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An Assessment of Individual and Institutional Readiness to Embrace Open Educational Resources in India

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Abstract

In India, the phenomenon of open educational resources (OER) is made possible by the widespread use of information and communication technologies (ICT) and open source technologies. Over the last decade, national institutions have embraced the concept of collaborative teaching and learning practices. The idea of shared resources has been successfully mooted by initiatives such as the National Science Digital Library (NSDL), the Open Source Courseware Animations Repository (OSCAR), the National Programme on Technology Enhanced Learning (NPTEL), the Virtual Academy for the Semi-Arid Tropics (VASAT) and Indira Gandhi National Open University's (IGNOU) FlexiLearn. Further, there is substantial policy support and public funding for such initiatives, thanks to the provisions made in the 11th Five Year Plan of the Government of India.

Whilst knowledge resources are widely available, India's OER movement is still in its infancy. This is because the term "open" in OER not only implies availability of educational resources for free use by teachers and learners, but also necessitates the free use of software tools, licences and best practices. Also, the 4Rs of OER (Wiley, 2009) demand a paradigm shift in the way individual teachers, learners and institutions perceive the culture of sharing.

Knowledge, Attitude, Practice (KAP) is a well-accepted method used by social scientists to study prevalent beliefs and misconceptions amongst people regarding any new idea or phenomenon. The KAP approach tells us what people know about certain things, how they feel and how they behave (Kaliyaperumal, 2004, p. 7). By applying the KAP framework to survey responses, we are able to understand perspectives, experiences and insights across an entire range of stakeholders, as well as capture a range of responses from each of the stakeholders.

In this report, we wish to examine the extent to which individuals and institutions in India are ready for the OER phenomenon. Our report is structured around the following signposts:

- Overview of higher education in India.
- Impact of ICT on higher education.
- Precursors to OER in India.
- Quantitative analysis of the survey data.
- KAP as a model for a qualitative study of the sample collected by the project team at Wawasan Open University, Malaysia, as part of the International Development Research Centre-funded PANdora project.
- Conclusions and future pointers.

Keywords: India, OER, open source technologies, collaborative learning and teaching, KAP

Overview of Higher Education in India

Higher education in India offers an interesting web of trajectories. Indian higher education is one of the largest in the world, with over ten million students. However, education marks a social divide in that only one in ten young people has access to higher education, according to the World Bank Report on Education in India (World Bank, 2012). Over the last few decades, the focus of Indian higher education has been on information technology and engineering courses. The trajectories do not stop here. Whilst India has the demographic advantage of being home to a large segment of the world's youth population, unemployment is still a major problem. "Whilst, at the top end, India's business schools, Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs) and universities produce globally competitive graduates, primary and secondary schools, particularly in rural areas, struggle to find [good teaching] staff" (Lall, 2005). This scenario raises questions regarding the extent, type and mode of education to be offered.

Fact File on Indian Higher Education

44	central universities
285	state universities
130	deemed universities
107	private universities
6,014	colleges recognised by the UGC[1]
374	autonomous colleges

Two vantage points are discernible with respect to Indian higher education. One is the Kothari Commission report, which was the first government policy to systematise a "coherent education policy". Formulated in the mid-1960s, the Kothari Commission's recommendations focussed on "free and compulsory

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[1] UGC is the University Grants Commission, a national apex body for higher education; these numbers are from www.ugc.ac.in

education for all children up to the age of 14" (Lall, 2005). Whilst this served the national agenda soon after independence, the '80s and '90s demanded more from education, and this resulted in the National Policy on Education (NPE), which aimed to gear India towards the twenty-first century.

Along with the motto of "education for all", NPE aimed to raise educational standards and increase access to education (Lall, 2005). These vantage points converge in the recent policy of the National Mission on Education Through ICT (NME-ICT), formulated as part of the 11th Five Year Plan. This policy seeks to network all higher education institutions through broadband connectivity, thus "using ICTs to meet the double goals of expanding access to and improving the quality of education" ("Harnessing Growth", 2008).

The intention is to weed out factors which debilitate the system (Kaul, 2006), such as:

• Excessive bureaucratisation.

• Underutilisation of funds.

• Unattractive compensation for qualified faculty.

• Outdated curricula.

• Poor infrastructure.

There is a parallel move to introduce affirmative initiatives (World Bank, 2012), including:

• Development of learner-centred educational resources.

• Utilisation of ICT to provide information pathways.

• Introduction of lifelong learning options.

• Encouragement of distance learning and eLearning.

• Total quality management in higher education.

This exercise of self-introspection has resulted in certain well-delineated proposals for the 11th Five Year Plan period (Government of India Planning Commission, n.d., p. 80), such as:

• Campus-based wireless Internet facilities and 24/7 computer labs.

• ICT coverage to all 360 universities and 17,625 colleges, in a phased manner.

• Intellectual hubs — universities and colleges — through networks, eResources, online learning, access to global resources, archiving of content, and eLearning management techniques.

• Broadband, wireless, digital subscriber line, leased line/TDM/FTDMA VSAT/ SCPC/DAMA/radio frequency links for establishing connectivity, to create a platform for collaboration amongst teachers and learners and to digitise Indian intellectual content.

The decreasing costs of hardware and bandwidth, the availability of connectivity, EDUSAT (a satellite distance education service), and other information and knowledge resources all provide distinct opportunities for the realisation of the 11th Five Year Plan objectives (Government of India Planning Commission, n.d., p. 102).

Impact of ICT on Higher Education

Over the last decade, especially the last five years, several meaningful initiatives have utilised ICT to augment the quality of education.

- One of the early ventures was the Consortium for Educational Communication (CEC), an inter-university centre of the UGC.[2] With the help of 17 educational multimedia research centres, the CEC produces TV programmes on syllabus-based topics. These are archived in a learning object repository.

- The National Council of Educational Research and Training uploads its textbooks online for free access by teachers and learners through its website.[3] Similarly, NSDL, an initiative of the Council for Scientific and Industrial Research, provides free access to supplementary curriculum-based content.

- Ekalavya is an open educational initiative by the Indian Institute of Technology, Bombay, for content development in Indian languages. It includes OSCAR, which provides web-based interactive animations as teaching resources.

- eGyanKosh, at IGNOU, provides access to over 30,000 modules of courseware in a self-instructional format, and 1,600 videos.[4]

- Towering over these initiatives is the NME-ICT, launched in 2009, and its Web portal — Sakshat — that provides one-stop access to e-content, e-journals and e-books. In addition, the National Educational Foundation, under the aegis of the National Knowledge Commission, seeks to develop web-based open resources.

These initiatives span different levels of education (primary, secondary, tertiary) and different types of providers (government, public, private). However, they converge in their attempts to provide access to quality teaching and learning resources. To this extent, they move towards Marc Eisenstadt's concept of "knowledge media", which foregrounds the processes of storing and sharing knowledge.

Precursors to OER in India

In the Indian context, the growth of ICT and the development of OER go hand in hand. Whilst OER are still nascent, three initiatives have kick-started the phenomenon.

1. The National Programme on Technology Enhanced Learning (NPTEL), a joint effort of the Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc), has created lectures aimed at students and faculty in private engineering colleges. Originally intended as recorded lectures or web-based lectures, they are now popular as YouTube lectures. This is an instance of the open access concept being used in the face-to-face and formal mode of education.

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[2] www.cec-ugc.org
[3] www.ncert.nic.in
[4] www.egyankosh.ac.in

2. VASAT, a wing of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), has created open access learning materials on agricultural practices, aimed to promote natural resource literacy. Under a Creative Commons licence enabling reuse, these materials are presented as PowerPoint slides, Flash videos and HTML files. VASAT materials reveal a simple and effective sharing of resources in the non-formal education sector.

3. IGNOU is the largest institution for open and distance learning in India. Its FlexiLearn service provides free access to existing courses to promote personal learning. This offers an instance of open access in the open and distance learning mode.

What Are OER and How Do We Define Them in the Indian Context?

There are several definitions of OER. A commonly accepted working definition reads as follows: "'Open educational resource(s)' (OER) refers to educational resources (lesson plans, quizzes, syllabi, instructional modules, simulations, etc.) that are *freely available* for use, reuse, adaptation, and sharing" (Wiley, 2008; emphasis added). Expanding on this, a more recent definition reads as follows: OER are educational resources that are "openly available for use by educators and students, without an accompanying need to pay royalties or licence fees" (Butcher, 2011, p. 5). All definitions relate OER to educational resources and expand or restrict the scope of the term "resources". What is interesting about the two definitions given above is their perception of "openness". Whilst the earlier definition equates openness to free availability, the latter relates openness specifically to licensing issues. This distinction becomes important in the Indian context because with the development of ICT, accessibility and reachability have emerged as givens. However, whether individuals and institutions will embrace the notion of open licensing is a matter to consider.

Given this context, the defining points of OER have to be reworked for the Indian context. The "4Rs" of OER — reuse, revise, remix and redistribute (Wiley, 2009) — may not pose an academic hindrance, but portability will depend on the extent to which redistribution happens. In other words, what form should OER take in India and what parameters should we adopt to gauge the reach of OER? These were the questions that set us on the present study.

OER Survey Instrument: An Overview

The survey instrument aims to study the current state of play in the use of OER in the Asian region. It contains three sections: the first section seeks information on the individual respondent and the institution to which s/he belongs; the second section focusses on the extent of understanding of and familiarity with digital resources; the third section garners information about the respondent's understanding and use of OER; and the fourth section gathers information on the policy, legal and technological issues related to OER.

In India, our survey sample consisted of 100 respondents drawn from different spheres of academia. The range of the sample was fairly extensive — faculty from universities and colleges, academics from the agricultural sector, and academics

from arts, science, social science and technical disciplines. Further, the sample included respondents from different parts of India, although there is no perfect balancing of all the nation's regions. Our quick finding is that nearly 95 per cent of our respondents answered the second and third sections of the survey instrument, indicating an awareness and extensive use of digital resources in the teaching–learning process and an initial level of awareness regarding the use of OER. In contrast, only two to five per cent of our respondents attempted sections pertaining to the ensuing policy, legal and technological concerns of OER. This is as expected, given the extensive penetration of open source technologies and the nascent beginnings of the open access concept and OER.
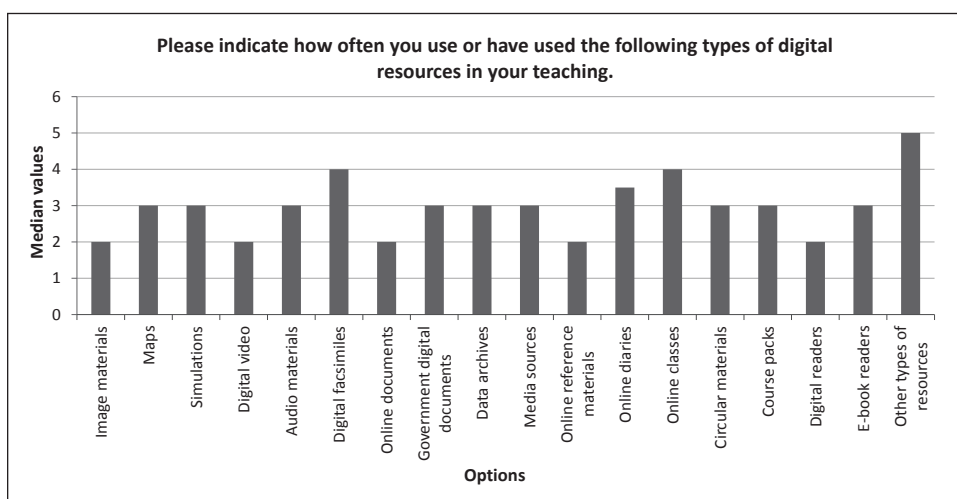
Given this scenario, a quantitative analysis would have been limited in its findings. Therefore, we propose to apply the Knowledge, Attitude, Practice — KAP — model to analyse our sample. Knowledge refers to people's understanding of any given topic. Attitude refers to their feelings towards the subject, as well as any preconceived ideas that they may have towards it. Practice refers to the ways in which they demonstrate their knowledge and attitude through their actions (Kaliyaperumal, 2004, p. 7). Often responses to survey instruments result in numerical and statistical data. As a survey tool, the KAP model's advantage is that it offers holistic qualitative inputs on survey data. The following sections of the report will examine the responses as an indicator of existing awareness and potential use of OER in India.

Understanding of and Familiarity with Digital Resources

In the Indian context, the extensive development of ICT is a precursor of OER. Whilst government policies over the last decade have been favouring the use of ICT in the teaching–learning process, the current Five Year Plan proactively advocates the collaborative creation and sharing of knowledge resources amongst Indian higher education institutions. Given this scenario, we expected an extensive awareness and use of digital resources (DR). Presented below are our quantitative and qualitative findings regarding digital resources.
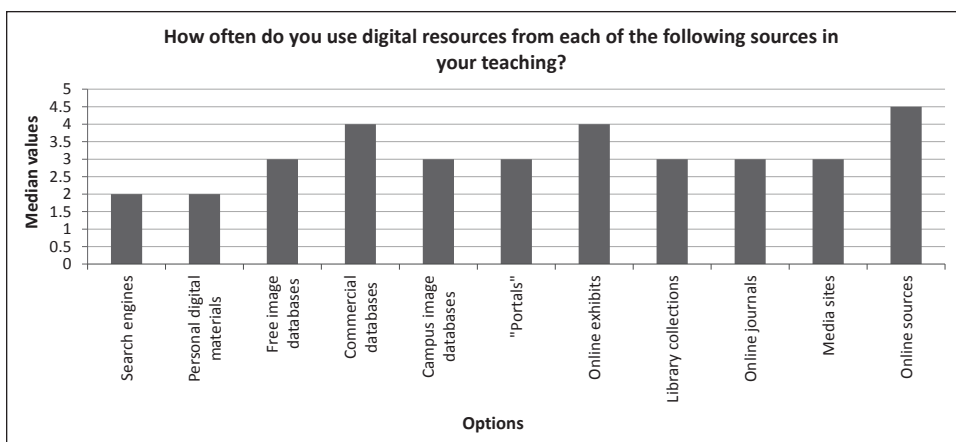
Types of DR Used

Figure 4.1: Types of DR used

Teachers use digital resources primarily to source images and videos; online documents and references are other important types. A PDF reader is a key software resource used by teachers. Blogs and audio materials are used considerably less, as are eReaders. Significantly, "course packs" and curricular materials are also used much less than images and videos.

Frequency of DR Usage
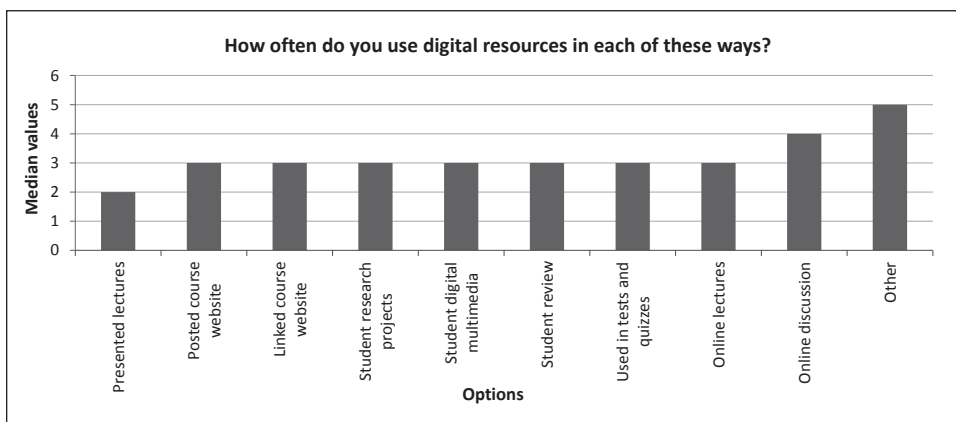
Figure 4.2: Frequency of DR usage

Teachers primarily source digital material directly from the Internet using search engines, or employ their own personal collections. Portals or media sites are not used much in this regard, nor are library collections or commercial image databases.

Functional Use of DR

Digital resources are used by teachers primarily in lectures, and relatively minor use is made in other ways. Online discussions involving teachers and students are not known to take place in significant ways, and DR are rarely used in those infrequent discussions.
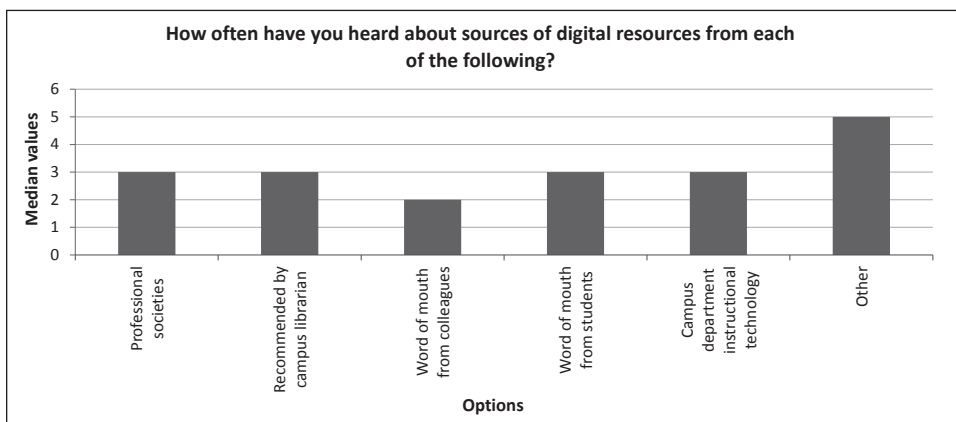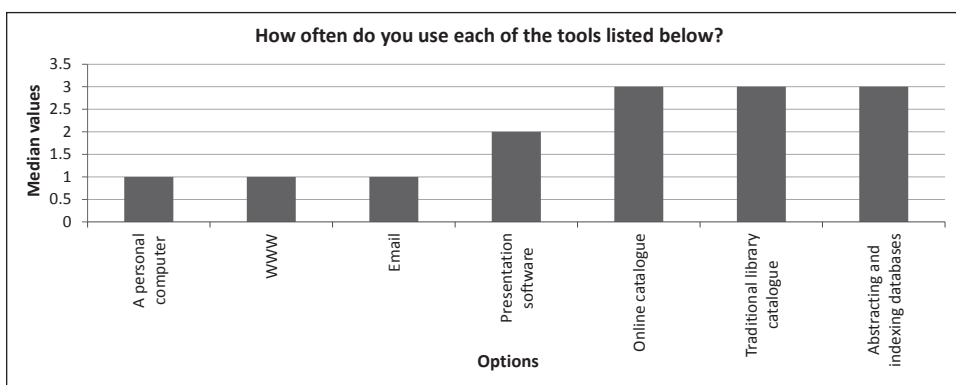
Figure 4.3: Functional use of DR

Sourcing of DR

A major source of information for teachers about DR is the knowledge or awareness of other teachers. Well-invested sources such as local Edutech testing and assessment centres or media resource centres are not often used as resources. There is a similarity between this situation and that of farmers. Most farmers are known to source information about new farming inputs or techniques from other farmers rather than from institutional resources. This is indicative of the weakness or absence of organised efforts to deliver information in an accessible way to seekers of DR.

Figure 4.4: Sourcing of DR

Use of Digital Tools

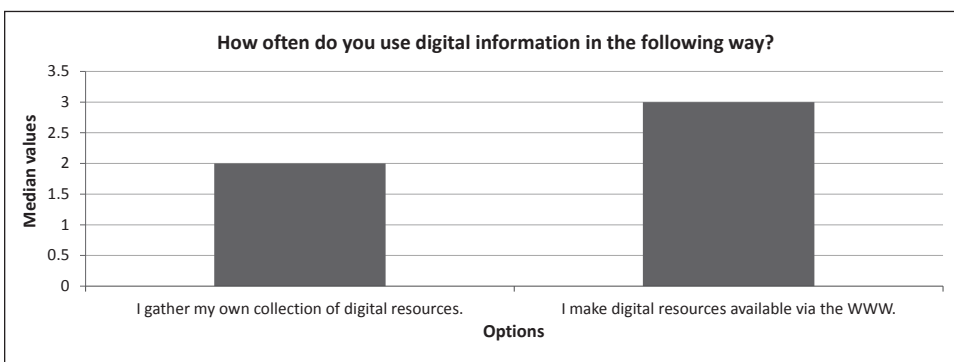Figure 4.5: Use of digital tools

Respondent teachers make modest use of their own collections of DR (consistent with Figure 4.2 above) and make even fewer serious efforts to share DR via the Web.

Use of Digital Information

Positive orientation towards students is a primary factor motivating teachers to deploy DR (mostly in lectures). Teachers are not motivated by possibilities of peer interest or by career advancement opportunities, both of which are considered to be nearly non-existent.
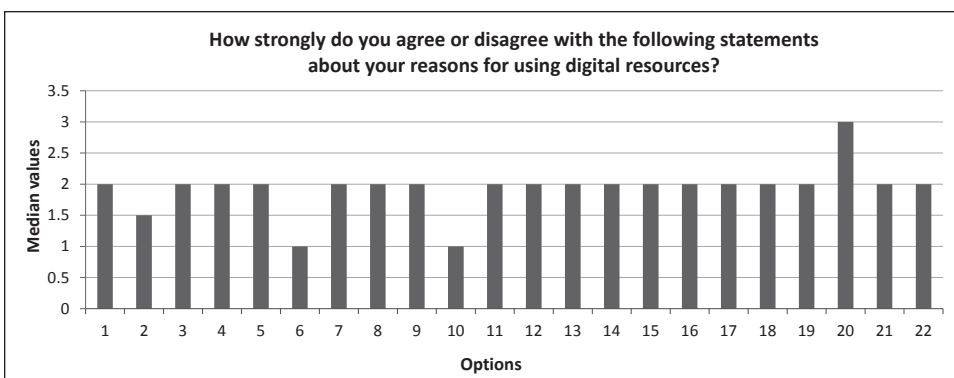
Figure 4.6: Use of digital information

How often do you use digital information in the following way?

Options	Median values
I gather my own collection of digital resources.	2
I make digital resources available via the WWW.	3

Reasons for Using DR

The responses to the question about reasons for using digital resources are interesting because they reveal the nascent beginnings of possible pedagogical frameworks for the use of OER in India. Teachers are using digital resources not because it makes the job of teaching easier, but because there is a tangible benefit to the learners.

Figure 4.7: Reasons for using DR

How strongly do you agree or disagree with the following statements about your reasons for using digital resources?

Options	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Median values	2	1.5	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	3	2	2

Legend

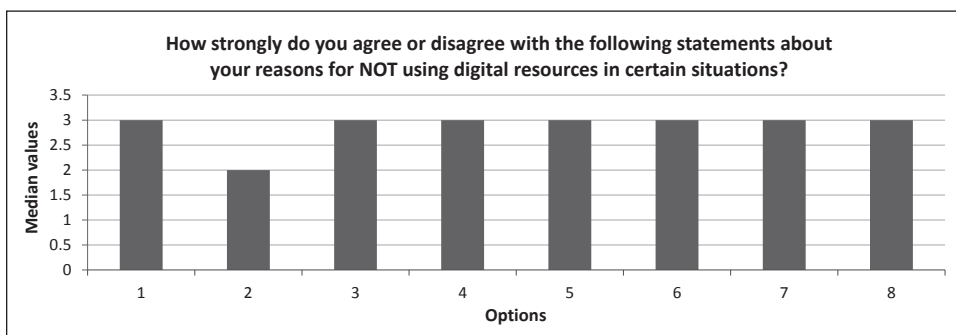I use digital resources in my teaching…
1. To provide students with a context for a topic.
2. To get students excited about a topic.
3. To integrate primary source material into the course.
4. To integrate my research interests into my course.
5. To provide students with both good and bad examples of different kinds of scholarship.
6. To let students know the most up-to-date development of the subject.
7. To teach information literacy.
8. To teach critical thinking skills.
9. To provide students a preview of the course before they register.
10. Because it improves my students' learning.
11. Because it allows my students to be more creative.
12. Because it saves me time.

13. Because it is more convenient for my students and their schedules.
14. Because it creates a sense of community for students enrolled in my course.
15. Because it allows me to do things in the classroom that I could never do otherwise.
16. Because it provides access to resources that we don't have at our college.
17. Because my students expect or ask for more technology.
18. Because it allows me to stay up to date with my colleagues.
19. Because the administration (deans, chairs, provost) encourages me to use digital resources more.
20. Because it may help me get promoted or get tenure.
21. Because I like or feel very comfortable with the new technologies.
22. Because I enjoy having my teaching practices and course materials available to anyone in the world who would like to use them.

Matching the Use of DR and the Context of Usage

The single largest response to this question is that there are very clear occasions when DR do not enhance or supplement the goals of the teaching instance. This is a useful indicator for designing DR and, by extension, OER, because the portability factor alone cannot guarantee usage. The design principles of DR and OER have to be inclusive and flexible at the same time.

Figure 4.8: Matching the use of DR and the context of usage

Legend

I don't use digital resources in certain teaching situations because…
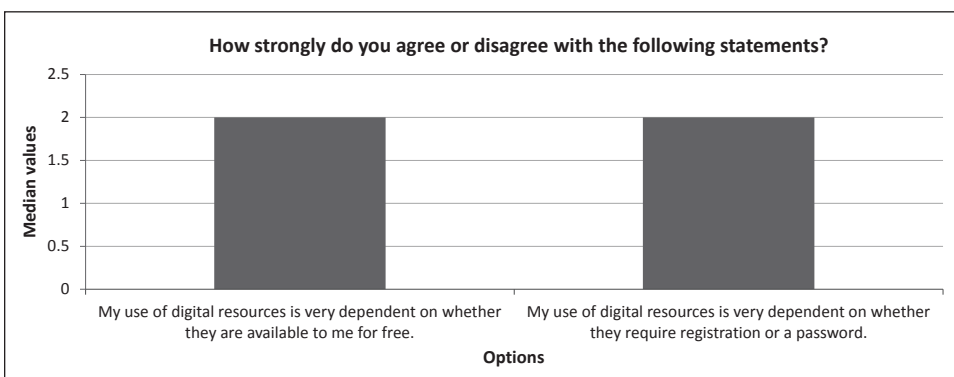1. I don't have time to use digital resources.
2. They cannot substitute for the teaching approaches I use.
3. Using them distracts from the core goals of my teaching.
4. They are irrelevant to my field.
5. Students don't have the information literacy skills to assess the credibility of digital resources.
6. Accessing digital resources is difficult.
7. Digital material can be presented outside its original context.
8. I don't want my students to copy or plagiarise material from the Web.

Attitude Towards Licensing Matters

Our respondents chose equally both options given in the survey instrument, regarding licensing issues. So, it really does not matter whether digital resources are free to reuse or are protected in some way. If a teacher decides to make use

of a resource online, s/he will! This is likely to pose a problem regarding use of copyrighted material even whilst creating DR or OER.
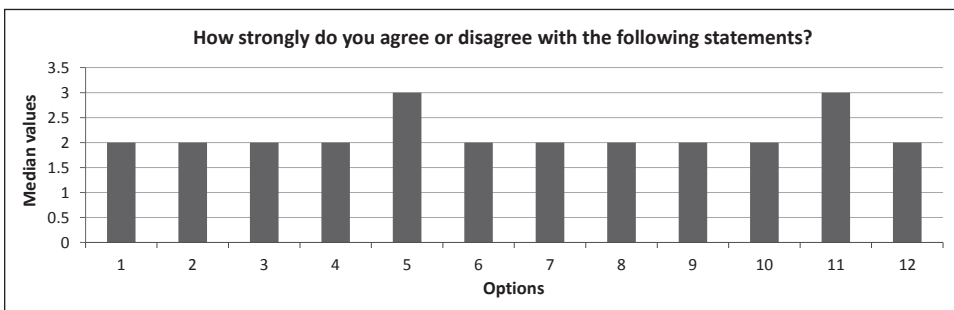
Figure 4.9: Attitude towards licensing matters

Factors Inhibiting the Use of DR

Almost all the "inhibiting" factors below are marginal from the teachers' point of view. It is thus safe to infer that these are not serious factors.

Figure 4.10: Factors inhibiting the use of DR

Legend

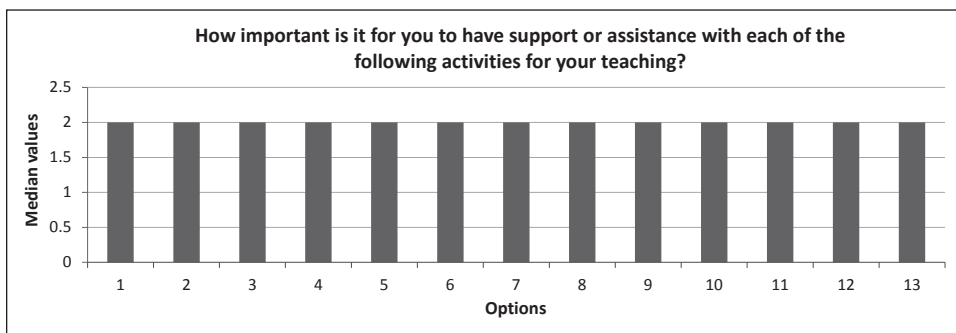I have difficulty using digital resources the way I would like because…
1. Available software is unsuitable for viewing and displaying digital images.
2. Available software is unsuitable for integrating audio or video into my course.
3. My students don't have reliable access to computers.
4. My students don't have reliable access to a high-speed connection.
5. I don't have reliable access to a computer.
6. I don't have reliable access to a high-speed connection.
7. I don't have reliable access to physical resources in my classroom.
8. It is difficult to get server space or access to a server in order to store/host digital resources for teaching.
9. I don't have reliable access to scanners.
10. Course management software packages (e.g., Blackboard, Moodle) are inadequate for my needs.
11. I don't know how to save presentations to my computer so they can be run without a live connection.
12. Web formats (e.g., HTML or PDF) allow me to link to whole documents but not to specific excerpts within a text.

Teachers discount the demotivating nature of two factors somewhat strongly — namely, that they do not have reliable access to a PC or that they would need a "live" connection to the Internet to make use of DR.

Support Mechanisms for the Use of DR

Teachers expect modest support with a large number of activities related to the use of DR. Whether this is due to a lack of knowledge is not clearly discernible from our sample.

Figure 4.11: Support mechanisms for the use of DR

Legend

Support with...
1. Finding digital resources.
2. Assessing the credibility of digital resources.
3. Evaluating the appropriateness of resources for my teaching goals.
4. Interpreting copyright laws and/or securing copyright permission.
5. Creating my own website.
6. Importing resources into a course website or a database.
7. Learning how to use a learning management system (e.g., Moodle, Sakai).
8. Integrating resources into a learning management system (e.g., Moodle, Sakai).
9. Digitising existing resources.
10. Gathering, organising and maintaining digital materials.
11. Training students to find or evaluate digital resources.
12. Obtaining or setting up technical infrastructure (servers, computers, smart classrooms, etc.).
13. Other activities.

Although there is a capacity gap, it is not perceived to be serious. However, this may be an area to focus on when OER are introduced in a formal situation.

From the samples available, the following inferences can be derived:

- There is clear evidence of moderate **knowledge** of digital resources amongst Indian teachers.

- Although the **attitude** of teachers towards the nuances of identification, use and creation of digital resources are rudimentary, there are no major social or psychological inhibitors which will hamper the acquisition of such knowledge.

- The actual use and creation of digital resources are still in their infancy. However, the identification and use of digital resources to suit teachers'
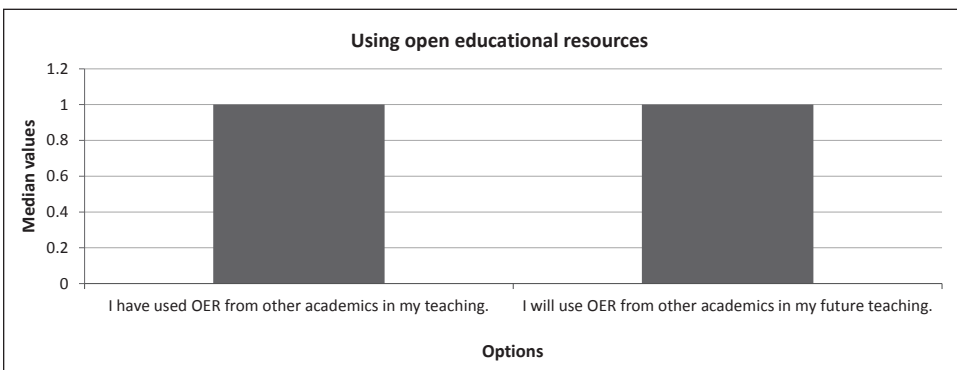
specific classroom needs offer an interesting **practice** or application framework.

The section of the survey instrument on digital resources clearly reveals the readiness of individual teachers to use digital resources. Whether this is transformed into their open welcome of OER will be discussed in the following sub-sections pertaining to the third section of the survey instrument — namely, the extent of understanding of OER as a concept and the use of OER.

Use of OER

The question about OER use whilst teaching attempts to capture existing and intended use. Our teacher respondents have in equal measure either used or are planning to use OER. Given the earlier responses with reference to digital resources, the primary channel for use appears to be the classroom lecture.
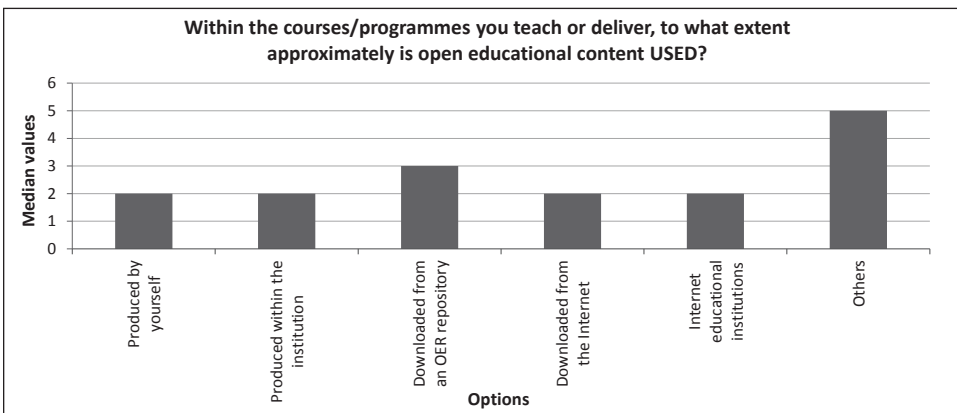
Figure 4.12: Existing and intended use of OER

Extent of OER Use

Teachers use OER produced in their own institutions or from collaborating institutions. To a significant extent, direct downloads from the Internet are used. It is noteworthy that OER repositories are not seen as equally rich sources. A possible explanation for this response is that teachers may not even be defining OER in terms of global open source and open access. An interesting indicator is that in larger or smaller measure, teachers consider sharing of resources as routine — probably like borrowing a book from a library or sharing photocopied material.
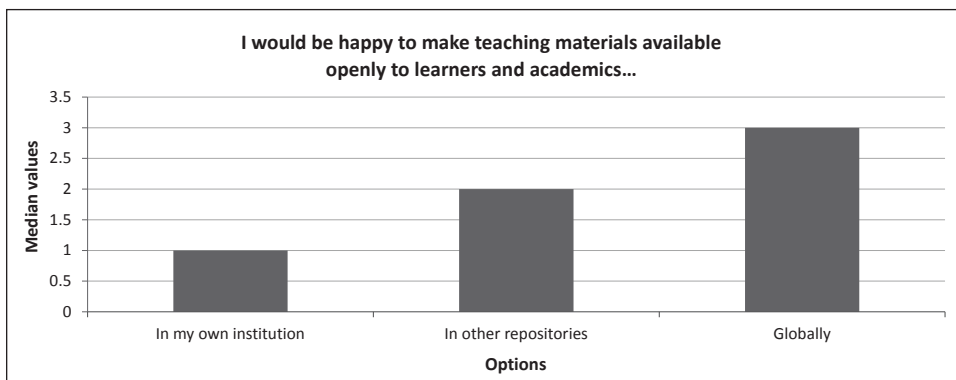
Figure 4.13: Extent of OER use

Sharing OER

The responses to this question have notable variations. Whilst a sizeable number of teachers are interested in sharing their own OER locally (probably amongst friends and colleagues within the institution), very few responses indicated interest in depositing their OER in repositories and making them available globally. A straightforward explanation is that teachers are still in the process of understanding the ramifications of the OER concept.
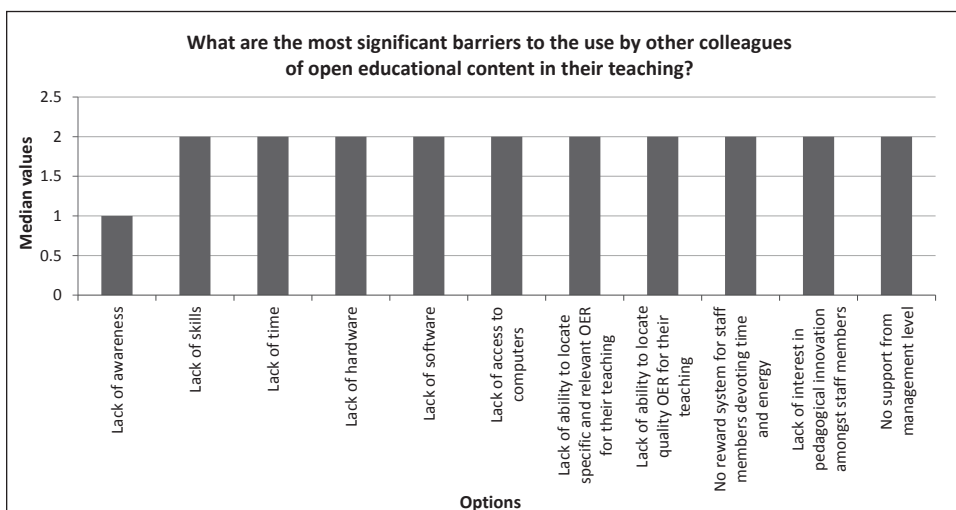
Figure 4.14: Sharing OER

I would be happy to make teaching materials available openly to learners and academics…

Median values (y-axis: 0 to 3.5)

- In my own institution: 1
- In other repositories: 2
- Globally: 3

Options

Perceived Barriers to Sharing OER

This survey item also reiterates the fact that OER are in a nascent stage of development in India. Lack of awareness is the most significant factor affecting the use of OER by teachers. As mentioned earlier, capacity-building exercises are needed to initiate teachers into this mode of knowledge management.

Figure 4.15: Perceived barriers to sharing OER

What are the most significant barriers to the use by other colleagues of open educational content in their teaching?

Median values (y-axis: 0 to 2.5)

- Lack of awareness: 1
- Lack of skills: 2
- Lack of time: 2
- Lack of hardware: 2
- Lack of software: 2
- Lack of access to computers: 2
- Lack of ability to locate specific and relevant OER for their teaching: 2
- Lack of ability to locate quality OER for their teaching: 2
- No reward system for staff members devoting time and energy: 2
- Lack of interest in pedagogical innovation amongst staff members: 2
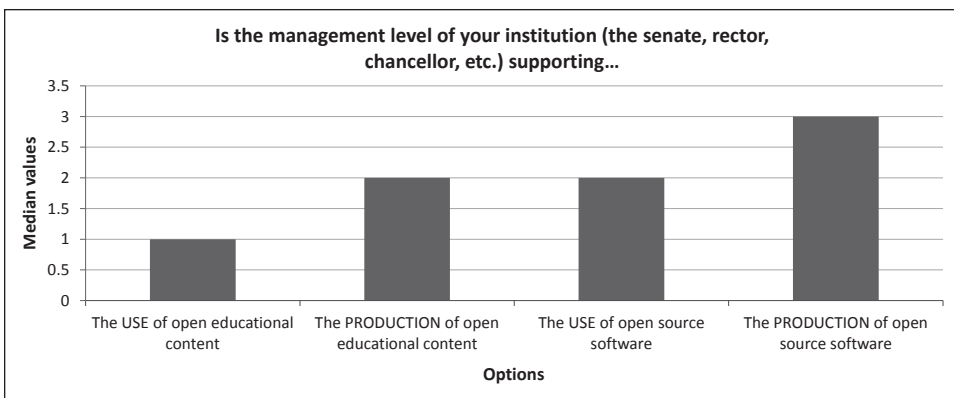- No support from management level: 2

Options

Institutional Support for OER

The spectrum of responses to this particular question is an eye-opener because no new educational practice can flourish without a synchronisation of individual interests and institutional goals. The responses indicate that management is

supportive of OER use locally and is somewhat supportive of their production for intra-institutional needs. Similarly, members of the management group of institutions are slightly supportive of the use of open source software but are significantly less supportive of the production of open source software. Whether this is due to a lack of perception of the potential of openness in education is not clear. However, this is a pointer for OER production in India. For OER to succeed there, benefits to the institution and individual have to be clearly established.
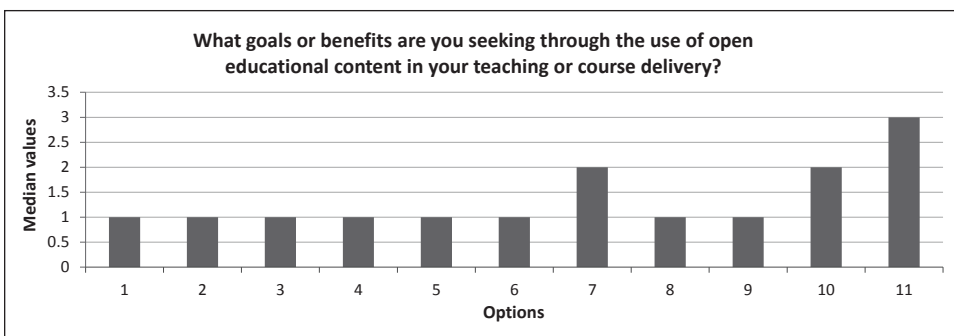
Figure 4.16: Institutional support for OER

Benefit Analysis for the Use of OER

Responses to this query provide clear indication of the factors that motivate the use of OER. A significant number of responses suggest that OER will improve affordability and outreach potential. This is in keeping with the government's policy of creating knowledge networks amongst institutions to bridge the gap in literacy and educational quality. Interestingly, very few respondents view OER as a move to become independent of publishers. This is again an expected outcome. Even though government policies advocate sharing of knowledge resources, institutional policies still demand publications in certain forms whilst assessing individual faculty for promotions and career advancement schemes.

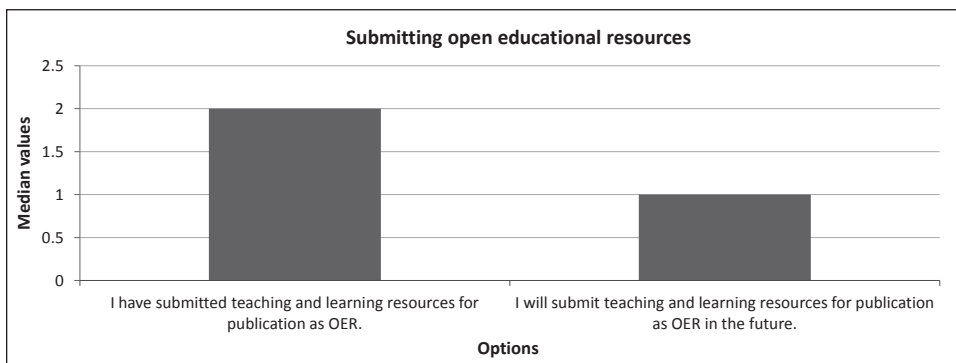Figure 4.17: Benefit analysis for the use of OER

Legend
1. Gaining access to the best possible resources.
2. Promoting scientific research and education as publicly open activities.
3. Bringing down costs for students.
4. Bringing down costs of course development for institutions.

5. Outreach to disadvantaged communities.
6. Assisting developing countries.
7. Becoming independent of publishers.
8. Creating more flexible materials.
9. Conducting research and development.
10. Building sustainable partnerships.
11. Any other.

Submitting OER for Publication

Even though the teachers do not indicate a resistance to publishing their OER, the responses do not reveal a high level of motivation either. A primary reason may be a lack of awareness of the potential of such sharing. Therefore, capacity-building exercises are required.
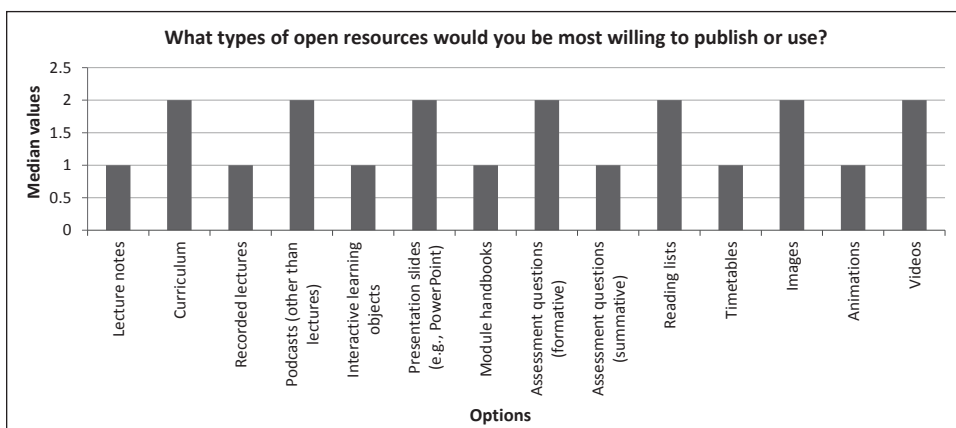
Figure 4.18: Submitting OER for publication

Preferences in Publishing and/or Using OER

This question — "What types of open resources would you be most willing to publish or use?" — is not well formulated: *use* and *publish* should be expected to lead to different sets of preferences. We feel that keeping them together somewhat diminished the value of the responses. Our respondents were also confused in their responses to this question. Images and videos, which were most sought after for use (as evident in responses to an earlier question), were less significant in this set of responses. A possible reason is that respondents were less sure of publishing images or videos they produce, and more sure of utilising the ones available on the Internet or from colleagues and friends.
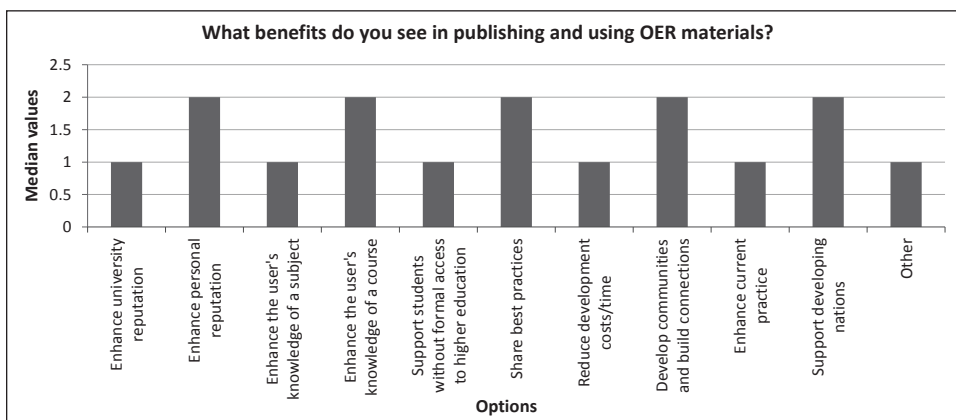
Figure 4.19: Preferences in publishing and/or using OER

What types of open resources would you be most willing to publish or use?

Perceived Benefits of Publishing OER

The question "What benefits do you see in publishing and using OER materials?" also received ambiguous responses. Given that there is a lack of clarity over the potential for publishing OER and the institutional sanction accorded to doing so, it is not surprising that respondents were cautious in enumerating the benefits. We interpret this as another important indicator of the need for institutions to assign credit to the creation and use of OER.

Figure 4.20: Perceived benefits of publishing OER

What benefits do you see in publishing and using OER materials?

Locating OER and the Effectiveness of Existing OER Searches

The last two questions reveal that generic searches are the most popular approach for teachers in locating OER, and repositories are not perceived as serious sources of knowledge. This is consistent with earlier responses. Our interpretation is that OER repositories are not developed comprehensively or are not marketed well. Specialised search techniques are viewed ambiguously in terms of their usefulness.
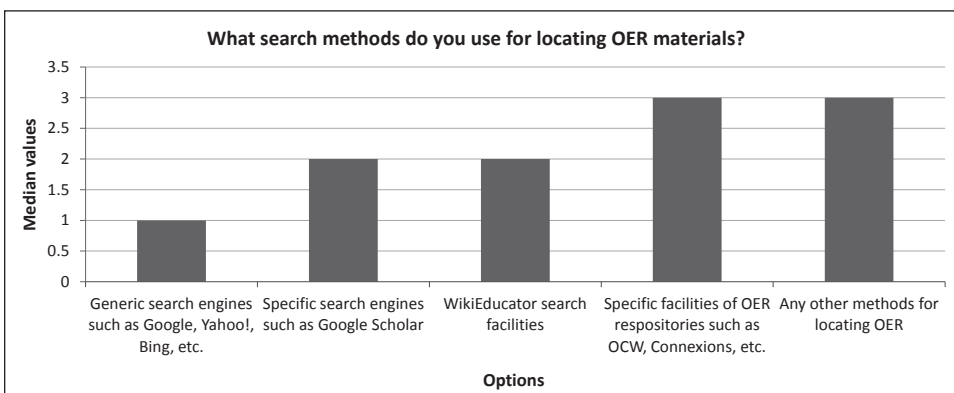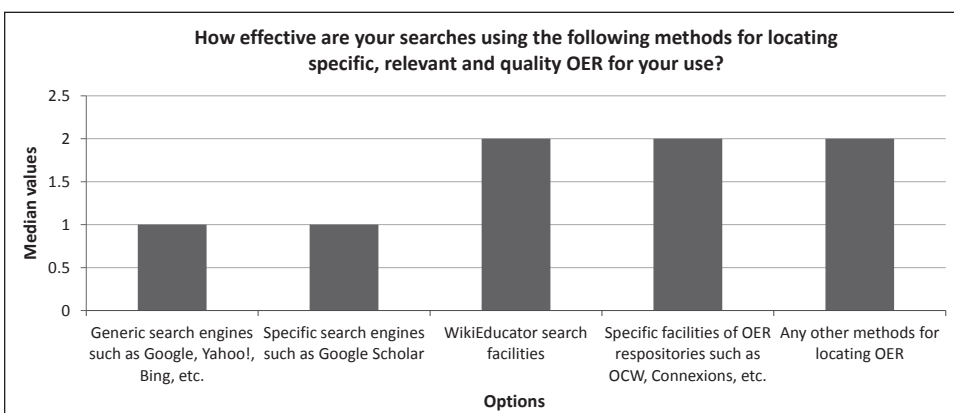
Figure 4.21: Locating OER

What search methods do you use for locating OER materials?

(Median values; Options)
- Generic search engines such as Google, Yahoo!, Bing, etc.: 1
- Specific search engines such as Google Scholar: 2
- WikiEducator search facilities: 2
- Specific facilities of OER respositories such as OCW, Connexions, etc.: 3
- Any other methods for locating OER: 3

Figure 4.22: The effectiveness of existing OER searches

How effective are your searches using the following methods for locating specific, relevant and quality OER for your use?

(Median values; Options)
- Generic search engines such as Google, Yahoo!, Bing, etc.: 1
- Specific search engines such as Google Scholar: 1
- WikiEducator search facilities: 2
- Specific facilities of OER respositories such as OCW, Connexions, etc.: 2
- Any other methods for locating OER: 2

The responses to the OER section of the survey also reveal a gap between knowledge and practice, similar to the responses to the section on digital resources. Our inferences are as follows:

- There is little to moderate **knowledge** of what constitutes OER and of their potential reach and benefits amongst Indian teachers.

- There is lack of clarity on the types and methods of creating and using OER. However, this is more to do with the lack of knowledge of OER and less to do with inhibiting psychological or social **attitudes**.

- Given that OER are a nascent phenomenon in India, there is a gap between individual practice and institutional norms. At an individual level, teachers are willing to put OER into **practice**, but there is not much evidence of their reach.

Conclusions and Future Pointers

The present survey has a single element that proves to be both a highlight and a deterrent in obtaining clear-cut responses. It is a nested survey wherein several related questions are raised. Whilst it limits the extent of quantitative inferences that can be derived from the results, it proves a veritable goldmine of qualitative pointers. As mentioned earlier, there were 100 responses in all. Whilst 40 were fully completed questionnaires, 30 were partially completed and 30 were

incomplete. This is a major reason why we couldn't arrive at any conclusions regarding policy, legal and technological issues raised in the fourth section of the survey instrument. Based on our analysis, the following conclusions are evident:

- The highlight of the survey in terms of responses is use of digital resources but not really of OER. This is quite clearly due to the differing stages of development of DR and OER.

- Identification of sources of DR and OER is still through conventional modes.

- There is a high instance of use of DR and OER as classroom tools and techniques.

- The individual production of DR and OER is directly related to the lack of career incentive for the activity.

- There is a lack of awareness regarding copyright regulations.

- As of now, what drives the DR and OER initiatives is individual interest, not institutional support or encouragement. This is surprising, given the recent government policies on knowledge sharing and collaborative practices.

DR and OER will remain predominantly acronyms rather than actualities until they are perceived as AER — accessible educational resources. So, what is the way forward?

- Awareness-raising and capacity-building exercises are required for individuals.

- Policy decisions of the government have to be suitably interpreted by individual institutions, leading to career incentives for individuals embracing DR and OER.

- Collaborative resource creation and sharing amongst teachers at intra-institutional and inter-institutional levels have to be encouraged.

- Easy to access repositories with convenient indexing and metadata have to be made available at institutional and national levels.

- Pedagogic parameters for using and creating DR and OER have to be crystallised.

These conclusions and future pointers support our hypothesis that any new phenomenon needs to be pervasive in its reach. Further, the percolation of a new idea amongst individuals and institutions must be symbiotic. More importantly, OER cannot succeed in India as an indicator of social responsibility alone. There has to be a viable model that can demonstrate individual and institutional benefits for synchronising the knowledge, attitudes and practice of OER.

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