhance networking and collaborative opportunities. Keynote delivered on 21st February 2013, at India-Canada International Conference on Open and Flexible Distance Learning, SNDT Women's University, Mumbai.

Shear L., Means, B., and Lundh, P. (2015). Research on Open: OER Research Hub Review and Futures for Research on OER. Menlo Park, CA: SRI International.

Watson, C. E., Clouser, S. & Domizi, D. (2014). Improving the Quality of Instruction and Increasing the Affordability of Higher Education through the Adoption of Open Education Resources (OERs), [Online] Available at: <http://www.cideronline.org/conference/presentation1.cfm?pid1652>

Wiley, D., Bliss, T. J., & McEwen, M. (2014). Open educational resources: A review of the literature. In Handbook of research on educational communications and technology (pp. 781-789). New York: Springer

<http://www.sakshat.ac.in/Document/OERPolicy.pdf>

<http://opencontent.org/definition/>

<https://creativecommons.org/licenses/>

<http://www.onlinelearningsurvey.com/reports/openingthecurriculum2014.pdf>

<http://iite.unesco.org/publications/themes/oer/>

https://en.wikipedia.org/wiki/Open_educational_resources (accessed on 28.2.18)

Appendices

- Appendix I : Assessment of Attitudes of Students towards OER
- Appendix II : Questionnaire for Students
- Appendix III : Attitude Scale for Counselors towards OER
- Appendix IV : Questionnaire for Teachers
- Appendix V : Interview Schedule: Vice Chancellor/PVC/Registrar
- Appendix VI : Interview Schedule: OER Coordinators
- Appendix VII : Interview Schedule for PO, CEMCA
- Appendix VIII : Document Analysis
- Appendix IX : Observation
- Appendix X : Case Study: NSOU Study Centers

APPENDIX
 I

Assessment of Attitudes of Students towards OER

There are a few statements about OER below with which you may or may not agree. You can indicate the degree of your agreement or disagreement by checking () against one of the five columns.

1. SA for **Strong Agreement** with the statement;
2. A for **Agreement** with the statement but not so strongly
3. NS for **Not Sure** whether you agree or disagree;
4. D for **Disagreement** with the statement; and
5. SD for **Strong Disagreement** with the Statement.

Sl. No.	Statements	SA	A	NS	D	SD
1.	OER is an interesting tool of learning.					
2.	OER is just a repetition of printed material .					
3.	I can learn better using OER					
4.	OER has very little variety of learning resources.					
5.	Compared to printed material, OER is interesting to use.					
6.	The content quality of OER is doubtful.					
7.	OER helps in writing assignments and examinations.					
8.	One has to have experience to access OER.					
9.	OER is more useful than printed material.					
10.	OER is not an effective tool of learning.					
11.	OER is a wonderful concept.					
12.	Accessing OER is very difficult.					
13.	Students can learn better with OER					
14.	OER has complete coverage of the course					
15.	Accessing OER is very cumbersome.					
16.	OER is a complement to printed material.					
17.	Compared to printed material, OER is not easy to use/handle.					

Contd.

Sl. No.	Statements	SA	A	NS	D	SD
18.	OER has variety as learning resource making learning easier.					
19.	OER has insufficient coverage of course.					
20.	The content quality of OER is reliable.					
21.	Compared to printed material, OER is difficult to use.					
22.	One can depend on the quality of OER.					
23.	OER may work in advanced countries, but not in our university.					
24.	Accessing OER does not require technical skills.					
25.	OER is no good for learning.					
26.	Accessing OER does not require training.					
27.	Since majority of students don't have computers and internet, OER is not relevant for OU students.					
28.	One does not require experience to access OER.					
29.	OER is full of monotonous textual material as learning resource.					
30.	I learn better when I read printed material.					
31.	OER makes me slow.					

APPENDIX
II

Questionnaire for Students

There are a few questions on OER. Here is an important opportunity for you to express yourself on such an important issue. Your response will be useful for improving the usefulness of OER.

There is no time limit. But it takes approximately 15 minutes. What's important is your honest response. Your response will remain confidential.

Please check (✓) against appropriate response

▶ A. Information Blank

Name (optional) _____ Age _____

Gender: Male Female

Employed or Unemployed

Phone Number _____ Email ID _____

Place of Stay: Rural Semi Urban Urban

Course Enrolled: UG PG Certificate Diploma

Name of the Course _____

Year of Enrolment _____

Previous Qualification _____

Medium of Instruction _____

Which kind of technology do you have access to?

Laptop	
Desktop	
Tablet	
iPad	
Mobile Phone	2G <input type="checkbox"/> 3G <input type="checkbox"/> 4G <input type="checkbox"/> None <input type="checkbox"/>
Smart Phone	
E-reader	
Internet	
Any Other	

► B. Awareness

1. Do you get printed learning material from the university? Yes No
2. Do you get your learning materials on the University website or a special portal?
Yes No Not sure Don't know
3. What types of resources are there in your course (s) on the university portal?
 - Study material (in text format) _____
 - Video _____
 - Audio _____
 - Internet references (URLs) _____
 - Any other (please specify) _____
4. Can you download the materials from university portal and save on your computer?
Yes No Not sure Don't know
5. Can you print your learning materials from the online sources?
Yes No Not sure
6. Have you heard of OER?
Yes No Not Sure
7. What's OER?

8. In which language are the OER materials?
 - English _____
 - Hindi _____
 - Bengali _____
 - Oriya _____
 - Don't Know _____
9. Are you aware of the Creative Commons Licenses?
Yes No Not sure



► C. Accessibility and Availability of OER

1. Do you access OER?

Yes No

2. How often do you access OER?

- I don't access OER _____
- Everyday _____
- Once a Week _____
- Once in a Month _____
- Rarely _____

3. Where do you access OER?

- Personal computer at home _____
- Cyber Café _____
- Study Center _____
- Any other (please specify) _____

4. Will you use OER if access is available to you?

Yes No Not sure

5. Which kind of resource do you access often?

- Text _____
- Videos _____
- Multimedia _____
- Images _____
- Quiz _____
- All _____
- None _____

6. What difficulties do you face while accessing University OER Repository? (Please rank them in order of priority – 1 to most important challenge)

- Technological problems in downloading resources _____
- Not aware of the resources _____
- Printing the OER materials _____

- Finding Wi-Fi connectivity _____
- Finding a device to access the site in Study Center _____
- Lack of skills (can't operate computer devices) _____
- No Problem _____
- Any Other. Please specify _____

7. Which language are you comfortable with while accessing OER?

- English _____
- Hindi _____
- Bengali _____
- Oriya _____
- None _____

8. What kinds of learning materials are available on the OER?

- Text _____
- Audio _____
- Video _____
- Multimedia _____
- Graphics _____
- Reading References _____
- Viewing/Video References _____
- Any other _____

9. What are the materials available on OER?

Type of Learning Material	Fully Adequate	Good enough	Just enough	Not enough	Not Sure
Text					
Audio					
Video					
Multimedia					
Graphics					
Any other					

10. What kinds of textual material are available on the OER?

- Study material only
- Study material and other text material



- Text material but not study materials
11. Do the materials available cover all topics of your course?
- Yes, it covers all _____
 - It covers most of the topics, but not all _____
 - It covers many topics, but many are missing _____
 - It covers only few topics _____
 - No, it's not enough _____
12. OER will enhance open and flexible learning opportunities
- Yes No
13. OER will increase efficiency and quality of learning
- Yes No

► D. Utilization of OER

1. Are you aware of Open Educational Resources? Yes No
2. Have you used the University's OER Repository? Yes No
3. How often do you use the University OER Repository?
- Everyday
 - Once a Week
 - Once in a Month
 - No record
4. How often is OER referred to during the Counseling Sessions?
- Very often
 - Most often
 - Sometimes
 - Rarely
 - Never
5. Do you purchase text books of your course in addition to the Self Learning Material?
- Yes For some subjects No
6. Did you receive any guidance on how to use OER?
- Yes No

7. Which of the following OER Repositories have you accessed?

- eGyankosh
- eGyanagar
- NSOU-OER
- MITOCW
- Khan Academy
- Any Other
- None

8. Have you downloaded/printed material from the University OER Repository?

Yes No

9. What is the reason to download the OER Material?

- I learn better if I read printed material
- I did not receive study material from the University
- Internet is not accessible, so have to read offline
- Any Other

10. Since you have study material in print, why do you need to access OER?

- It's easy to read
- Just for fun
- To demonstrate smartness
- I don't have to carry material; I can read wherever I am.
- OER has much more than study materials

11. Has OER reduced your cost of education?

Yes Not sure No



► E. Effect of OER on Learning Outcome

1. Does OER make Learning Interesting?
Yes No
2. Does OER help you learn better?
Yes Sometimes No
3. What is the reason for using OER?
 - To increase Knowledge _____
 - To understand Specific Concepts _____
 - To write Assignments _____
 - To score higher in examinations _____
 - Any Other _____
4. Is the language of OER easy to understand?
Yes Not sure No
5. Does OER improve your learning outcome?
Yes Not Sure No
6. Why do you access OER?
 - There is a variety of learning material
 - Materials on the same topic by different authors
 - Open educational resources make me feel more engaged with my learning
 - I can pick and choose what I want to learn.
 - I can pick and choose how I want to combine my study material
 - OER addresses my needs
 - I feel OER helps me improve my creativity
7. Would you recommend other students to use OER?
Yes Not Sure No
8. Have your examination scores increased due to OER?
Yes Not Sure No

APPENDIX
III*Attitude Scale for Teachers/
Counselors towards OER*

There are a few statements about OER below with which you may or may not agree. You can indicate the degree of your agreement or disagreement by checking (/) against one of the five columns.

1. SA for **Strong Agreement** with the statement;
2. A for **Agreement** with the statement but not so strongly
3. NS for **Not Sure** whether you agree or disagree;
4. D for **Disagreement** with the statement; and
5. SD for **Strong Disagreement** with the Statement.

Sl. No.	Statements	SA	A	NS	D	SD
1	OER is not a revolutionary concept.					
2	OER complements the printed learning material.					
3	OER is a repetition of printed learning material.					
4	OER is an effective tool of learning.					
5	I am comfortable with Information Communication Technology (ICT) skills to use OER.					
6	I don't have the knowledge of Creative Commons Licenses to understand OER.					
7	Sharing of educational resources will enhance the university's reputation.					
8	Accessing OER is very cumbersome and time consuming.					
9	Accessing OER does not require ICT skills.					
10	The content of OER is very reliable.					
11	OER cannot be used as I feel content is not reliable.					
12.	Using OER will reduce time and cost.					
13.	During the last one year, I have searched the internet for OER in the form of text and images.					

Contd.



Sl. No.	Statements	SA	A	NS	D	SD
14.	Sharing of resources among the educators should be encouraged at the institutional level.					
15.	Sharing of resources and knowledge does not enhance the reputation of an educator.					
16	Open Education Resources can damage the university's reputation.					
17	Open Education Resources will help me in counseling classes.					
18	The university's OER project has made me aware of the benefits of OER.					
19	University does not print learning material since OER repository was launched.					
20	Creating OER will not help in developing collaboration with other Universities.					
21	OER means the learning resource is freely available to be used by anyone.					
22	OER will help India to give access to education to all in higher education.					
23	Quality of OER is questionable.					
24	OER will make education more expensive.					

APPENDIX
IV*Questionnaire for
Teachers*

We are conducting a study on Open Education Resource. NSOU is one such institution where OER has been adopted. The purpose of this study is to understand how it is working, and what can be done to improve its use and utility.

Thank you, in advance, for sparing your time to respond to this questionnaire. There is no time limit. But, it usually takes between 15 to 20 minutes. Your responses will help in improving the quality and use of OER. Your responses are confidential. Please respond to all the questions.

Please check (✓) against appropriate response.

▶ **A. Information Blank**

Name (Optional) _____

School/Department _____

Your Subject _____

Age: Less than 30 40 41-50 51-60 More than 60

Gender: Male Female

Phone Number (optional) _____ E Mail ID _____

1. Which technology do you use? please put a check mark in the appropriate box.

Laptop	
Desktop	
Tablet	
iPad	
Mobile Phone	2G <input type="checkbox"/> 3G <input type="checkbox"/> 4G <input type="checkbox"/> None <input type="checkbox"/>
Smart Phone	
E-reader	
Internet	
Any Other	

2. How long have you been in this University?

Less than 1 Year 1-5 years 5-10 years 10+ Years



3. Are you aware of Open Education Resources?
- Not Aware Heard of OER
- Somewhat Aware Aware of OER
4. Have you accessed material from OER?
- Yes No
5. Have you ever created a course using OER?
- Yes No
6. If yes, which types of OER have you created?
- Print Material _____
 - Audio Files _____
 - Videos _____
 - Images _____
 - Animations _____
 - Any Other _____
7. Would you like to make your material as OER?
- Yes No
8. Which of the following Licenses are you aware of?
- Creative Commons _____
 - Copyright _____
 - IPR _____
 - Any Other _____
9. If you are aware of Creative Commons, which license would you prefer?
- CCBY _____
 - CCBYSA _____
 - CCBYND _____
 - CCBYNC _____
 - CCBYNCSA _____
 - CCBYNCND _____
10. Has the OER Repository enhanced the reputation of the University?
- Yes No

11. Has the OER helped in Developing Learning Communities and Build Connections?
Yes Not sure No
12. Has OER helped in reducing the development costs/time of Learning Material?
Yes Not sure No
13. Has the OER project enhanced your awareness of the benefits of OER?
Yes No
14. Will you recommend teaching and learning resources for publication as OER?
Yes Not sure No
15. Did you create any Video using OER?
Yes No
16. Have you written any research paper/article using OER?
Yes No
17. Have you ever used any other OER?
Yes No
18. How often do you use the following OER Repositories?

OER Repositories	Not Familiar	Never used	Use rarely	Use occasionally	Use frequently	Use regularly
"FutureLearn						
"Khan Academy						
"Open Learn						
"MITOCW						
"JORUM						
"eGyankosh						
"eGyanagar						
"NSOU-OER						
"Any Other (please specify)						



19. Did you receive any training in OER?

Yes No

20. Do Counselors discuss OER with you?

Yes Sometimes No

21. What support would you need from the university to make OER a successful endeavor?

- Incentives to faculty to develop OER
- IT Support
- Training in OER
- Guidance on how to apply for licenses
- Any other

2. What are the most formidable challenges in accessing the OER Repository?
(Please list at least three challenges)

1. When and how was the OER Policy Developed? (People Involved, Processes of drafting and larger consultation, workshops/meeting, time duration of the process, cost involved, etc.)
2. Has the policy been passed by the various Statutory Bodies of the University?
3. How was the OER Policy developed? How important is the OER Policy for your University? What was CEMCA's concern and collaboration? How was the university chosen for CEMCA Collaboration?
4. How good is the OER Policy and Implementation Strategy? (Quality of the policy and strategy documents)
5. Faculty development for OER Policy and creating OER material. Their attitude and preparedness/skills related to OER
6. What does OER contain? How are they decided? How are OER material updated? Is the Course Material on the University Repository prepared using OER material?
7. Who are the users of OER? How do universities check use of OER? Any survey/research?
8. What changes have come due to the implementation of OER Policy and OER Repository?
9. What is the impact of OER policy on the University?
10. Is there a change in the learning environment? If yes, what's that change?
11. Is there any improvement in the learning outcome of students? What's the improvement?
12. Is there any cost reduction in printing material/course development? Is there any reduction of course fees for students after OER?
13. Is your university collaborating with any other Open University or any other University?
14. Has your university made any Budget allocation for OER?
15. What were some of the problems faced by the University in developing the OER Policy?
16. Would you like to make any observations that not covered in the interview?

Interview Schedule: OER Coordinators

1. Please tell me about the OER in your university. How did it begin? How did you come in contact with CEMCA? When was that? Why did CEMCA identify your university for this project? What was the contract or MOU? Can we see the MOU, please? What was the financial component of OER - how much was CEMCA's contribution and university budget?
2. What was the mechanism of licensing for the OER? (Creative Commons). How does it actually happen?
3. How did you develop the OER Repository? What were the processes? Academic and administrative processes? Who were the people involved? Did you select material for OER or were all study materials loaded on to the web? How did you select resources?
4. What different types of materials do you have in OER? How did you develop video, multimedia and other materials?
5. Are there resources using OER materials? If yes, what are such materials and what was the process of development? Who developed such OER based materials?
6. How good are the materials on your OER (Quality)? How do you check the quality of materials for OER?
7. Who are the users of the OER? Your own students or students of other universities also? How easy or difficult is accessing OER for students? How often and how effectively do the students use OER?
8. Has there been any reduction in cost/course fees after establishing OER? How has OER benefited students? Do you have any research or evidence on the effect of use of OER on student performance? Has there been any improvement in student performance after establishing OER?
9. What are the teachers' reactions to OER? How are they contributing? And how are they using OER? Is OER referred to by counselors during counseling sessions?
10. What were some of the challenges? How did you overcome such problems?
11. What are your future plans for OER? Improving quality of OER? Transferring financial benefits to students?

These are a set of questions based on the Outputs defined by CEMCA for the period 2015-18. Since the study commissioned to ETMA is on OER, questions are also limited to OER. I'll appreciate if you please respond to each question and send the responses through mail.

1. How many Institutions have adopted OER Practices? Which are those institutions?
2. Do you have reports on adoption of OER Policies? How many reports do you have? Where can we access these reports?
3. Have NSOU and OSOU adopted OER **Practices**?
4. How many teachers have been trained in the use of OER? How many teachers have been trained in the use of OER in NSOU and OSOU? Do you have "Partners' Reports?
5. Is there a Strategic Plan for implementing OER/ODL Policies? Are there such strategic plans for NSOU and OSOU OER Policy Implementation? How can we have access to such strategic plan documents?
6. How many programmes have been developed using OER? What are these courses? Have any such courses been developed in NSOU and OSOU? What are the courses? What's the current status of the courses in terms of roll out and student enrolment?
7. How many courses have been developed as OER? What are the courses developed by NSOU and OSOU as OER?
8. How many learners are using courses developed as OER? How many learners from NSOU and OSOU are using courses developed as OER?
9. How do you propose to fill up the gap between target of 10,000 learners using OER and actual number of users, especially in NSOU and OSOU?
10. How many institutions have developed OER/ODL Policies? What was CEMCA's role in developing OER/ODL Policies?
11. How many Government officials/decision makers were involved and sensitized for supporting OER/ODL. How was the sensitivity developed? What were the benefits of sensitizing government officials with respect to OER Practices?

1. OER Policy Document
2. Strategy Document if any
3. Information from the technical person who is maintaining the OER repository

1. Web Portals of NSOU and OSOU
2. Interactive Sessions

► Panskura Banamali College Diary

I was scheduled to visit Bagnan College and Panskura Banamali College with Sri Dipankar Das for data collection for the study on OER in NSOU. Bagnan College was taken over by the police because of by-elections. I left Bagnan and reached Panskura - about 45 minutes drive on NH6. The programme was scheduled at 2.30 in the afternoon in the College. I reached earlier to meet the Coordinator of the Study Centre, a few counselors, if available, and check up on the facilities. Dipankar Das, a doctoral research scholar from Calcutta University who was supposed to assist me in this exercise was already there.

We met the coordinator of the study centre, one of the teachers of the College. We engaged ourselves into an informal conversation about the NSOU courses, students and incidentally on OER. He was familiar with the word OER. But nothing more than that. During the discussion, he expressed his primary concerns about non-availability of the study material on time; mismatch of number of copies of study material and the number of students enrolled, and copies requisitioned, etc. During our discussion, a few more members of the faculty, especially counselors also dropped in. The familiarity with OER was no better than that of the coordinator of the study centre.

At the stipulated time, we entered the classroom where 44 students of different courses had assembled. Except four students enrolled in MSW, Chemistry, and one other subject, all the rest 40 students were enrolled into courses in education. We introduced ourselves and spoke about our purpose of visit to study about OER. Almost without exception, the first question we faced was "what is OER?" We got the answer. Students are not familiar even with the word OER. Nonetheless, as a matter of routine, we administered the tests. One was a 30 item Likert's summated rating scale for assessment of attitude towards OER. Second was a quasi-scale measuring.

1. Awareness about OER,
2. Accessibility of OER,
3. Availability of materials on OER,
4. Utilization of OER, and
5. Effect of OER on learning outcome.

As we moved around inside the class and tried to help students, we realized that they were marking anywhere as they were totally unfamiliar with OER. We had planned a focused group discussion with students on OER as another instrument of data collection.

We made a brief presentation about OER without necessarily getting into the details of technicalities of the licensing systems and also how OER material can be used to construct new courses. Our focus was largely upon what is OER, what are available on the NSOU web portal, and how the material on the portal can be used. We made a special mention about the video lectures that are available in the web portal. I also mentioned about the video lectures; I had reviewed quite a few video lectures during my visit to NSOU headquarters in Kolkata. A majority of the video lectures are of good quality except for the duration of the lectures. We also mentioned that they can try and access video and print material right now to try if they have got phones with Internet connectivity.

Except one, every student had a phone with Internet connectivity. Without waiting for any further dialogue, they engaged themselves on their mobile phones exploring the NSOU web portal, especially the video lectures. The excitement was absolutely unmistakable. Their continued engagement with the text and video on the web portal was enough to understand that there is *no attitude deficiency towards OER*.

That almost all students could access materials on the web portal was the indication *that accessibility was also not an issue*. We had ourselves explored the kind of material available on the web portal. Though there can be improvement on the contents available on the portal, *availability was also not very deficient*.

Since students and even counselors were not familiar about the existence of OER, they did not access; they did not utilize; hence there was *no question of impact of OER on their learning outcome*. Hence, this important question had to be left open.

Students themselves articulated the advantage of OER. That OER contains study materials on all the subjects, they don't need to worry and wait for the arrival or most often, non-arrival of the study material. *Students were quite comfortable with on-screen reading even on relatively small screen mobile phones*.

► Conclusion

Our considered view is that OER has tremendous potential with the students. Missing link is the awareness of its existence, its potential, and its possible effect on cost of education and learning outcome.

► Women's Christian College Diary

Women's Christian College, Kalighat, Kolkata is located in one of the most accessible areas which is connected by Metro as well as other convenient transport facilities. It makes it a very convenient place for a study center among learners who stay within the city. I reached there in the center and could see many students who have reached the particular center from other centers located in other areas for the purpose of interaction related to OER study. In the first hour, students of Education and MA History were waiting for their classes to be conducted. As I approached students of Education for the purpose of data collection, they were agitated due to the absence of their resource

person and said that they are interested in contact classes being conducted more regularly. After a small discussion, their readiness to interact increased and they started sharing their experiences and ideas more freely.



When students were asked about OER repository, they said that they are not aware about OER as well as its presence in the form of a repository on the University website. To ensure that their responses are not out of complete ignorance, they were given a small introduction towards OER. Almost immediately all the students took out their mobile phones and started searching for the OER repository. Majority of them immediately opened the OER repository and started asking questions related to it. They were able to access the repository on their mobile phones **which reflected ease in accessibility** as well as students' **interest in the concept of accessing online resources** that are relevant to them. Although a majority of them visit NSOU website regularly, very few of them have seen the OER repository link. Those who have seen the link said, “*Samajh me nahi aaya kis cheej ke liye he*”. It showed that even if they were able to reach to the OER repository link, they were not able to comprehend the purpose of it.

Some of the English medium students who were there were vocal about the usefulness of OER repository as they said that OER repository would help in getting English medium material from the repository.

When they were asked about their expectation from the OER repository, they said that, “it should have at least complete material related to the course”. They expected that their course should be covered through online material as they get material very late.

Their interest was more related to basic coverage of the courses as they felt that they get material very late and is not sufficient.

When asked about the possibility of resources beyond study material, they showed awareness about possibility of having material beyond the study material in different formats like text, video, etc.

One major complaint of the student related to it was that they were never informed about its presence on the website. They gave very good suggestions for reaching students through SMS, some information in the study material or notices in study centers or office etc.

When they asked about the presence of WhatsApp group among learners of the course, they agreed that yes they do have such groups and also agreed that WhatsApp groups can be used for communication.

When asked about its impact on their learning, one of them said that, *“I don't know how much it will affect their marks, but it will surely improve my responses and learning”*. Majority of them agreed that it would surely improve their learning opportunities.

Students of Education were much more comfortable in responding to the OER questionnaire and their responses were also better articulated during interaction. Their awareness about their rights and focus on what they want to achieve through the course was much more than the other group which was part of FGD.

MA history students were a diverse group of students. Some of them were not able to comprehend English as well as Hindi during interaction. These students were addressed with the help of our team who translated questions as well as responses. Same method of introduction, discussion and questionnaire was used with this group also. Their response towards use of mobile phones was not as prompt as the students of Education but a majority of them had mobile phones with internet with them. Only two of them did not have mobile phones which had internet. But these students also accessed internet for information given online through the website. These students also expected the study material to be there on the OER repository as they faced similar problems with the availability of study material they were provided by the centers. Time delays and lack of communication between the authorities were also some of the issues that these students also mentioned as problems related to the availability of OER repository.

One of the aspects which was additional in this group was their expectation of material in Bengali medium. Their awareness about different varieties of OER, licensing and ethical issues were equally dismal. But, they all showed interest towards having material being available online for them. They may not have been aware of different specific aspects related to OER but they did not lack the basic skills to learn as well as use OER.

Our interaction with the center coordinator revealed that she is very much aware about OER and she being Principal of the college has been contacted by the University for doing academic video recordings. She was also aware about some of the licensing related ideas of OER. She agreed that she was also not aware about OER repository of NSOU. She felt that OER repository can be propagated by the center and the resource persons. She showed interest in creating OER for the students.

► **Howrah Girls College, Howrah**

One of the most interesting features of Howrah Girls College is its proximity to the railway station of Howrah and the variety of students the center was getting due to it. This specific center of NSOU had students coming from very far off places from different districts also for contact programmes.

One of the researchers of the team, Dr. Anwasha, was a teacher of the regular college during working days. It made our access into college much smoother. Different courses were contacted for the questionnaire and FGDs. The interaction with the students of teacher education (nursery teacher training) showed a different shade as it was attended by one of the administrators from the University initially. It gave an opportunity to the learners to interact on the matter directly with the administrator. The students group I which was able to interact, had all women learners from different parts of West Bengal.

None of them was aware about OER as a concept as well as about the OER repository of the University. But, they were quick to relate with the concept and gave good



examples of OER during interaction, which reflected that there is no lack of a positive attitude towards OER. Many of the learners immediately opened the website of their mobile phones and showed it to us. Some of them even started downloading the content which was available on the OER repository. This showed that there is no lack of availability as well as skills required to access OER. Some of them complained about speed related issues of downloading the OER material (specially two learners who were downloading videos). It was mainly because of the file size as well as the internet connection at that place. A majority of them said that it would be highly beneficial for them if course material is available to them through the OER. Some of them went beyond study material and said, “Study material is already available to us, it would be great if we get some more related information and material on OER repository so that we can learn better.” Another learner said, “It would be nice if we get lectures and demonstrations related to our training on the OER repository as it would help in developing our skills.” It showed that they were able to relate with the concept and utilization of OER.

Again the main problem students said was that they were not aware about OER repository being present for their purpose. It clearly indicates that better advocacy would have helped the learner in accessing and utilizing the repository in a better way.



CEMCA

Commonwealth Educational Media Centre for Asia
7/8, Sarv Priya Vihar, New Delhi-110016
<http://www.cemca.org.in>