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Effectiveness of a capacity building intervention for OER search and integration for course materials development

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Abstract: There have been a number of initiatives in the last decade that led to the creation of courseware and other resource materials with open licence enabling free and wider use among practitioners. This OER movement was expected to make available quality learning materials for classroom use as well as for developing ODL course materials. Adoption of OER materials and contextualising them within a new teaching-learning context also needed adequate skills on the part of the new users. Institutions also need to have their own OER policies to systematically adopt implement Open Educational Practices in all facets of their teaching-learning activities

The Wawasan Open University has been one of the pioneers in the adoption of open educational practices in its course development and delivery. It initiated deliberations within its governing bodies as well as academic community regarding the possibility of OER adoption right from 2010. This led to concerted efforts on the part of a team of senior academics in the University for developing awareness about OER and OEP and build capacity among its academic and academic support staff to adopt open educational practices mainly for course development. As of now, fourteen courses at both undergraduate and post-graduate levels have been developed by fully or partially using available OER materials. WOU in collaboration with CEMCA and COL developed OER materials that were delivered as MOOCs in 2015.

WOU is in the final stage of a research project entitled OER Integration in e-Learning Materials on Research Methodology in Education, the findings of which are expected to provide more insight into the OER adoption and integration for developing course materials in open distance learning. As part of this project WOU developed a mechanism to enhance capacity among the potential users of OER to identify, integrate and use OER for teaching and learning. It is expected that this workshop will be able to develop adequate conceptual understanding of OER and OER adoption among the participants as well as inculcate a positive attitude towards OER use. This project is one of the sub-projects under a larger meta-project called Research on Open Educational Resources for Development (ROER4D) supported IDRC, Canada.

The present paper attempts to discuss the processes involved in designing and implementing the capacity building workshops conducted in India, Malaysia and Sri Lanka and its impact/effectiveness on about 200 participants constituting students and educators of higher education with respect to conceptual understanding of OER and attitudes towards OER.

Keywords: OER, search, identification, integrations

Introduction

As part of a research project entitled OER Integration in e-Learning Materials on Research Methodology in Education, the various processes involved in this project helped birth the designing and implementation of capacity building workshops conducted in various institutions in Malaysia, India and Sri Lanka. This was to help the participants who were potential users of OER to identify, integrate and use OER for teaching and learning. A similar format of the workshop was used in all the institutions concerned and had the following objectives to help the participants:

1. develop awareness of the basic concepts and practices of OER and relevant licences;
2. use search engines and repositories to access OER appropriate to a given content; and
3. reflect on the process of adopting and integrating OER in course development.

The capacity building interventions in the form of training workshops were deemed necessary as many participants in the Research Methodology try out workshops did not know nor have much exposure to OER and also how OER could contribute to quality of education in terms of making available multimedia learning resources for free. This paper discusses the details of interventions carried out and the changes in participants' attitude towards OER and their conceptual knowledge post intervention by these capacity building workshops.

Literature Review

The biggest challenge to using OER is that the educators do not know where to find resources (De Los Arcos, Farrow, Perryman, Pitt & Weller, 2014). Time is also a significant barrier for the educators to create, adapt and adopt OER for their courses, as such Jhangiani, et al. (2016) affirmed that institutions should provide excellent support on best practices for OER adoption and adaption. Few educators claimed that there are not enough OER for their teaching subject (Allen & Seaman, 2016), which could probably be due to lack of awareness about the sources of availability of OER

Mtebe & Raisamo (2014) in their study indicate some educators do not have knowledge about copyright and intellectual property issues. Similar findings were also reported in Allen & Seaman's (2016) survey. Jhangiani, Pitt, Hendricks, Key, & Lalonde (2016) suggested that awareness of the existence of OER should be raised among educators. Institutions can give training workshops on how to find and identify the OER materials, how to review the quality of OER found and how to adopt the OER for their respective courses.

From the brief research findings reported above, one can notice the need for the capacity building activities for facilitating OER development and its use & reuse.

Methodology

Sample: As a part of the tryout of OER integrated Research Methodology modules and capacity building activities, a total of ten workshops were organised, 6 in India, 1 in Sri Lanka and 3 in Malaysia during 2015-2016. In all, 254 learners of whom 129 were Master and Ph.D students (90 female and 39 male) and 125 were educators (49 female and 76 male) participated in the workshops. These institutions in India, Malaysia and Sri Lanka were selected based on their willingness to participate in the workshop. The two sets of target groups that were looked at were students and educators. The sampling technique used was purposive in nature.

Research Instruments: In order to assess the impact of the capacity building workshops, the participants were administered a set of two instruments through a ten item open ended questionnaire to assess their conceptual

understanding of OER and another a 20 item attitude scale of 5 points (Strongly Agree, Agree, undecided, Disagree and Strongly Disagree).

The attitude scale (OER Attitude Scale for Course Learners (OERAS-CL)) had items related to 3 dimensions (subscales) which included OER concept, OER as facilitator of learning and OER Use& reuse The tool was reviewed by a group of experts for its content validity and the finalised tool was tested (N=168) for its reliability by calculating item-total correlation and Cronbach alpha. The item-total correlation ranged from 0.30 to 0.65. The Cronbach alpha for the whole test was 0.853.

The Conceptual Understanding Questionnaire (OER-CUQ), an open ended scale of 10 items was developed with inputs from experts to assess the conceptual understanding of OER from learners' perspective. The questions were aimed to measure understanding of learning among participants about the concept of OER, its advantages, licences and other areas. Each question carried 2 marks, so the maximum score possible was 20 marks.

Conduct of Capacity Building workshops

Before the conduct of the workshop two instruments were administered to assess the pre-intervention levels of conceptual understanding of OER and attitude towards OER. Following this, the participants were exposed to three phase interventions which included Phase 1– OER Awareness creation, Phase 2 – OER Identification/searching and Phase 3– studying the examples of OER integrated materials.

Awareness creation

Participants were introduced to the concepts and practices of OER which covered OER and its related concepts. Then, they were walked through the historical development of OER through the years as well as initiatives taken in this area by government and non-governmental bodies internationally. The topics discussed included openness in education, open learning, open access, open scholarship, open badges, what OER are, types of OER, why OER and some OER initiatives by institutions and governments. In addition, the global OER logo was shown and some key points of the Paris declaration on OER discussed.

Identification of OER

Followed by the awareness creation session, the participants were given a hands on session on how to identify appropriate OER in a given content area by using appropriate search engines. The participants were also exposed to the creative commons licenses and shown what they represented and in which context they should be used. Participants were exposed to the types of search engines and OER repositories. They were asked to log-in certain repositories using *facebook* or *google* accounts. During the identification process, the participants found that OER repositories have narrowed search on certain search terms as not all topics could be found in certain OER repositories. However, with search engines, the search could be done by generic search terms. Thus, it was proposed that search engines be used for generic search and OER repositories for specific topics. After the search process was introduced, the participants were required to choose the four suggested search engines to search and identify for OER materials that are related to their teaching and learning topics by using different keywords.

Login without account	Login with account (facebook or google)
Connexions OER https://cnx.org/	OpenCourseWare Consortium Search http://www.oec consortium.org/courses/
Google advanced search https://www.google.com/advanced_search	Boundless https://www.boundless.com/
Youtube https://www.youtube.com	OER commons https://www.oercommons.org/
Creative commons https://search.creativecommons.org/	CK-12 http://www.ck12.org/
Jorum http://www.jorum.ac.uk/	Curriki http://www.curriki.org/
College Open Textbooks http://www.collegeopentextbooks.org/	
MIT OpenCourseWare http://ocw.mit.edu/index.htm	
WikiEducator https://wikieducator.org/Main_Page	
Saylor Academy http://www.saylor.org/	

Figure 1 OER repositories and search engines shown to the participants during the workshops

Integration of OER

In the third phase, they were given units from the various modules developed using OER to provide the participants with more insight into the OER adoption and integration for developing course materials. The participants were asked to go through the materials to see and learn how OER can be reused, revised, remixed and/or redistributed. This inspired them to think about how they could design their own courses in a way that makes full use of OER and its potential and increases effectiveness and efficiency of the course. The following diagram exemplifies how the various types of OER and its elements are to be adopted and mixed while developing a new course, as exemplified in the Research Methodology course.

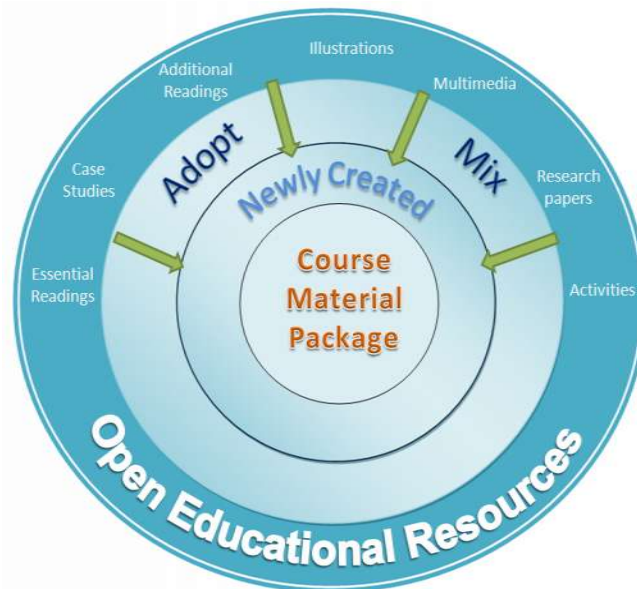


Figure 2 The integration of OER in the course material

The participants were also given a quality assessment scale of 38 items to assess the quality of the Research Methodology (RM) units which they went through. The items on the scale helped the participants to understand the possible criteria one looks for in any well developed OER. The quality of the RM units was assessed on seven dimensions which included the material having sufficient scope for self learning, interactivity, inclusiveness, resources, format and presentation, language and communication, indirectly communicating to participants that any good OER should have provisions to take care of these seven dimensions.

Data collection, analysis and discussion

At the beginning and end of the workshop, the participants were given the attitude scale as well as the questionnaire on the conceptual knowledge of OER to gauge whether there was an attitudinal change as well as increased knowledge on OER.

OER Attitude Scale for Course Learners (OERAS-CL) In the case of course users (participants including students and educators) the pre and post-workshop scores in the attitude towards OER scale was analysed and the t-test applied to ascertain whether the mean differences was significant or not. The table below indicates that the difference is significant (at 0.001 level) and from this one could conclude that there was positive change in the attitude of participants attitude towards OER after they were oriented towards OER. The table given below shows the observed change in attitude as significant ($p = 0.001$, $df = 167$).

Table 1 t- test analysis with respect to 3 dimensions of Attitude Scale

Subscales/dimensions	Mean, variance and t -test results with respect to 3 dimensions (df=167)				
	Pre/Post	Mean	Variance	t	P
Whole Scale (20 items)	Pre	78.80	94.46	5.68*	0.000
	Post	83.86	135.28		
Facilitating Learning (8 items)	Pre	31.97	24.45	3.05	0.001
	Post	33.32	26.33		
OER concept (9 Items)	Pre	34.89	18.72	6.74	0.000
	Post	37.63	30.52		
OER Use and reuse (3 Items)	Pre	11.94	3.29	5.98	0.000
	Post	12.92	3.54		

The data was further analysed to find out whether there was any differential gains across participants' gender and nature of participants (students and educators). It could be seen that female educators have higher scores than their male counterparts. On the other hand, male students have higher scores than their female counterparts.

The workshop seems to have resulted in making an impact on the participants' attitude towards OER. The observed change in attitude was found to be significant ($p = 0.001$, $df = 167$). Mean attitude scores post workshop were higher for female participants when controlled for pre-workshop attitude scores ($p = 0.037$). The comparison between students and educators revealed that there was no significant difference between the two groups in their post workshop attitude when the pre workshop attitude was controlled.

OER Conceptual Understanding (OER-CUQ). The pre and post-workshop scores in the conceptual understanding of OER were analysed and the t-test applied to ascertain whether the mean differences are significant. The table below indicates that the difference is significant (at 0.001 level) and from this one could conclude that the participants had better conceptual understanding of issues concerning OER after the workshop interventions.

Table 2 t- test analysis of data concerning participants’ conceptual understanding.

t test results (for entire scale) (df=94)				
	Mean	Variance	t	P
Pre workshop score	6.07	10.24	11.66*	0.000
Post workshop score	9.52	3.38		

* Significant at 0.001 level

The data was further analysed to find out whether there were any differential gains across participants. The participants’ conceptual understanding seemed to have improved after the workshop ($p = 0.001$, $df = 94$). But, no difference in the conceptual understanding across gender was observed ($p=0.444$) when the conceptual understanding at pre-test stage is controlled. Students and educators were seen to have no difference between their post test scores when the pre-test scores are controlled ($p=0.55$).

Conclusion

In conclusion, this paper discussed how the capacity building workshops created greater awareness of OER and how they can be adopted and integrated for developing course materials. The analysis of the OER attitude scale and conceptual knowledge questionnaire pre and post scores indicated that there were significant changes in participants’ attitude and knowledge post intervention by the conducting of capacity building workshops. It is hoped that an increasing number of capacity building workshops will be carried out among educators as it has been demonstrated in this study to have visibly impacted the participants’ professional development as students and educators and their ability and confidence in the effective integration of OER in future course design activities using a learner centred approach.

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