Editorial policies

Open Praxis is a peer-reviewed open access scholarly journal focusing on research and innovation in open, distance and flexible education. It is published by the International Council for Open and Distance Education—ICDE.

The aim of Open Praxis is to provide a forum for global collaboration and discussion of issues in the practice of distance and e-learning. Open Praxis welcomes contributions which demonstrate creative and innovative research, and which highlight challenges, lessons and achievements in the practice of distance and e-learning from all over the world.

Open Praxis provides immediate open access to content on the principle that making research freely available to the public supports a greater global exchange of knowledge.

Open Praxis is a quarterly journal published in January–March, April–June, July–September and October–December.

Research articles and innovative practice articles are subject to double-blind peer review by a minimum of two Reviewers.

Authors need to register with Open Praxis prior to submitting, or if already registered can simply log in and begin the 5 step submission process.

Editorial team

Editor
Inés Gil-Jaurena, Universidad Nacional de Educación a Distancia (UNED), Spain

Consultative editor
Beatriz Malik, Universidad Nacional de Educación a Distancia (UNED), Spain

Editorial board
Suresh C. Garg, Indira Gandhi National Open University, New Delhi, India
Gangappa Kuruba, University of Botswana, Botswana
Thomas P. Mackey, SUNY Empire State College, New York, United States
Marta Mena, National Technological University (Universidad Tecnológica Nacional), Argentina
Alan Tait, The Open University, United Kingdom
Yang Zhijian, Open University of China (OUC), China

Publisher and contact information

ICDE—International Council for Open and Distance Education
Lilleakerveien 23
0283 Oslo, Norway
editor@openpraxis.org
www.openpraxis.org
http://dx.doi.org/10.5944/openpraxis
ISSN 2304-070X

Journal history


Copyright notice

Authors who publish with this journal agree to the following terms:

a. Authors retain copyright and grant Open Praxis right of first publication with the work simultaneously licensed under a Creative Commons Attribution 4.0 International License that allows others to share the work with an acknowledgement of the work’s authorship and initial publication in Open Praxis.

b. Authors also grant ICDE right to publish a printed compendium of Open Praxis published articles in an annual basis.

c. Authors are able to enter into separate, additional contractual arrangements for the non-exclusive distribution of the journal’s published version of the work (e.g., post it to an institutional repository), with an acknowledgement of its initial publication in Open Praxis.

Open Praxis does not necessarily agree with opinions and judgements maintained by authors.
# Table of Contents

## Editorial

**Innovation, research and best practice in open and distance education**  
Inés Gil-Jaurena, Beatriz Malik 283

**2015 ICDE Prizes for innovation & best practice papers (2nd edition)**

**Challenges to the doctoral journey: a case of female doctoral students from Ethiopia**  
Asamenew Demessie Bireda 287

**Recognising informal elearning with digital badging: evidence for a sustainable business model**  
Patrina Law 299

**Growth and development of distance education in India and China: a study on policy perspectives**  
Ashok Gaba, Wei Li 311

**Validating student satisfaction related to persistence, academic performance, retention and career advancement within ODL perspectives**  
Maximus Gorky Sembiring 325

**From OER to OEP: shifting practitioner perspectives and practices with innovative learning experience design**  
Shironica Priyanthi Karunanayaka, Som Naidu, J.C.N. Rajendra, H.U.W. Ratnayake 339

## Research articles

**The impact of OER on teaching and learning practice**  
Martin Weller, Bea de los Arcos, Rob Farrow, Beck Pitt, Patrick McAndrew 351

**Teaching strategies to promote immediacy in online graduate courses**  
Manuel Flores Fahara, Armida Lozano Castro 363

**Open Data as Open Educational Resources: Towards transversal skills and global citizenship**  
Javiera Atenas, Leo Havemann, Ernesto Priego 377

**List of reviewers 2015 (volumen 7)** 391
Innovation, research and best practice in open and distance education

Inés Gil-Jaurena

Editor for Open Praxis. Universidad Nacional de Educación a Distancia - UNED (Spain)
editor@openpraxis.org

Beatriz Malik

Consultative Editor for Open Praxis. Universidad Nacional de Educación a Distancia - UNED (Spain)
bmalik@edu.uned.es

This last issue of Open Praxis in 2015 includes eight articles. Five of them were awarded an ICDE Prize for Innovation and Best Practice in the field of open and distance education (2nd edition), selected among papers presented at the 26th ICDE World Conference, held in Sun City (South Africa) from 14 to 16th October 2015. The last three papers were submitted to the open section of the journal.

In line with ICDE’s mission and objectives as described in its Strategic Plan 2013-2016, and following the experience at the 25th ICDE World Conference in Tianjin (China) in 2013, the ICDE aims to stimulate innovation and best practices in the fields of open, distance and online learning by launching several prizes. In this second edition, linked to the 26th World Conference, 14 participants submitted their papers to be considered for the best paper award. The criteria for evaluation were as follows:

- Link to the conference theme
- Originality of the contribution
- Scholarly nature of the work
- Significance of the contribution
- Adherence to the author guidelines of Open Praxis

According to the criteria in the call for ICDE Prizes for Innovation and Best Practice in Open, Distance, Flexible, Online Education and E-learning (2nd edition), the Editorial Board of the ICDE journal Open Praxis selected five papers to receive the award. The Journal Editor coordinated the double blind evaluation process; each paper was reviewed by at least two Editorial Board members, who filled a rubric, assessing each criterion from 0 to 10. To be awarded, the papers needed to score a minimum of 6 in each of the criteria, a minimum of 35 as a total score, and be recommended for the award by at least two reviewers. The paper had to be original and not published before.

The following Open Praxis Editorial Board members participated in the process:

- Prof. Marta Mena, from the National Technological University (Universidad Tecnológica Nacional), Argentina
- Dr. Thomas P. Mackey, from SUNY Empire State College, New York, United States
- Dr. Gangappa Kuruba, from University of Botswana, Botswana
- Dr. Suresh Garg, from Indira Gandhi National Open University, New Delhi, India
- Prof. Alan Tait, from Open University UK
- Dr. Beatriz Malik, from the Spanish National Distance Education University (UNED), Spain, and
- Dr. Inés Gil-Jaurena, from Spanish National Distance Education University (UNED), Spain, editor for Open Praxis.
The awarded papers, published in this *Open Praxis* issue, are:

Asamenew Demessie Bireda, from UNISA, was awarded the ICDE Prize for Innovation and Best Practice in Open, Distance, Flexible, Online Education and E-learning for the paper *Challenges to the Doctoral Journey: a Case of Female Doctoral Students from Ethiopia*. The Editorial Board highlighted the qualitative approach of this paper, which identifies female students’ concerns and provides insight to organize student support services. The author explores issues faced by doctoral students in general, and by female students in particular in the course of their doctoral studies, conducting a qualitative in-depth study with five female doctoral students. The results identified several topics grouped in three major areas of concern: academic, psychosocial and home/work related. The author suggests some strategies to meet the challenges posed by women scholars in the doctoral journey, and contends that universities should provide support structures to facilitate these strategies, making students aware of such structures during orientation sessions.

Patrina Law, from the Open University UK, was awarded the ICDE Prize for Innovation and Best Practice for the paper *Recognising Informal Elearning with Digital Badging: Evidence for a Sustainable Business Model*. The Editorial Board of *Open Praxis* valued the originality of this paper, which presents a good research in an innovative area. The author describes the evaluation process of a suite of free Badged Open Courses (BOCs), launched by the Open University, drawing from previous data on the increasing proportion of learners who are keen to have their informal learning achievements recognized. The outcomes provide insight into the strategic importance of informal learning recognition, e.g. to provide accessible routes into formal learning for those who might not otherwise have the opportunity. Based on the evaluation carried out, the advantages and potential uses of BOC’s are discussed, providing evidence on their value to institutions.

Ashok Gaba, from Indira Gandhi National Open University, & Wei Li, from Open University of China, were awarded the ICDE Prize for Innovation and Best Practice for the paper *Growth and Development of Distance Education in India and China: A Study on Policy Perspectives*. The Editorial Board of *Open Praxis* valued the comparative approach to the development of open and distance education in the two most populated countries, including mentions to recent trends in the field. The authors compare four relevant dimensions related to ODL in India and China: the development of economy and distance education with reference to policy perspectives; course design, development and delivery of distance education programmes in Indira Gandhi National Open University of India (IGNOU) and Open University of China (OUC); the trend of enrollment in both universities; and the recognition /accreditation and quality control process of distance learning. Findings of the study are not conclusive; nevertheless, they provide an in-depth knowledge of these two mega Open Universities, and raise some issues which are of interest to ODL world-wide, i.e. the credibility and quality of open and distance education. The authors conclude with some recommendations to ODL institutions and to ICDE.

Maximus Gorky Sembiring, from Universitas Terbuka Indonesia, was awarded the ICDE Prize for Innovation and Best Practice for the paper *Validating Student Satisfaction Related to Persistence, Academic Performance, Retention, and Career Advancement within ODL Perspectives*. The Editorial Board valued the relevant aspects for open and distance education that this paper puts in focus and its practical outcomes and implications. A major current concern in Universitas Terbuka, common to most universities, is maintaining the size and growth of the student body, without decreasing the quality of the services provided, such that all services meet as many students’ needs and expectations as possible. The author describes a study of which the primary aim is to evaluate the service quality (Servqual) implemented in this university, concerning those factors that lead to student satisfaction, in relation to persistence, academic performance, retention, and career advancement in Open and Distance Learning (ODL) settings. The research has created a quantitative framework of student
satisfaction and its dimensions, specifically to meet the needs of ODL students, and further lines of research are suggested at the end, to provide a more comprehensive perspective.

Shironica P. Karunanayaka; Som Naidu; J.C.N. Rajendra & H.U.W. Ratnayake, from The Open University of Sri Lanka and Monash University, were awarded the ICDE Prize for Innovation and Best Practice for the paper From OER to OEP: Shifting Practitioner Perspectives and Practices with Innovative Learning Experience Design. The Editorial Board of Open Praxis valued the scholarly nature of this paper and its significance in the field, as it provides an important best practice that will inspire others. The authors present a professional development course on OER-based e-learning, designed and implemented to assist and support teaching staff in the integration of OER in their teaching practice. The course modules incorporated the use of learning scenarios and learning tasks that facilitated capacity building in a collaborative manner. The paper reports the impact of this course on shifting the participants’ perspectives and practices in relation to open educational practices. Their expectations were met, and they were very satisfied with the development of their knowledge, skills and attitudes in relation to OER-based e-learning. They also developed competencies in designing, developing and implementation of an OER-based e-Learning course.

Besides the ICDE prizes, this issue includes three research articles in the open section.

Martin Weller, Bea de los Arcos, Rob Farrow, Beck Pitt and Patrick McAndrew, from the Open University UK, present a paper on The impact of OER on teaching and learning practice, based on the work they develop at the OER Research Hub. With responses from different OER initiatives in the world, the survey results show that OER has direct and indirect impact on teaching and learning practice, such as positive impact of OER on learners’ engagement and on increasing educators’ reflection on their own practices. These and other evidences advocate for a wider and better use of OER.

Manuel Flores Fahara and Armida Lozano Castro, from Tecnológico de Monterrey in Mexico, in their paper Teaching Strategies to Promote Immediacy in Online Graduate Courses, present a virtual ethnography developed in their institution, where they have analyzed academic and administrative fora to identify instructional design, online communication and teaching strategies that make students feel psychologically closer to teachers in online environments. The findings are of interest to other e-learning researchers and practitioners.

Finally, Javiera Atenas, Leo Havemann and Ernesto Priego, from different institutions in the UK, present the paper Open Data as Open Educational Resources: Towards Transversal Skills and Global Citizenship. They identify a set of relevant skills that open data can help to develop. Survey results show different experiences in the use of open data in teaching around the world, and the authors advocate for open data as a resource for developing core skills in research-based curricula. The paper includes two examples of rubrics that can help teachers evaluate the acquisition of transversal skills by using open data.

It is our desire that the diverse perspectives, results and recommendations in these papers are useful to our readers, and inspire future research and innovative practices.

We would like to congratulate all the awarded authors at the 26th ICDE World Conference and thank all authors for their contributions. Thanks are extended to the members of the journal’s Editorial Board, which selected the winning papers.

Regarding the overall volume 7 in 2015, we specially thank all the reviewers who have collaborated in the four issues. Their names and affiliations are listed in the full issue and in the journal website (http://openpraxis.org/index.php/OpenPraxis/pages/view/reviewer).

Papers are licensed under a Creative Commons Attribution 4.0 International License
Challenges to the doctoral journey: a case of female doctoral students from Ethiopia

Asameneh Demessie Bireda

College of Graduate Studies, University of South Africa (South Africa)

Demesa@unisa.ac.za

Abstract

This study aimed to investigate some challenges female doctoral students experience in their doctoral journey. The study used a qualitative design and structured interviews. The theoretical framework that guided the study was that of Urie Bronfenbrenner’s ecosystemic theory. A purposely selected sample of five female doctoral students from the University of South Africa Ethiopia campus participated in the study. The results identified three major areas of concern such as: academic, psychosocial and home/work related. Specifically, female doctoral students reported concerns surrounding quality of supervision support, inadequate academic skill, nature or system of education, stress, motivation, isolation, balancing personal and professional life, relationship problems, home and work related concerns. Hence, universities must provide opportunities and resourceful strategies to meet the challenges posed by women scholars in the doctoral journey.

Keywords: doctoral study; ODL; women; challenges

Doctoral students have a certain level of desire to complete their studies, but on their journey to do so, they encounter challenges that may hinder their progress. The challenges doctoral students face may vary depending on their gender. Women may face greater obstacles and may approach the challenges of doctoral studies differently than men (Leonard, 2001; Raddon, 2002). Moreover, compared to men, women are less likely to pursue the most advanced levels of education; are less likely to seek degrees in high status fields such as the physical sciences, engineering and economics; and are more likely to exit their programmes before degree completion (Leonard, 2001). In spite of the great progress toward gender equity made in recent decades in many countries, women continue to be underrepresented at the senior levels in most disciplines (Leonard, 2001). The lower representation of women faculty in many departments may create an unwelcoming atmosphere for some students and greater conflict in determining their role as women in and outside academia (Raddon, 2002). As a student counselor in the University of South Africa (UNISA) Ethiopia centre, I became aware of some of the challenges doctoral students encounter in the course of their study. My curiosity developed as a few of the female doctoral students I counseled briefly discussed their unique challenges and presented me with myths and misconceptions about their experience. Thus, this research tries to investigate some of the challenges female doctoral students face during their studies. Doctoral programmes at UNISA require students to write an original thesis and the first year of registration is dedicated to proposal development. Upon approval of a proposal the student engages in the thesis phase with the help of his/her assigned supervisor.

Challenges in the Doctoral Journey

In general doctoral students face a number of challenges in the course of their study. For instance, Bitzer (2007) outlines some challenges that doctoral students experience, such as uncomfortable events in life, student supervisor relationships and self-efficacy. Ahern and Manathunga (2004) point out that students tend to experience a drop in motivation as their research is stalled and they do...
not make any progress. Moreover, constantly changing topics, lack of communication with the supervisor and general isolation were some of the causes that delay (Ahern & Manathunga, 2004). Similarly, Mouton (2001) outlined factors associated with non-completion of postgraduate studies such as poor planning and management, poor research skills, poor academic writing, isolation, personal problems and inadequate supervision. However, the factors outlined by Mouton (2001) were not gender or race-specific.

There are many barriers reported more by women than men succeeding at various stages of the academic path. Researchers pointed out finances, time management, family and sexual relationships, self-expectations, frequent evaluation and volume of work as some of the common stressors affecting female doctoral students (Brauer et al., 2003; Toews et al., 1997). In doctoral programmes, higher level of stress was reported by women than men (Oswalt & Riddock, 2007; Toews et al., 1997). One reason cited for more levels of stress among women was that these female graduate students have added the role of student to an already existing set of care taking and other life roles (Hyun, Quinn, Madon & Lustig, 2006; Stratton, Mielke, Kirshenbaum, Goodrich & McRae, 2006). Similarly, Smith, Maroney, Nelson, Lable and Abel (2006) stated that graduate students have many concerns such as finances, children, aging parents, community responsibilities, and partner relationships. These are just some examples of the many ways today’s graduate students are impacted by economical and societal discourses. These manifold and overlapping responsibilities can impact female students’ emotional well-being and the likelihood of completing their program of study (Hyun et al., 2006). Due to the various roles women have to assume in their daily life, balancing personal and professional development becomes a serious challenge, which in turn leaves them to experience inter-role conflict between their personal and academic roles (Johnston, Batia & Haun, 2008; Offstein, Larson, McNeill & Mjoni, 2004; Raddon, 2002). This interaction/interplay between the various roles and lack of time and energy often lead to stress, which may lead to physical and psychological health problems (Johnston, Batia & Haun, 2008). Hence, the addition of the graduate student role, besides being a parent and worker makes graduate study a difficult journey to many female students.

The availability of social support is also found to be important as it attributes to good well-being and helps to diminish isolation. Supporting this claim, Johnston, Batia and Haun (2008) argued that social supports act as buffers to alleviate the stress of adapting to graduate school. Important sources of social support are family, friends, significant others, peers, professors and employers (Castro, Garcia, Cavazos, & Castro, 2011; Johnston, Batia & Haun, 2008, Stratton et al., 2006). Further, graduate students with a support group or network of colleagues tend to perform better academically, experience less emotional and physical distress, withdraw less frequently from ambiguous or tension-producing settings, and suffer from fewer severe physical and psychiatric illnesses that socially isolated persons suffer (Castro et al., 2011; Johnston, Batia & Haun, 2008, Stratton et al., 2006).

In most doctoral programmes, particularly those in the social and natural sciences, the student’s supervisor plays a central role in both guiding the student through the research writing process, and also more broadly in the student’s professional development (Foster, 2003; Larsson & Frischer, 2003). In addition to influencing the quality of training the student receives and access to professional opportunities, the student-supervisor relationship often shapes motivational and affective aspects of the student’s progress, such as his/her level of self-confidence, commitment to the field of study and whether the student persists. Consequently, students’ perceptions of respect and friendliness on the part of the supervisor may affect their goal setting and achievement, and have been found to be a better predictor of success than any demographic characteristics of students (Larsson & Frischer, 2003). Graduate students who develop more positive relationships with their supervisor members as professional colleagues are more likely to be involved in their doctoral program, more
likely to develop professionally, and more likely to progress through their program (Ali & Kohun, 2007; Earl-Novell, 2006). Doctoral programs that emphasize a balance between social and academic lives of students ensure better departmental integration of students (Ali & Kohun, 2007). Characteristics associated with a positive graduate experience included a high level of administrative, social, and financial support provided by the student’s department, a democratic supervisory structure, mentoring, and positive experiences when utilizing counseling services (Benton, 2003). A positive relationship with supervisor in which the student feels comfortable and able to approach her/his advisor is a key component to doctoral persistence.

Theoretical Framework

The theoretical framework which guided this study was the ecosystemic theory of Urie Bronfenbrenner. The female postgraduate students exist in the micro subsystem which constitute their families either married or unmarried and have children. The meso level is made up of their neighbours, and their work places. The work environment has some effects like stress, which may be brought home with an indirect influence on the life of the family and studies. The macro subsystem has also the values and belief system of the society in which these females found themselves in (Addison, 1992). From the micro system, meso, exo, chrono and macro system this study looked at some factors which brought challenges in the lives of female doctoral students, mainly focusing on the academic, social and emotional aspects. The current study not only focuses on what is happening in the student’s life as far as the academic work is concerned, but also looks at what students are experiencing during their journey of studying at a doctoral level in a holistic way. Henceforth, this study aims to investigate some of the academic, professional and psychosocial challenges female doctoral students face in the course of their study. The guiding research question was: What are some of the challenges that female doctoral students experience?

Method

This study is a qualitative case study that focused on the perspectives and experiences of five female doctoral students from the University of South Africa Ethiopia Regional Learning Centre. It uses a single-case study research design. Although the findings from this case study cannot be generalised to the entire female doctoral population, it may have implications and provide learning opportunities for other female doctoral students in Ethiopia. The participants were purposively sampled using a selection criteria, which were: female, active doctoral students, Ethiopian nationals and registered through the Ethiopian regional learning Centre.

Participants

A purposively selected five female doctoral students from Ethiopia were included in this study. The researcher used expert knowledge of the female doctoral students from Ethiopia to select in a non-random manner a sample of female doctoral students that represents a cross-section of female doctoral students from the Ethiopia regional learning centre. Given the subjectivity of the selection mechanism, purposive sampling is generally considered most appropriate for the selection of small samples often from a limited geographic area or from a restricted population definition, where inference to the population is not the highest priority (Jonson & Christensen, 2008). The description of each participant is presented in the following paragraph.

Participant one is 43 years old, married, with children and works as a full time lecturer in a University. She started a doctoral degree in 2013 in the College of Education (CEDU), currently in
a thesis phase and does not have previous experience of learning in an ODL environment. Participant two is 40 years old, married and has children, enrolled at UNISA in 2014 in a doctoral program in the college of Human Sciences (CHS), is in the thesis phase with no previous ODL experience, and works part time as an agricultural economist. Participant three is 32 years old, married, with children, enrolled for the doctoral program in 2011 in CEDU, assistant professor in a University, doing data analysis, and no previous experience of ODL. Participant four is 36 years old, married and has children, registered for a doctoral program in 2011 in CEDU, full time lecturer, on the thesis phase and no experience of ODL. Participant five is 35 years old, single and has dependents, started her doctoral degree in 2014 under the college of Science, Engineering and Technology (CSET), part time lecturer, on thesis phase, and no previous experience in ODL.

Procedure

The College of Graduate Studies research committee and Research Permission sub-committee (RPSC) of the University of South Africa granted ethical approval prior to commencement of the research. The participants were recruited by telephone, using lists of female doctoral students enrolled in Ethiopia and from the counseling service data. Before conducting the interview, a consent form that explained the purpose, procedure and confidentiality of the study was sent electronically to 15 female doctoral students. Then interviews were conducted with those students who opted to participate (N=5). Furthermore, a follow up telephone interview was conducted to gain some clarity on students’ responses.

Data collection instrument

This study used a structured interview and 10 items were included in the qualitative script. The items in the interview script were developed for this study based on the objective of the study, existing literature in the area and also using the data acquired on the one-to-one, email and telephone counseling services. The items in the interview look at challenges in system of education, supervision, psychological problems, home/professional life, and also one item asking them to write any suggestion or comments. In order to assure validity of the interview script, it was sent to one academic and two support staff; and also to two students for review. Moreover, existing literature and research on the area was considered to validate the instrument. Based on the feedbacks received some typing errors and unclear questions were revised and the final version was adopted.

Data Analysis

The interviews were tape-recorded, transcribed verbatim and studied in-depth as a whole and then sentence-by-sentence. Emerging concepts, which revealed something about the experience, were highlighted in each transcript. A rigorous process of searching for commonalities across the five interviewees’ response followed this. This enabled the systematic development of three main themes. A reflective diary maintained during the research process was crucial in the grasping of essential meanings. The findings were then discussed by interpreting them in relation to related research and existing knowledge. Actions and interpretations throughout the research process were guided by the importance of ensuring rigour, in order to maximize credibility of the findings. Firstly, the researcher asserts that the methods employed were appropriate to the research aims and the ontological and epistemological assumptions underpinning them. The research question was constantly referred during interviewing and analysis, to maintain congruity of purpose. Reflections from earlier interviews were used to inform subsequent interviews in a process of concurrent data.
collection and analysis. Descriptions and interpretations of the interview were checked out, with sensitivity, and sent out to the five participants for their confirmation that the representations were accurate.

**Results**

The following section presents results highlighting the experiences of female doctoral students in their doctoral journey. The results were presented in three thematic areas: academic, psychosocial and home/professional challenges.

**Academic concerns**

These concerns relate with challenges in the area of supervisor support, nature of education, financial support, knowledge and skill of the student.

*Supervision.* All participants considered their supervisors as one of the most important factors shaping their experiences as doctoral students. Most students seemed satisfied with their supervisors overall. Nonetheless, some noted concerns in the supervision process, which include: delay of feedback, unclear/unreadable feedback, inadequate guidance, and communication problems were among the common ones. Other concern had to do with a lack of supervisors’ understanding or sensitivity to the fact that female students undergo unique challenges and may have a particular need for support. A student reported the following:

*I like my supervisor and we have a good relationship. But the only challenge I had with him is that he takes long time to give feedback and I end up sending him several reminder emails, which once irritated him.*

Another concern regarding supervision was lack of appropriate guidance, encouragement and monitoring. One student said that the supervisor does not communicate regularly and does not show interest in the research she is doing. In terms of similar kinds of support from their supervisors, female doctoral students reported lower levels of support for such things as help with funding the research, encouragement and support for their career goals. In summary, although there were some challenges, most students were satisfied with their supervisors. All students desired a supervisor who facilitated their professional development, who took interest in them and their work, who was considerate of their time and personal lives and who helped to keep them on track.

*Academic skills.* The lack of important academic skills were also a concern. One of the most common skill they wanted to improve and needed support with is time management. The nature of distance education, lack of frequent interaction with supervisor and other students and professional and social responsibilities were some of the reasons for them to consider time management as a critical skill. Respondents were also concerned about skills such as digital literacy, using research software, research and academic writing skills. Students also suggested that it would be nice to have training or workshops to assist students in these areas. A student wrote this:

*I am concerned with the constant feedback that I get from my supervisor on the quality of my written work. I realized that I made so many grammatical mistakes that irritate my supervisor; and he even sometimes prefers to ignore my submissions as I made similar errors again and again. English is a foreign language and the expectations on the side of UNISA and a doctoral research is very high.*

*Nature/system of education.* In addition to the above academic challenges, the nature of the doctoral program at UNISA is problematic to all of the students. Distance education was new to them and
adjusting to the system was a challenge, as they all acquired their previous degree through traditional (residential) Universities. One student even indicated the need for attitudinal change on her side to adjust with the system of distance education. Furthermore, students highlighted the lack of face to face interaction with the supervisor, lack of interaction among fellow students, no predetermined time to have a discussion with supervisors, and the inaccessibility of the regional learning centre and its support services were also raised as a concern. One student commented the following on the nature of distance education and necessary academic support:

*The nature of the program is self-directed kind. So one needs to be programmed, organized to pursue the program. But this is against the culture of most of us. I feel that we could have been assisted on how we can be organized and use our time properly. Above all, most of the female students are married and have children. Being a mother has its own responsibilities, which in fact is difficult with other responsibilities at home and office. Specially, in our context where you cannot find nursery, the burden is even higher. I think it better to extend the period of study for women.*

The above comment from the student and the highlighted concerns reflect that the nature of education and the need for academic skills that match ODL environments were critical concern areas.

**Psychosocial concerns**

These are concerns about emotional, psychological, and social well-being reported by participants. Such concerns involved stress, lack of motivation, isolation, or strains on social relationships.

**Stress.** The most common psychological problem participants raised was stress that comes from financial issues, workload, time pressures and being a mother. Lack of adequate funding to support their family and research was a major source of stress, as all of the students earn low salaries. Moreover, they expressed that financial problems are affecting the quality of their research work and personal life. For example, one female doctoral student expressed her multiple roles and its effects on her life:

*I am a lecturer at a University and I have two children. I usually come home being tired and when I get home I have to do some cooking and assist my kids with their schoolwork. Doing all these tasks makes me tired and neither do I have the energy nor the motivation to concentrate and study. This is my daily life. When I think about my doctoral study, I get stressed and lose hope. But I really want to do it.*

**Motivation & Isolation.** Two students raised lack of motivation as a challenge in the course of doing their thesis. They believed that lack of frequent interaction with supervisor, no face-to face meeting and minimal socialization events for students make it hard to maintain a high level of motivation. Another student also raised feelings of isolation as a critical problem and indicated that most of the time she works in a vacum, no interaction or discussion, neither with supervisor nor with students.

**Work and home concerns**

These are concerns that relate with the social life of female students, particularly in the work and home environments. Two students described receiving low research funding from their employer and they were forced to be dependent on their income and that of their husbands’. Others had difficulty acquiring the UNISA bursary due to lack of information and one student found the claiming process problematic after she got the bursary. Students mentioned that financial strains seemed to bring more stress and impact on other areas of their life such as relationship and research. A student wrote:

*Open Praxis, vol. 7 issue 4, October–December 2015, pp. 287–297*
I have two kids, so my budget needs are very high. I have to continually seek out part time jobs, as my salary is not good enough to support my study. At my university there is no consideration given to women with children.

All of the participants reported a worse financial situation, they were less confident about making it financially and more discouraged about the personal lives and financial concerns. They also reported more insufficient funding opportunities for graduate students within and out of the University. Three of the participants reported that they had not received any support from supervisors and other University staff with regard to funding opportunities available at the University.

Another woman commented on the nature of the academic climate, the promotion process, workload, and job market for academics. One participant said:

As a woman, I found the academic climate very oppressive to the needs of women. It does not take into account how women work most effectively and the kind of support women need in their work. I think women need a different kind of support to overcome the challenges expected at the doctoral study. I would like to see the academic structure change so that women have the opportunity to pursue an academic career without institutional barriers.

Four of the female doctoral students have to teach while they are learning, which takes up most of their time. Some times they are even forced to take additional positions or responsibilities, which in turn consumes their time.

Social. All the participants reported that their unique role at home is a problem and consumes a lot of their time. These women also believe that they have equal rights and capacity as those of men. However, women are culturally bounded to assume additional responsibilities that are not done by men. These include every household responsibility, such as shopping, taking care of children and even producing money for additional expenses. Besides, women are expected to attend different social activities even if they are a student or worker. Even though their husbands are supportive, they do not share these tasks or have the skills to do so. In addition, the cultural role assigned to women by society is also raised as a challenge, where women are predominantly considered as care givers and handlers of every home chore. One of the participants was also concerned about adequately supporting her children financially and emotionally, as her doctoral journey required a lot of sacrifice on her and family time. Although having children and a spouse at home brought joy to these female students, they also felt torn at times between wanting to be with their families and feeling the need to work on their doctoral studies. One respondent even further to suggest that university environments could be made more women friendly and the demand of parenting should not be ignored. One student clearly described the challenge of being a woman doctoral student as follows:

Different from males, we females are overburdened by house chores and other social life issues. When one is a mother, the duties are doubled as she, in addition to above mentioned home related activities, is expected to take care of her husband and children nutrition, clothing and schooling, etc. I know my male colleagues who are also studying at UNISA. They do many things in addition to their study to get more money. They can go to their office whenever they want to work on their dissertations. They don’t worry about the chores and children and other home related activities. When I try to compare myself, even though I have the capacity to do many things, I refrain from them as I have limited time to concentrate on my study. Even if I limited myself from other works which could have helped me get some more money, the time I have for my study is very much limited when compared to that of males.

One participant reported that she could not attend most of the workshops the University organizes due to her responsibility at home. She could not stay away from her home as she has a very young child (2 years old) who needs her constant attention. Moreover, she does not have significant others.

to cover these responsibilities. All the female doctoral students described their family, particularly their husbands, as supportive, though the level of support varies. They reported support in sharing of household responsibilities, financial support, verbal encouragement or motivation and one participant also mentioned academic support.

In general, the above concerns show the effect of women socialization and social life and their multiple roles that created pressure on female doctoral students' personal, professional and academic life. These concerns also left them with little free time for them and their family, which often involved the struggle between academic work and personal relationships or family.

**Balancing personal and professional life.** One area of particular concern for female doctoral students, is how to manage both personal and professional lives. All students reported that supervisors provided little advice on how to manage potentially conflicting demands between their academic and family lives. These female students expressed less confidence in their ability to balance family and professional lives. They mentioned their multiple roles such as: taking care of children and parents, responsibility at work and being a part time doctoral student, as some of the conflicting roles of a woman. One student said:

*I was afraid of the length of time a doctoral degree takes and the sacrifices I had to make to graduate. I have reduced my social life with friends and family because I do not have free time. The problem of trying to lead my family and be successful in my career is very challenging.*

The above section has presented the various challenges female doctoral students face in their pursuit of a doctoral degree. The next section presents the discussion of findings, implications for future studies and recommendations.

**Discussion**

This study identified several areas of concern experienced by female doctoral students and illuminated specific areas where change is needed. Accordingly, this study identified concerns surrounding quality of supervision support, inadequate academic skills, nature or system of education, stress, motivation, isolation, balancing personal and professional life, home and work related concerns as challenges in the doctoral journey. Moreover, being a mother, relationship problems, multiple roles at home and lack of encouragement to women scholars in academic career were raised as challenges specific to being a woman.

The participants considered their supervisors as one of the most important factors shaping their experiences as doctoral students and they seemed to be satisfied with their supervisors' overall support. However, they raised important concerns with the quality and timeliness of feedback, guidance, encouragement and motivation on the side of their supervisor. Though there are a number of factors that facilitate successful completion of a doctoral study, most researchers agree that completing a doctoral study is a process that mainly depends on a close, working relationship between students and supervisors, in other words on the quality of research supervision (Grevholm, Persson & Wall, 2005; Lovitts, 2001; Styles & Radloff, 2001; Zainal, 2007). Thus, the effectiveness and quality of research supervision support doctoral students get from the supervisors is critical to their doctoral journey.

In line with many previous research (Brauer *et al.*, 2003; Oswalt & Riddock, 2007; Toews *et al.*, 1997) this study also pointed out stress, lack of motivation, feeling of isolation and lack of self-confidence as the most common psychological problems among all female doctoral students. Some research (Hodgson & Simoni, 1995; Mallinckrodt & Leong, 1992) has identified work and home related stress as a particular difficulty for women and female graduate students compared to their
males. It appears clear that balancing personal and professional life is one in which students want and need more support and help.

Female doctoral students also reported specific challenges to women that relate with their multiple roles and cultural aspects that reduce females simply to care givers and responsible for handling all home chores, though they reported their husbands as supportive. Understanding and considering the varied mix of female doctoral students’ background with the goal of reducing anxiety and stress would likely result in improved doctoral student performance, as well as decrease attrition. Research (Castro et al., 2011; Johnson, Batia & Haun, 2008; Mouton, 2001; Stratton et al., 2006) has suggested that graduate students need adequate social support or networks to overcome the different academic and psychological problems they encounter in the course of their study.

A potential limitation of this study is that responses may have come from individuals with the most extreme difficulties, whereas those who experienced few problems did not respond. In addition, a voluntary sample may also represent a self-selected group who is particularly cognizant of issues affecting women. Finally, the responses of participants in this study may not reflect the concerns of women in other types of higher education, such as residential universities, or women who are not married and have no kids. Thus, future research might devote attention to understanding the influence of particular contexts of women and aspects of the institution or university. This study used a qualitative approach in order to obtain a detailed picture of the challenges facing female academics that could not be captured using a quantitative approach. Such descriptive data are helpful for generating hypotheses. Future research could be directed toward exploring some of the identified concerns in depth. The concerns and suggestions revealed here are illuminating and helpful for improving the enrollment and output of emerging female academics. This study investigated participants who were still in the doctoral journey, and future research should include experiences of students who have already graduated and those students who dropped out of the system.

Universities should put in place support structures and make students aware of such structures during orientation sessions. This study suggests that female doctoral students would benefit from an intensive orientation, so that they can adjust to the nature of education and meet the expectations as a doctoral student. The University might also consider designing student mentoring systems in which experienced doctoral students who are progressing well in the program can share their wisdom with new students and with those who are experiencing obstacles and delays. This type of formalized mentoring system would facilitate students’ ability to receive ongoing academic, social, and psychological support from their student colleagues throughout their doctoral tenure. In line with this, the University should create a network and avail a platform for women graduate students and women academics to share experience and bring additional social support. Finally, the academic department might consider developing a regular research progress or performance review meeting between female students and their supervisors using technology enhanced systems (e.g. video conference, Skype, etc). Such progress review can be very powerful, not only in terms of providing substantive guidance, but also in terms of identifying resources, which may best support the student’s timely progress toward degree completion.

Therefore, the University, society, and government cannot afford the potential loss of women in the academic career that occurs due to various challenges that hamper their progress. If higher education is to realize the benefits of the growing number of women doctoral students and potential women doctoral degree recipients, it must create an environment that supports them in their struggles and provides opportunities and resourceful strategies to meet the challenges posed by their worthy pursuit.
Acknowledgement

This paper has been awarded an ICDE Prize for Innovation and Best Practice at the 26th ICDE Conference, held in Sun City (South Africa) in October 14th–16th 2015.

References


Recognising informal elearning with digital badging:
evidence for a sustainable business model

Patrina Law

The Open University (United Kingdom)
patrina.law@open.ac.uk

Abstract
Digital badging as a trend in education is now recognised. It offers a way to reward and motivate, providing evidence of skills and achievements. Badged Open Courses (BOCs) were piloted by The Open University (OU) in 2013. The project built on research into the motivations and profiles of learners using free educational resources which the OU makes available through its OpenLearn platform (Law, Perryman & Law, 2013). This research found that an increasing proportion of learners are keen to have their informal learning achievements recognised (Law & Law, 2014). Based on these data, a suite of free BOCs, assessed through the deployment of Moodle quizzes, was launched. This paper reports on evaluation of the BOCs and what we now know of the strategic importance of informal learning recognition. The initiative aligns with University strategies to provide accessible routes into formal learning for those who might not otherwise have the opportunity.

Keywords: open educational resources; OER; digital badges; elearning; MOOCs

Introduction
The importance of open educational resources (OER) has been discussed not only from the perspective of philanthropic contribution by educational institutions and individuals, but also in their relation to a larger picture of community and partnerships and as a sustainable business model (Downes, 2006; Perryman, Law & Law, 2013). As the diversification of OER across multiple platform types and formats has evolved to suit different learners and educators alike, so the notion of recognition for informal learning in these spheres has become accepted provision by some educators, where it can be achieved at scale.

The creation of OER, whereby individuals and institutions make their learning content freely available, has grown rapidly over the last decade. At the OU, developing and publishing OER is now a by-product of the course production process, although OER more generally ranges from tutors posting lecture notes online, to philanthropically-funded content production projects and educational institutions resourcing free content creation. The OU uses OpenLearn (http://www.open.edu/openlearn) to deliver its OER and also syndicates much of this content to third party platforms such as iTunes U and YouTube.

Awarding digital badges to reward participation and to recognise learning is growing across all educational sectors. As a coming together of games culture and the traditional badge issuing by clubs and societies, a digital badge has developed to become “...an online visual representation of an accomplishment or skill” (Ostashewski & Reid, 2015). Whilst the issuing of digital badges can be undertaken manually by a tutor observing a classroom-based activity, digital badges can also be used to validate learning experiences that are undertaken outside of the classroom (O’Byrne, Schenke, Willis & Hickey, 2015).

The literature surrounding the application of digital badges in higher education is new and focuses largely on case studies where it has been used with new undergraduates, ostensibly as a tool to motivate and reward students as they begin their progression through a curriculum. The work
described in this paper outlines how digital badging has been developed in a fully open, online, unsupported environment, not only to motivate formal learners in higher education, but informal learners alike, from a range of backgrounds.

**Free learning provision from The Open University**

OpenLearn was launched in 2006 and hosts thousands of hours of learning material under a Creative Commons licence. The site is accessed by over 4.5 million people a year and also serves as the channel through which the OU promotes its partnership with the BBC and the related broadcasting and free content that is created as co-productions.

Since its launch, OpenLearn has received 40 million unique visitors (internal OU data) and has grown from being a platform that hosts extracts of existing decommissioned units from undergraduate and postgraduate courses, to one which delivers specially commissioned interactive games, videos, audio and free online courses. Much of the course extract content is developed using structured authoring tools and then made available to users in multiple formats such as Microsoft Word and PDF, which are then syndicated to other platforms as ebooks. Around 5% of OU course content is released for free each year in support of the OU Charter “...to provide education of University and professional standards for its students and to promote the educational well-being of the community generally”. This 5% now equates to around 900 courses available on the platform as OER. The primary aim is to introduce the opportunity to learn to those that might not otherwise have considered the option, and to help prepare those who want to make the next step from informal to formal learning.

**The business case for free learning**

Like many institutional providers of open content, the OU faces the challenges of balancing its widening participation aims with the need to develop a sustainable business model for OpenLearn. Open educationalists have long been discussing sustainable business models around OER (e.g. de Langen, 2013; Guthrie, Griffiths & Maron, 2008; Downes, 2006). The 2007 Organisation for Economic Co-operation and Development (OECD) report remains particularly influential on debates around OER business models, identifying six arguments for why institutions might develop and share OER: Altruism; leveraging taxpayers’ money; efficiency in cutting content development costs; providing a showcase to attract new students; offering potential students a taster of paid-for content; and to stimulate internal development and innovation (OECD, 2007, pp. 64–5). Stacey (2012) takes a broader view of OER sustainability and OER projects’ impact on educational institutions, arguing that:

“The business case for OER includes both cost savings and revenue generation. Making something open is not always a means of direct revenue generation. It often is indirect...Using OER as a means to market reputation and institutional prowess can convince students to enrol. While better quality learning resources may not directly generate revenue they can lead to faster learning, greater learner success, or reduce drop outs.”

Stacey identifies 10 benefits to educational institutions of OER initiatives: Increasing access to education; providing students with an opportunity to assess and plan their education choices; showcasing an institution’s intellectual outputs, promoting its profile and attracting students; converting students into fee paying enrolments; accelerating learning; adding value to knowledge production; reducing faculty preparation time; generating cost savings; enhancing quality; and generating innovation through collaboration. Stacey’s view of the benefits of OER to educational institutions offers useful criteria against which to assess whether OER initiatives are in competition with formal education, a frequent claim from detractors of openness.
Recognising informal elearning with digital badging: evidence for a sustainable business model

Open Praxis, vol. 7 issue 4, October–December 2015, pp. 299–310

The development of badged open courses

The OU has attempted to demonstrate an ongoing institutional commitment to new models of teaching, learning and assessment in the open to serve both informal learners and students. Existing metrics show that OpenLearn attracts a very balanced demographic (compared to the potentially well-educated cohorts attending MOOC engines). Of those surveyed on OpenLearn in 2014, 60% felt more confident after using the materials, 80% stated they were more likely to recommend the content to others and take another free course and 30% are more likely to take a paid-for course. As a business model, the site also attracts new students: for the period August 2014 to July 2015, the OU reports a 13% click-through from OpenLearn to the OU homepage to learn more about becoming an OU student.

Pilot projects around digital badging at the OU were undertaken in 2013 on OpenLearn, using Moodle as an embedded course presentation platform, adhering to the Mozilla Open Badge Infrastructure to issue the badge. Digital badges were awarded via entry-level courses – ‘Learning to learn’ and ‘Succeed with maths’ – for the successful completion of the course and passing of quizzes. The courses were unsupported and open, in that they had no start and finish date, but ran over a period of notional ‘weeks’ with a set number of hours. Hence the provision of badges as a motivating factor was a key driver to examining the completion of these courses over non-badged open courses also delivered on the OpenLearn platform.

The evaluation of these badged courses was performed through online surveys to participants at the enrolment stage and at the end of each course. The evaluation results demonstrated that a) the IT infrastructure and the user experience of providing badges needed further development; b) learners who achieved badges were highly motivated by the experience; and c) the courses attracted learners who were more inclined to become students and were key to meeting the OU’s widening participation agenda (Law, Perryman & Law, 2014). The data showed that there were significant variations in relation to prior education, numbers of retired learners and numbers of learners reporting a disability compared to OpenLearn users overall:

- Fewer learners on the badged courses already held an undergraduate qualification or higher compared with the general OpenLearn population.
- 12% were retired compared with 20% of the general OpenLearn user population.
- 31% considered themselves to have a disability compared to 23% of the general OpenLearn learner population; 40% of ‘Learning to learn’ learners who completed the enrolment survey declared a disability.

As a result of the pilot study, the OU introduced a strategy to drive the development of a suite of Badged Open Courses (BOCs) as a new form of course on OpenLearn. The titles of the courses developed were: ‘Succeed with maths part 1’; ‘Succeed with maths part 2’; ‘Succeed in the workplace’; ‘English skills for learning’; ‘Succeed with learning’; and ‘Taking your first steps in HE’.

In developing these courses, the OU is augmenting its employability offering for both informal and formal learners by providing tangible recognition and reward for study in an informal learning space. The project aligns with the University’s priorities and core values in that it:

- Aligns with the Journeys from Informal to Formal Learning strategy.
- Helps to provide accessible routes into the University for students who might not otherwise have the opportunity to participate in HE.
- Supports the OU Charter.
- Aims to deliver a high quality student experience in relation to careers services and employability skills development.
All learners that study a BOC participate in a number of online assessments delivered through the deployment of Moodle quizzes that provide the technical mechanism for the issuing of the digital badge. Those who pass receive a printable certificate (Statement of Participation) and a digital badge which they can share online. The BOCs aim to provide a structured means to prepare those about to study and to provide employability skills for informal learners and for those already studying. The courses are designed to be as robust as any of the University’s modules in terms of quality and pedagogy: they follow strict learning design procedures, academic authoring, assessment and critical readership.

Methodology

Mixed method surveys were made available at the start and end of each of the BOCs, linking to the SurveyMonkey platform. Across all BOCs, each Start of Course Survey and each End of Course Survey is identical and comprise a combination of likert scale, multiple choice and open questions. Data on number of registrations and onward journey of learners was gathered using Google Analytics and DAX (digital analytics software). The aim of evaluating the BOCs through surveys and data captured via platform data analytics was to examine the impact, both short and long term, of BOCs, with particular emphasis on examining:

- Demographics (in alignment with OU data collected about informal learners on OpenLearn overall).
- Tracking data to show informal to formal movement of learners.
- A picture of the types of learners who are more likely to convert to formal learning.
- A picture of the types of learning methods and course elements (e.g. facilitation, use of quizzes, badges) most likely to encourage learners to study in an open, unsupported environment.
- The motivation of badging and whether learners showed their achievements to an employer or prospective employer.

The Start and End of Course surveys from the six courses listed above received 1942 responses from February to June 2015.

In addition, this paper draws on data gathered from surveys undertaken by the author in 2013 and 2014 on OpenLearn, again conducted using the SurveyMonkey platform, to gather data on learner demographics and motivations to study. Each comprised a combination of likert scale, multiple choice and open questions. In both years, the surveys were promoted via web-links embedded within the areas of the OpenLearn site that host course content, in order to increase the likelihood of reaching informal and formal learners using the site to study whole courses (rather than people dipping in to short videos and editorial content). The survey included questions drawn from the OER Research Hub (OERRH) open research question base (www.oerrhsurvey) to allow for comparison with existing data collected through OERRH research with OER projects globally. The 2013 OpenLearn survey received 1177 responses and the 2014 survey, 3133 responses. BOCs were not present on OpenLearn when the 2013 and 2014 surveys were live.

Findings

OpenLearn and accelerating learning

Stacey (2012) suggests OER can “lead to faster learning, greater learner success, or reduce drop outs”. The OERRH Evidence Report (de los Arcos, Farrow, Perryman, Pitt & Weller, 2014, pp. 11–12)
draws on its global dataset to explore assertions such as this and summarises: “Learners believe that OER use improves the grade performance. . .There is stronger evidence for OER improving related factors for learners, such as improved enthusiasm for study, confidence and overall interest.” (The conclusions in the OERRH report are partly based on data from the 2013 OpenLearn survey.) A comparison with the data from the 2014 survey reveals a considerable increase in the number of formal students believing that OER positively affect their studies, across several different categories (see Table 1).

Table 1: OpenLearn-using formal students' perceptions of the impact of OER (% agreeing with each statement)

<table>
<thead>
<tr>
<th>Study of impact of OER</th>
<th>2013</th>
<th>2014</th>
<th>Study of impact of OER</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased participation in class discussions</td>
<td>16%</td>
<td>34%</td>
<td>Increased engagement with lesson content</td>
<td>39%</td>
<td>57%</td>
</tr>
<tr>
<td>Increased interest in the subjects taught</td>
<td>53%</td>
<td>72%</td>
<td>Increased experimentation with new ways of learning</td>
<td>42%</td>
<td>67%</td>
</tr>
<tr>
<td>Increased satisfaction with the learning experience</td>
<td>49%</td>
<td>74%</td>
<td>Increased collaboration with peers</td>
<td>12%</td>
<td>29%</td>
</tr>
<tr>
<td>Grades improving</td>
<td>14%</td>
<td>36%</td>
<td>Increased enthusiasm for future study</td>
<td>55%</td>
<td>80%</td>
</tr>
<tr>
<td>Gaining confidence</td>
<td>37%</td>
<td>65%</td>
<td>Becoming interested in a wider range of subjects</td>
<td>58%</td>
<td>75%</td>
</tr>
<tr>
<td>Increased independence and self-reliance</td>
<td>39%</td>
<td>56%</td>
<td>Being more likely to complete my course of study</td>
<td>29%</td>
<td>58%</td>
</tr>
</tbody>
</table>

A number of interpretations are possible for these changes in perceptions, for example:

- Learners may be becoming more skilled at self-directed learning with OER.
- The increased cost of paid-for higher education may be leading formal students to more determinedly seek out support for their studies through OER, to increase their chances of success.
- With the continued and ever-more systematic release of content from the OU’s paid-for curriculum into OpenLearn there may now be more parity between the OpenLearn content and the content of OU modules, with the content being increasingly up-to-date.
- Educators may be getting more skilled at using OER in their teaching and/or directing learners to OER for self-study.

Demographic profile of BOC learners

Comparing BOC learners’ demographics to the OpenLearn demographic overall (see Tables, 2, 3 and 4) provides a picture of those who are more inclined to study online specifically to gain reward and recognition (the achievement of the OU-branded digital badge) and become an identified informal learner (Law & Law, 2014).
Table 2: Age ranges of general OpenLearn learner (2014) compared to OpenLearn BOC learner (End of Course surveys 2015)

<table>
<thead>
<tr>
<th>Age</th>
<th>OpenLearn survey data 2014</th>
<th>Succeed with maths part 1</th>
<th>Succeed with maths part 2</th>
<th>English skills for learning</th>
<th>Succeed with learning</th>
<th>Taking your first steps in HE</th>
<th>Succeed in the workplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 16</td>
<td>4%</td>
<td>1%</td>
<td>0</td>
<td>1%</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16–18</td>
<td>5%</td>
<td>1%</td>
<td>0</td>
<td>3%</td>
<td>4%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>19–25</td>
<td>15%</td>
<td>10%</td>
<td>9%</td>
<td>16%</td>
<td>11%</td>
<td>26%</td>
<td>17%</td>
</tr>
<tr>
<td>26–35</td>
<td>18%</td>
<td>24%</td>
<td>25%</td>
<td>28%</td>
<td>21%</td>
<td>26%</td>
<td>30%</td>
</tr>
<tr>
<td>36–45</td>
<td>15%</td>
<td>24%</td>
<td>22%</td>
<td>23%</td>
<td>26%</td>
<td>21%</td>
<td>30%</td>
</tr>
<tr>
<td>46–55</td>
<td>19%</td>
<td>19%</td>
<td>25%</td>
<td>19%</td>
<td>26%</td>
<td>26%</td>
<td>31%</td>
</tr>
<tr>
<td>56–65</td>
<td>13%</td>
<td>14%</td>
<td>6%</td>
<td>7%</td>
<td>10%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>66–75</td>
<td>7%</td>
<td>6%</td>
<td>9%</td>
<td>3%</td>
<td>1%</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>Over 75</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>1%</td>
<td>1%</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: Highest education qualification of general OpenLearn learner (2014) compared to OpenLearn BOC learner (End of Course surveys 2015)

<table>
<thead>
<tr>
<th>Highest educational qualification</th>
<th>OpenLearn survey data 2014</th>
<th>Succeed with maths part 1</th>
<th>Succeed with maths part 2</th>
<th>English skills for learning</th>
<th>Succeed with learning</th>
<th>Taking your first steps in HE</th>
<th>Succeed in the workplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>School leaving (16)</td>
<td>9%</td>
<td>11%</td>
<td>18%</td>
<td>17%</td>
<td>14%</td>
<td>25%</td>
<td>12%</td>
</tr>
<tr>
<td>School leaving (18)</td>
<td>9%</td>
<td>12%</td>
<td>14%</td>
<td>10%</td>
<td>14%</td>
<td>25%</td>
<td>8%</td>
</tr>
<tr>
<td>College cert</td>
<td>22%</td>
<td>26%</td>
<td>23%</td>
<td>21%</td>
<td>43%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Vocational</td>
<td>6%</td>
<td>12%</td>
<td>5%</td>
<td>2%</td>
<td>7%</td>
<td>17%</td>
<td>13%</td>
</tr>
<tr>
<td>Undergrad</td>
<td>26%</td>
<td>18%</td>
<td>23%</td>
<td>14%</td>
<td>7%</td>
<td>17%</td>
<td>34%</td>
</tr>
<tr>
<td>Post grad</td>
<td>17%</td>
<td>11%</td>
<td>14%</td>
<td>9%</td>
<td>7%</td>
<td>0</td>
<td>17%</td>
</tr>
<tr>
<td>Doctorate</td>
<td>3%</td>
<td>14%</td>
<td>5%</td>
<td>2%</td>
<td>0</td>
<td>0</td>
<td>1%</td>
</tr>
<tr>
<td>None</td>
<td>5%</td>
<td>5%</td>
<td>0</td>
<td>10%</td>
<td>0</td>
<td>0</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 4: Percentage of learners declaring a disability from the general OpenLearn learner population (2013 and 2014) and the OpenLearn BOC learners (End of Course surveys 2015)

<table>
<thead>
<tr>
<th>OpenLearn survey data 2013 and 2014</th>
<th>Succeed with maths part 1</th>
<th>Succeed with maths part 2</th>
<th>English skills for learning</th>
<th>Succeed with learning</th>
<th>Taking your first steps in HE</th>
<th>Succeed in the workplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>23% (2013)</td>
<td>18%</td>
<td>28%</td>
<td>15%</td>
<td>37%</td>
<td>24%</td>
<td>16%</td>
</tr>
<tr>
<td>21% (2014)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Across all courses, BOC learners who completed the End of Course Survey are more concentrated in the 26–55 age range than the OpenLearn population overall. With the perhaps obvious exception of ‘Succeed in the workplace’, learners are also less qualified than OpenLearn learners overall, 26% of whom already hold an undergraduate degree.

The relatively high percentage of disabled learners, their motivations and perceptions of free learning on OpenLearn will be the subject of future studies. Both the 2013 and 2014 OpenLearn surveys showed that 21% (2013) and 23% (2014) of learners using the platform perceived themselves as having a disability. Compared to BOC learners, this varies over the courses, with 37% declaring a disability for ‘Succeed with learning’ and 16% for ‘Succeed in the workplace’.

**Reasons for studying a BOC**

Data from the Start of Course BOC surveys showed that the reasons for undertaking a BOC varied across subject areas. Respondents could select more than one answer, with Personal interest being the key reason (78% averaged across courses), followed by Preparation for future study (54% averaged across courses). The exceptions were the ‘English skills for learning’ BOC, which attracted a 54% audience of non-native English speakers, the majority of whom (62%) gave To improve my English as the main reason for study. (For the other BOCs, 75–90% of respondents declared English as their first spoken language.) For ‘Succeed in the workplace’, the key reason given for study was Professional development (84%).

Learners could also provide additional comments for their reasons to study. For ‘Succeed with Maths part 1’ these are shown as a word cloud in Figure 1. (The words children and school appear prominently, as some learners were studying in order to support their children’s maths homework.)

![Figure 1: Reasons given for studying ‘Succeed with maths part 1’](image)

With the exception of ‘Succeed in the workplace’ and ‘Succeed with maths part 2’ (because these learners had taken ‘Succeed with maths part 1’) 58% of learners had not taken a course delivered mostly or fully online before.

**Perceptions of digital badges**

Learners were asked in the End of Course Survey, what they thought was more important to them, the OU digital badge, the OU Statement of Participation (certificate) or that both were equally important. Across all courses 71% declared that both were equally important.

*Open Praxis*, vol. 7 issue 4, October–December 2015, pp. 299–310
Learners who had completed courses and gained a badge were asked what it meant to them. Figure 2 shows responses averaged across all BOCs with the majority declaring that it gave them a sense of achievement (84%) and that it helped keep them motivated (58%). Less are interested in sharing their achievements online or had earned digital badges elsewhere.

Figure 2: Responses to the question ‘What does earning a badge mean to you?’, respondents could select more than one answer

The course creators also developed formative assessment exercises, video and audio excerpts (both as original OU material and other’s OER) and weekly guide videos featuring the key academic author to further encourage learners. Learners were asked what their preferred ways of learning were within their BOC. For all BOCs, Doing quizzes and tests, and getting feedback was most strongly liked. Figure 3 shows the responses to this question from the ‘Succeed with maths part 1’ End of Course survey.
Recognising informal elearning with digital badging: evidence for a sustainable business model

Open Praxis, vol. 7 issue 4, October–December 2015, pp. 299–310

Figure 3: Responses to the question ‘Please rate from “strongly disliked” to “strongly liked” how you felt about the different ways of learning on OpenLearn’

Discussion

**BOCs as a motivation to complete in an unsupported online environment**

BOCs on OpenLearn require commitment by learners in an open, unsupported environment. Learners move through courses at their own pace and are required to pass two assessments at over 50% to earn the badge and associated Statement of Participation in the absence of any tutor-led instruction. Data from this study shows that the digital badge serves as a motivating factor within the BOCs but that on completion, it is valued equally with the Statement of Participation, portable and displayable in different ways.

“I love studying and do it for myself but the even basic accreditation from these badges adds a little more value to the work I put in.”

**BOCs supporting professional development**

At time of writing, over 1000 OU digital badges had been issued by the Open University over a 5-month period for the courses discussed in this paper. Beyond the accomplishment of passing the course and obtaining a digital badge, 39% declared that they would be sharing their achievement with their employer. Follow-up studies are being undertaken to track these learners to discover more about their onward journey and how their BOC may have contributed to professional development. It provides an environment for learners to move from a previously anonymous informal learning world to one of identified informal learning.

“I’m mostly a freelance teacher so I can almost always find a way to share what I learn with others. Of course, if I find myself applying for any particular vacancy, I can imagine this would be a good talking point and something to include on a form/in my CV.”

**BOCs as preparedness and driver for study**

As a mechanism for preparedness for study for existing or potential students, BOCs hold great promise. Data gathered from the BOC End of Course surveys, concurs with that of the pilot conducted...
in 2013 and strengthens its conclusions (Law, Perryman & Law, 2014) offering further evidence that:

- University-provided OER can be complementary, rather than competitive, with formal education.
- Badged courses attract learners who are particularly inclined to become students and are key to meeting the OU’s widening participation agenda (e.g. BOC learners are less well educated than the average OpenLearn learner).
- The provision of a digital badge acts as both motivator and incentive to learners to complete learning in the open.

The data also shows that for distance learning institutions, informal learners studying on OpenLearn and in particular BOCs, show a promising demographic for undergraduate recruitment in terms of their age and existing qualifications.

Haywood et al. (2013) report that for the first six MOOCs offered by Edinburgh University on the Coursera platform, 70.3% of respondents had achieved degree-level study: undergraduate 30.1% and postgraduate 40.2%. The OU’s MOOC learners on FutureLearn are a highly qualified group too, with around 80% already holding an undergraduate degree (internal OU data). OpenLearn itself, and the open, unsupported environment it delivers, attracts a far less qualified learner with a greater potential for formal study, particularly for BOCs and the range of entry-level, study and career-supporting subjects they cover.

"Having proven to myself that it is possible to learn at my age I have started the English: skills for learning and will continue with Part 2 of the mathematics course."

**BOCs as a sustainable development in online and distance learning**

The first tranche of BOCs reported in this study were developed partly from existing module material, partly from others’ OER (audio and video) and partly written from scratch. They followed the same process as full course production but scaled down and compressed. Learning design, academic editing, authorship and critical readership were essential elements to the commissioning of the courses, alongside the data gathered from the pilots and what is known of OpenLearn overall.

Assessment was developed using Moodle quizzes (compliant with the Mozilla Open Badge Infrastructure) two of which per course were mandatory for the issuing of a digital badge. As Moodle is open source software, the developments made by the OU to link Moodle with Mozilla digital badges, is now shared with the wider community.

As stated earlier in this paper, 13% of the 4.5m annual visitors to OpenLearn will click through to make an enquiry about becoming a formal student with the OU. For BOCs, the click-through rate to make this same enquiry is between 30 and 35%: this is more than twice the average of an OpenLearn learner viewing other material on the site. This extremely high level of click-through and subsequent student registrations met the costs of the development of all six BOCs within four months of them going live.

"Refreshed my math skills and going on to do the open learn English course, will be applying to do an access [OU formal] course in March."

**Conclusions**

The evidence in this paper indicates the value to institutions of regularly surveying users of their open content platforms to ensure those platforms are meeting institutions’ and users’ changing needs and to identify trends in learner priorities and motivations. Whilst sign-ups to formal learning
at the OU provide OpenLearn with a sustainable business model going forward, its primary function is to support the OU’s Charter in the delivery of free learning, ostensibly to underserved groups. Stacey’s (2012) observation that OER “may not directly generate revenue” is now questionable for OpenLearn overall, where such high motivation and formal course sign-up seen in BOCs can be achieved by providing:

- Branded Statements of Participation and digital badges as recognisable markers of achievement.
- Motivational elements (digital badges) and online formative assessments with feedback.
- Access/entry-level and career-supporting subjects.
- Open, non time-pressured open, online course environments.

Data show that OpenLearn continues to function as a showcase for the OU and as a bridge to formal learning, giving new and existing students a taster of the OU’s paid-for provision whilst also contributing to the development of existing students’ confidence and study skills. The analytics from BOCs in terms of formal sign-ups is both surprising and gratifying in its scale. It justifies the balance between delivering a robust widening participation agenda with a business model for revenue generation at a time when fee increases have made higher education prohibitively expensive for some. OpenLearn does this to an extent; the BOCs appear to do this in spades.

Much of the BOC material was adapted from existing modules or those no longer part of the formal curriculum but whose material is still relevant, which served to reduce the costs of academic writing time. Other financial benefits may be realised in the future as the retention of formal learners who had studied informally first, is further investigated.

The case for extending the provision of BOCs on OpenLearn is strong. The strategic importance of informal learning recognition that can be provided for free is particularly relevant considering the growing, and questionably profitable, rise of MOOC providers issuing certificates for a fee.

Production challenges have largely arisen around the training of academic and academic professionals, to create short pieces of learning and associated formative assessment using Moodle quizzes that adhere to the quality and rigour normally associated with full, semester-length courses.

Any BOC achieved via OpenLearn can be made visible via a learner’s OpenLearn public profile or shared on social networking platforms, and hence, to any HEI or employer. In addition, the achievement of an OU digital badge by the University’s formal students will be displayed in their Higher Education Achievement Record in the future.

With these encouraging first data in mind, the BOC curriculum is being extended and developed to further support journeys from informal to formal learning, improve retention and learner confidence in new learners, to support postgraduate students who have been out of study for some time and to continue to provide key skills for those keen to move on in the workplace.

Acknowledgement

This paper has been awarded an ICDE Prize for Innovation and Best Practice at the 26th ICDE Conference, held in Sun City (South Africa) in October 14th–16th 2015.

References


Papers are licensed under a Creative Commons Attribution 4.0 International License

Open Praxis, vol. 7 issue 4, October–December 2015, pp. 299–310
Growth and development of distance education in India and China: a study on policy perspectives

Ashok K. Gaba
School of Vocational Education and Training, Indira Gandhi National Open University, New Delhi (India)
akgaba@ignou.ac.in

Wei Li
Institute of Education Studies, The Open University of China, Beijing (China)
liwei@crtvu.edu.cn

Abstract

India and China are two fast growing economies of the world and need large skill based manpower to sustain the economic growth. The existing formal higher educational system in these countries will not be able to meet the demand of the economy. The paper will try (i) to compare the development of economy and distance education in India and China with reference to policy perspectives; (ii) to examine the course design, development and delivery of distance education programmes in national open universities of India and China i.e. Indira Gandhi National Open University of India (IGNOU) and Open University of China (OUC); (iii) to analyze the trend of enrollment in IGNOU and OUC; and (iv) to compare the recognition /accreditation and quality control process of distance learning in both these countries. The paper highlights the policy strategies of two countries towards quality control mechanism as par with conventional system.

Keywords: Distance Education; Policy; Quality Control; India; China

Introduction

India and China share a common uniqueness in terms of having the largest population comprising wider geographical areas and rising economies with a faster growth rate. In the last couple of years, economies of both countries benefited due to success of globalization processes. Both economies are often treated similar in terms of increase in the rate of growth and per capita income. But there are differences between characteristics of these economies. Indian economy is a mixed economy with larger dominance of private sector, whereas Chinese economy is a socialist market economy with smaller dominance of private sector but approaching fast towards to capitalist economy. The economic growth rate of China has increased at an average annual rate of about 9.5 percent since the last two decades compared to Indian counterpart (5 to 6 percent) during the same period. The growth rate of China and India increased from primary to service sector. However, of the total employment, percentage of employment in industry increased in both countries: from 22.5 percent in 2005 to 29.5 percent in 2012 in the case of China, and from 19 percent in 2005 to 24.7 percent in 2012 in India. Of the total labor force participation rate, percentage of labor force participation rate for ages 15–24 years has declined in both these economies from 2005 to 2013 (ILO estimate). It has decreased from 60.5 percent to 56.2 percent in China and from 47.1 percent to 35.3 percent in India during the same period (World Bank, 2015). Most of the problems in both economies are similar i.e. inadequate generation of employment and growth with inequalities.

At present, both economies are growing together. World Bank data predicts India’s economic growth will match China’s growth rate in the current year (Figure 1). Higher education development in India and China are also growing parallel to their economic growth. India is matching gross enrollment ratio of higher education as par with China’s gross enrollment ratio since the last couple
of years (Figure 2). Both countries are concerned with increasing gross enrollment ratio in higher education.

Consistent with rapid economic development, the education scale and quality were highly promoted in China also. The Ministry of Education in China (2010) put forward the specific education development goals for the next 10 years, which are: "basically modernize education, bring a learning society into shape, and turn China into a country rich in human resources by the year 2020" (p. 9). Wen Jia Bao (2013) pointed out that national government spending on education totaled 7.79 trillion yuan over the past five years, increasing at an average annual rate of 21.58% to reach 4% of GDP in 2012 for the first time in the last fifty years. Also, it made free nine-year compulsory education universal across the country and the Gross Enrollment Ratio of Higher Education rose to 30%. In contrast, India government is focusing on providing skill-based education to meet the growing demand of industry. Open and Distance Learning System (ODL) can enhance gross enrollment ratio in both these economies.

![Figure 1: Growth rate of India and China from 2012 to 2015](http://data.worldbank.org)

**Figure 1: Growth rate of India and China from 2012 to 2015**

Source: Data compiled from the Database of World Bank retrieved from [http://data.worldbank.org](http://data.worldbank.org)

Note: e = estimates; f = forecasts

![Figure 2: Gross Enrollment Ratio of higher education in India and China](data.uis.unesco.org)

**Figure 2: Gross Enrollment Ratio of higher education in India and China**

Source: Data compiled from the Database of UNESCO, retrieved from [data.uis.unesco.org](data.uis.unesco.org)
Research design

The study is based on secondary sources of information. Data and information are used from published and unpublished documents. The information available on web pages was also used for the analysis purpose.

Genesis of ODL system in India and China

India

In India, the University of Delhi first established the School of Correspondence Courses in 1962 as a pilot project. Later, Punjabi University, Patiala set up a Directorate of Correspondence Courses in 1968 and enrolled a large number of students. The establishment of the Open University in the UK (1969) encourages Indian Policy Makers to intensify corresponding education through an Open University system in the country to provide accessibility of quality education to those who couldn’t continue their education due to one reason or another. Government of India constituted an eight member working group on the proposed Open University in 1974. During the same time, various other universities also established Directorates of Correspondence Courses at their respective institutions. Andhar Pradesh southern state established the first open university in India as ‘Andhra Pradesh Open University’ in 1982. During the same year, the International Council of Correspondence Education (ICCE) was renamed as International Council of Distance Education (ICDE) recognizing ‘distance education’ as a non-conventional education system across the world. Later, Andhra Pradesh University was renamed as Dr. B. R. Ambedkar Open University. To meet the continuous increase in demand of correspondence courses, Government of India made a policy statement for establishment of the Open University in the Country. The Government of India introduced a Bill in the Parliament and it was passed by both Houses in August, 1985. It was named after the late Prime Minister of India Mrs. Indira Gandhi as Indira Gandhi National Open University (IGNOU). About 3 million students are enrolled in more than 225 programmes in this university. At present, more than 220 dual mode universities/institutions, 15 Open Universities (1 national and 14 state open universities) and some private institutions recognized by University Grants Commission (UGC) are offering correspondence/open and distance learning programmes in the country.

Till 2012, IGNOU was playing a dual role as an apex body in the country through Distance Education Council (DEC). It was established in 1991 under section 5 (2) of IGNOU Act passed by the Indian Parliament. DEC was responsible for promotion, coordination, and maintenance of standards of ODL system in the country. The Council also extended funding support to ODL institutions for the development of their infrastructure, course materials and learner support systems and use of ICT in various institutional activities. It also facilitated recognition of ODL institutions and programmes through apex bodies such as UGC, the All India Council of Technical Education (AICTE), the National Assessment and Accreditation Council (NAAC) and the National Council of Teacher Education (NCTE). In 2012, Ministry of Human Resource Development (MHRD), Government of India (GOI) withdrew DEC from IGNOU’s act under section 5(2) and attached a separate Distance Education Bureau (DEB) in UGC. Since then, Distance Education Policy in the country is under revision.

China

The ODL system in China began in the late 1970s. It was initiated for typical political, economic and social reasons. At that time, China was in its early stage of Reform and Opening up, and needed a big amount of human resources for the economic recovery and the construction. Deng Xiaoping,
the then Vice Premier, learning from the experience of the Open University, UK, and decided to set up Chinese Radio and TV University to solve the human resources problem. As the State Council (1979) pointed out, “to establish radio and television universities is a strategic choice for expanding higher education, upgrading the scientific and cultural level of the masses, as well as having a larger number of professionals” (p. 1).

The development of ODL in China is closely related to the government regulation. To transform Radio and Television University to Open University is one of the most important policies recently made by national government in developing ODL market. Founded in 1979, the Central Radio and Television University (CRTVU) is the largest open distance higher education institution in China. A study by Liu Yi Zhan (2009) showed that the higher education graduates of CRTVU reached 7.2 million from 1979 to 2009, accounting for approximately 24% of the total higher education graduates. In 2012, the national government decided to establish Open University of China (OUC) on the basis of CRTVU. The Ministry of Education (2012) required OUC to try to build the overpass of lifelong learning, meet the diversified and personalized learning demands of the public and contribute to the construction of open and flexible lifelong education system. OUC (2012) also puts forward its 10-year strategic plan, which aims to be a new kind of university in China’s higher education system, a world-class Open University featuring Chinese characteristics and an important pillar for constructing a learning society. It was designed to be open to all members of society in China, not only working adults but also school-age students, the elderly, farmers, the unemployed and other disadvantaged groups, and it provides application-oriented formal tertiary education and non-formal education like short-term learning programs and certificates (Li, 2014). It is obvious that the mandate of CRTVU and OUC changed a lot since its very beginning.

After nearly 40 years, ODL system in China is now far more developed. The market is growing dramatically. It covers all education levels, attracts public and private sectors and provides various scopes of services. ODL system contributed a lot to Chinese education development.

As stated above, the national governments of both countries have taken the right steps to restructure their ODL policy in the same year 2012 through shifting DEC from IGNOU to UGC as DEB in the case of India and establishment of OUC from CRTVU in the case of the China. It was very much needed to match the faster growth rate of India and China. Before analyzing its implication, let us analyse the process of course design, development and delivery of ODL programmes in national open universities of both countries.

Course design, development and delivery model

India

In IGNOU, the courses were prioritized as per the need. Faculty conducts need-based survey for a particular course/programme before obtaining approval from various statue approvals in the university. The needs of the prospective students, employment avenues, and the like have also been important considerations for designing the courses. Faculty coordinator-writer-editor approach to course design and development evolved and has become the mainstream course development approach in the university. With the change in time, much more flexibility, openness and learner centeredness were introduced in the university, which eventually reflected in the course design process too. ODL characteristics i.e. relaxation of entry qualifications, increasing duration for completion of the programme, addition of audio, video, teleconferencing, radio counseling and application of ICTs—all had implications for course design process in the University. A programme can be initiated by any faculty (teacher or academic), called the ‘programme coordinator’, irrespective
of one’s designation or status. One has to follow a few stages in the process of course design and development to finally reach the stage of printing and production of materials. The programme coordinators have been concerned since with i) establishing academic credibility of programmes, ii) optimum utilization of limited resources for programme development and implementation, iii) availability of experts in the area and iv) credibility/valuing of degrees and diplomas by other academic institutions and the prospective employers.

A broader framework depicting the process of development of an academic programme is given in Figure 3, which depicts seven stages in the course design and development process adopted in IGNOU.

China

The course design is based on market demand and student job skills, and the courses are divided into several categories, such as core courses and mini MOOCs. Secondly, the course development team is strong. Not only OUC teachers but also teachers from research universities and experts from enterprises and industries are joined in. Some of the team is international-formed. Thirdly, the course construction follows certain standards, namely The Course Construction Work Procedures (CRTVU, 2008) and The Curriculum Construction Workflow (CRTVU, 2007). The former one points out concrete rules about the basic requirements and the process of course construction, the preparation prior to the curriculum construction, the formulation of syllabus, the establishment and approval of an integral project, the multi-media teaching resource development, curriculum instructional design making, use of multi-media teaching resources and course evaluation, so that rules can be followed in all aspects of the work. The latter one divides the course construction process into five stages, as shown in Figure 4.

Role of ICT in Pedagogy of distance education programmes

India

IGNOU established EduSat (a satellite dedicated only to education) on 20th September, 2004 to play a lead role in a new era of technology-enabled education in the country. The university emphasized the development of multi-media and an online learning component in the existing distance learning programmes. The application of ICT continues in learner support services but its use in pedagogy is stopped at the moment due to not having a regulatory framework in place, not
only for online courses but also for distance learning programmes. The regulatory authority like UGC, its Distance Education Bureau (DEB) or AICTE are not recognizing any programmes which are offered through online mode only (Sharma, 2015). It is not only online programmes of IGNOU or State Open Universities or Dual Mode distance Teaching Institutions in the country; even formal institutions who are offering programmes through online mode are not being recognized by the UGC. Despite the fact, online programmes are being offered by some of the ODL as well as formal institutions across the country. However, it can be supplemented with print or any mode of delivery of the programme. Like IGNOU, other SOUs are also supplementing the learning material with additional material through digital technology.

*Open Praxis*, vol. 7 issue 4, October–December 2015, pp. 311–323
China

The application of information technology and learning support services are the two main characteristics of ODL systems. OUC (2012) put “deeply converged application of technology and education” as its priority working areas, hoping to become a university on the “cloud”. It will strengthen application of technology in teaching, research and management with a focus on five areas such as technical support, teaching application, resource construction, engineering research and intelligent management. At the same time, OUC is now adopting intensive learning support services. The services are provided in the whole learning process. Students can get academic support from academic teachers, nonacademic support from management staff and emotional support from tutors.

In both countries, ICT is being used in teaching and learning support services. The converged application of technology and education is going deeply and deeply. No legal framework exists at the moment to recognize online/e-learning/MOOC programmes in these countries.

Trend of enrollment in IGNOU and OUC

Table 1 shows that the growth rate of enrollment of both open universities was fluctuating. For instance, it increased 30 percent from 2009 to 2010 and 14% during 2010–2011 in the case of IGNOU. It declined 42% from 2011 to 2012 and increased 3% during 2012–13. In the case of OUC it declined 4.2% from 2009–2010 and increased 6.5% during 2010–2011. It again declined 2.5% from 2011 to 2012 and increased 6.2% from 2012 to 2013. It may be due to changing distance education policies of both open universities or the need for acceptance of distance education in the job market. It needs further research to find out the factor responsible for the fluctuation of the growth rate of enrolment in both open universities.

Table 1: Trend of enrollment in IGNOU for the last five years

<table>
<thead>
<tr>
<th>Year</th>
<th>IGNOU</th>
<th>OUC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enrollment</td>
<td>Growth Rate*</td>
</tr>
<tr>
<td>2009</td>
<td>652946</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>852740</td>
<td>30%</td>
</tr>
<tr>
<td>2011</td>
<td>993471</td>
<td>14%</td>
</tr>
<tr>
<td>2012</td>
<td>696753</td>
<td>-42%</td>
</tr>
<tr>
<td>2013</td>
<td>722390</td>
<td>3%</td>
</tr>
</tbody>
</table>

Note: * Growth rate was calculated by \( \frac{P_t-P_0}{P_0} \times 100 \)

Funding of IGNOU and OUC

As mentioned earlier, the IGNOU was given the distinctive additional responsibility of funding, maintaining quality and accrediting the distance education programmes and systems in the country through DEC till 2012. The national government was funding the capital and operating expenditure of the university till 1991. Afterward, the university source of income was mainly from tuitions fees. In view of this, Government of India reduced its grant to IGNOU about 15 percent of its total income. It is therefore not surprising that the income from student fees as percentage of its gross operating costs has gone up from 17.29 percent in 1986–87 to 69.0 percent in 2003–04 (Gaba & Bhusan,
Government of India didn’t develop any funding policy for the open universities as such. It has also been observed that most of the dual mode distance teaching institutions in India are generating revenue for their respective universities because of budget deficit of these universities. It means distance learner is paying subsidy to formal learner of the same institution. The amount generated from these students in the form of tuitions fees was not spent for their services.

In China, the ODL institution, either public or private, gets majority funding from the tuition fees like India. No funding formula/policy has been developed by the Government of China for open universities and other distance teaching Institutions in the country (Li, 2014). Although as a national public higher education institution, OUC cannot get as much as other HE institutions from national government budgets. The national government only pays OUC for some special HE programs, but it is unsustainable and unstable.

The funding structure for support services of OUC is different from India. OUC does not have to pay for the funding of its branches and student centers. The local governments are responsible for employing teachers and grant funding for OUC local branches and centers. This structure reduces the heavy burden of budget resources problem of OUC but causes the problems of integrality management of the whole university.

Open and distance learning policy and future pathways

It has been observed from the comparative analysis of development of economy as well as ODL system in India and China that there is a need for re-structuring ODL policies in their respective countries due to fast changing economy. China has already taken its steps by extending CCRTVU to OUC. India is in the process of revising the Distance Education Act giving more focus on quality control mechanism. Since its inception, IGNOU and OUC adopted asynchronous communication approaches i.e. self-learning printed materials, audio/video, radio, teleconferencing and CDs. In recent times, these institutions used multimedia extensively including synchronous communication methods while delivering ODL programmes. The governments of India and China have maintained national policies to ensure that one-third population of the world representing these countries are educated in the 21st century (Carter, 2009). Of the total enrollment in distance learning programmers, half of them belong to these countries. These learners represent heterogeneous groups. They scattered from different geographical regions. For example, due to fast development of urbanization and industrial development, both populations of these two countries enjoy different and better basic infrastructure i.e. internet facility, faculty and laboratory etc. Hence, the impact of distance education policy for creating more skill based manpower, particularly belonging to unorganized sector will be more in India (93%) and China (95%). Despite the fact, about 69% population of India belong to rural areas.

ODL policy and legal framework

In India and China, there is an urgent need to define the role and function of each ODL institution. At present, employers, including the government institutions, are hesitating to recruit distance learners at their respective institutions. In India, recently two judgments i.e. Supreme Court and Calcutta High Court related to the degrees awarded through distance mode by two different universities have raised a question on the credibility of the ODL programmes in the country. The court’s observation is a serious concern among academia and experts of ODL system. They perceived that the ODL system not being qualitatively at par with conventional system is due to deteriorating quality and lack of a strong regulatory mechanism (Sharma, 2015). In China, the quality
of ODL institutions is always a hot issue to discuss and be questioned by the governments and experts. The quality standards of Open Universities cannot be considered in the same way as conversational universities. To some extent, we agree that some periphery in ODL regulation has violated norms and procedures and entered into unacceptable ODL practices. It may happen in formal or conventional systems too. The problem is not with any system but the people who misuse the system for the sake of their own interest. One of the legal experts in the area of ODL in India who chaired committee on reforms in distance education said that:

in principal there should be no distention between conventional and open university degrees. He further stated that there is lack of credibility in ODL system because all types of players have been allowed to play and no proper regulatory system is in place today (Sharma, 2015).

At present Distance Education Draft Bill is pending for the approval of the Government. It is to be noted that Open Universities emerged in India and China to meet the increasing demand of quality higher education. Most of the dual mode distance teaching institutions are offering programmes based on print media as correspondence institutions were offering for the last four decades. It affected the quality and delivery of the distance learning programmes in the country too. We hope the government focuses on quality, strong monitoring and evaluation mechanism so that nobody can dilute norms and procedures. Policies should be designed in such a way that skill and competency based degrees are elaborated to meet the needs of industries in both economies. It will not only meet the demand of domestic industry but also international industries/corporate companies. For India, the court observation on falling standards of distance education may be right. It is also true that the same system has produced the countries’ highest civil servants, doctors, engineers and changed thousands of people livelihood after getting a degree from these institutions (Gaba, 2005).

**Pedagogy of distance education**

Carter (2009) rightly stated that change in distance education is not driven only by available technologies but also by the winds of political and economic changes, which determine the maintenance of technology usage. Carter further stated that change must not be for the sake of change; rather, it must be contemplated in the light of its potential impact on individuals and communities of practices. IGNOU and OUC have to focus on delivery of skill/vocational based programmes through digital technology. India is expected to have 213 million mobile Internet users by June, 2015. Among them 53 million users will be from rural India. 78 per cent of the active Internet users in urban cities and 67 percent in rural villages access the Internet on their mobile phones (TOI, 2015). China is expected to have 637 million mobile Internet users during the same period. The challenge before IGNOU and OUC is to deliver these programmes with different target groups. The role and responsibilities of two mega open universities should be given to deliver programmes through digital technology with more focus on using social media. Youth of both countries frequently use social networking i.e. Facebook, Twitter, Whatsapp in day-to-day life. IGNOU and OUC can use these tools i.e. Blogging, You Tube and real time audio and video while delivering their distance learning programmes. Research has already established that use of digital technology enhanced in pedagogy of distance education. Hence, the learning package should be delivered through a blended learning approach. Faculty of these two OUs should use live online classes to deliver counseling/tutoring sessions through this technology. Laboratory and Hands On experience can be provided through real life activities at lab/industry and uploaded their output on you tube. This process will not only bring transparency of teaching, learning and evaluation process to certification of their course work but also anybody in the world can view their progress. It will enhance quality of the distance-learning programme and will be as par with the conventional
university in nationally and globally. These packages should be available online or offline mode so that learner can use it at his/her convenient time. Each vocational/skill-based packages should be blended with media mix of text, audio/video/live online sessions/e-content. These modules should be designed in such a way that these learners are trained through real life situations where they can achieve learning objectives i.e. knowledge, skills and attitude.

**Use of OER and MOOC**

In India, the Ministry of Human Resource Development (MHRD), Government of India’s annual report (2014–15) document states that ODL system is inadequate and new models are needed for open education system with Massive Open Line Courses (MOOCs). The existing course development process by the OUs to be converted into e-content as open education resources (OERs) and Massive Open Online Courses (MOOCs). In China, Ministry of Education (2015) recently released a plan on fascinating the development of MOOCs on HE institutions. It mainly focuses on the teaching reform of conventional universities but also mentions the important role played by OUC in gathering MOOCs in all Chinese universities.

Using of OER and MOOCs will auxiliary the culture of open knowledge among diversified learners. Hence, MOOC has created a culture for online learning. Some of the high ranked higher education institution in India like Indian Institute of Technology (IITs) started to offer basic IT courses in data structure, programming, and algorithms to students of undergraduate students through Moods). Peking University and Tsinghua University in China provided online courses in World’s famous MOOCs Platforms like Edx and Coursera. Among all the MOOC students, we found that Indian and Chinese students are considered as most users of MOOCs. For example, of the total 2090 thousand registered users of Coursera, more than 250 thousands were from India (Jeelani, 2014). There are several issues and challenges which emerge while using MOOCs at OUs. One of them may be inadequate basic and infrastructure connectivity. But in both countries, there is a need to develop a suitable model to use MOOCs in OUs. In India, it is to be noted here that at present, online programmes offered by various institutions in India are not recognized by the Government’s statutory bodies in India. Various formal and informal educational institutions are adopting OERs and MOOCs in teaching learning process across the globe. These developments created confusion among academia and learner about the future of ODL system in the country when Supreme Court and High Court of India have given judgment on ODL system.

To competent national and international development of delivery of quality ODL programmes leads to confusion among public. The policy on OER and Moods should be formulated as per the local needs without comprising the quality and monitoring mechanism. Whatever model to be adopted but it should not be compromise in diluting the proper teaching learning process, well designed evaluation and monitoring system.

**Recognition of prior learning**

As mentioned earlier that In India 93% people are working in un-organized sector. Hence, OUs can play a crucial role in the recognition or prior learning (RPL) and develop capacity building programmes for those who have skills but no certification. IGNOU and OUC are already implementing credit choice system. OUC (2012) was asked by the Ministry of Education to establish a national credit bank framework and start to do the recognition of RPL on some programs of its students. Using OER and MOOCs can play a significant role for these communities. In India, there are people who have skills but no recognition. Most of them belong to rural and semi-urban areas. IGNOU and OUC can help these people who are deprived from national schemes of the country.
Discussion

We find from above analysis that fast developing countries have common issues and challenges. Both countries are representing two Mega Open Universities in the World. It is true there are some differences in priority areas for trained people through their respective universities. There are various models of ODL is adopted by ODL institutions in these countries. The Role of OUs should be categorically defined. The national open universities should prioritize research and content development activities whereas state open universities and dual mode distance teaching institutions should focus on delivery of the ODL programmes in case of India. In China, OUC faces many challenges. Some of the challenges have already existed for a long time whilst some are pretty new. Just like many other Open Universities, the high dropout rate is one of challenges for OUC. And so far, a good national quality assurance system of ODL institution has not built yet. It is hard for the government to monitor the quality of ODL systems and help the market to be well-ordered. As showed before, a lot of Internet companies are now stepping into the ODL market, many of which have successful Internet use experience, abundant capital, good industrial chain and powerful technology research background. Following the wave of MOOCs, the research universities in China have strived to develop ODL, in 2013, Tsinghua University and Peking University joined the Edx, while Fudan University and Jiaotong University joined Coursera. (Li, Yao & Chen, 2014) The dominance of OUC in the HE market of ODL is challenged.

In past, we experienced that Act and Statue has defined clearly about the role of distance education norms and procedure. But it has not been implemented at the time of its operation. It has happened due to poor monitory mechanism adopted by the ODL institutions in the country. It diluted the quality of ODL programmes and uncertain future of distance learns. The application of new technology can remove this problem to some extent.

There is a need for well-defined meaning of ODL model which include its sub system i.e. learning, mobile learning, OER and MOOCs, blended learning etc. with national and International acceptance. For example, ICDE defined as ‘Open Universities are institutions offering courses with no entry requirements’. Local legal bodies in the respective countries are not accepting this definition. The meaning of Open is also challenged by Academia and policy makers. Open universities now started offering face to face as conventional universities are offering programmes. As we all knew that conventional education systems in the world are also using ICT/OER/MOOCs in teaching learning process. Hence, there is a need for debate to well define role of Open University locally and its acceptability globally. At present, OUs are facing huge challenge and prove its credibility despite of the fact in past IGNOU and OUC designed, developed and delivered high quality distance learning programmes.

Suggestion and recommendation

• There is a need for development of national policy on open and distance education in both countries.
• There is an urgent need for restructuring of National Open Universities’ Act, Statues and Ordnances of both the countries as per the revised national policy on ODL.
• Both the governments and National Open Universities should work collectively on policy framework, content development and research and development activities. Sharing cost will help both these economies to reduce cost for common concern.
• China and India are now in the stage of changing economic structure and upgrading labor skills. As the national Open University, OUC and IGNOU should constantly meet the national development needs, and improve their social service function.
Core competitiveness is the key to the success of ODL institutions. How to enhance the internal strength i.e. role of the faculty to deal with technological change, severe market competition, and high dropout rate are all the key areas for development. OUC and IGNOU should strengthen international cooperation and share experiences.

Conclusion
To conclude, the study is based on the secondary source of information. The findings of the study may not be generalized, and treated as preliminary findings. There is a need for conduct in-depth study based on primary data based. However, the study contributes significantly to understanding an analysis of the ODL system of the two emerging economies and Mega Open Universities of the World. Findings of the study suggest that ICDE should deal with these issues particularity for developing economies and come forward with broader framework to solve these issues with well-defined ODL system. ICDE should design legal framework for the use of digital technology by educational institutions across the world. For instance, blended learning approach can be used by formal and informal institutions. All the ODL institutions should adopt legal procedure like conventional system without compromising quality in terms of course design and development, delivery and well structure evaluation mechanism with more use of digital technology.

Acknowledgement
This paper has been awarded an ICDE Prize for Innovation and Best Practice at the 26th ICDE Conference, held in Sun City (South Africa) in October 14th–16th 2015.

References
Liu, Y. Zh. (2009, October 19). RTVUs have had 7.2 million graduates in their 30-year development. Xinhua News.
Sharma, J.P. (2015, April 1). Beware that online degree may not be valid in India. *Hindustan Times*.


Ministry of Education (2015). *About strengthening the application and management of online open courses construction in higher education institutions*. Beijing: Ministry of Education.


Validating student satisfaction related to persistence, academic performance, retention and career advancement within ODL perspectives

Maximus Gorky Sembiring
Universitas Terbuka (Indonesia)
gorky@ut.ac.id

Abstract
Student satisfaction associated with persistence, academic performance, retention, and its relations to career advancement were examined. It was aimed at measuring service quality (Servqual) dimensions as a foundation of satisfaction and how, in what comportments, they were interrelated. The study was conducted under explanatory-design. Data was collected proportionally and purposively followed by congregating them through unified interviews. Population was 1,814 Universitas Terbuka students domiciled overseas; 350 questionnaires were dispersed, 169 completed. Satisfaction was assessed by examining Servqual dimensions. Importance-performance analysis (IPA) and customer-satisfaction index (CSI) were applied to measure satisfaction and the level of its importance. Structural equation model (SEM) was then employed to examine influencing variables. Nine hypotheses developed were all validated by the analysis. Responsiveness, assurance, tangible, reliability, and empathy were in harmony to satisfaction. Career advancement, retention, academic performance, and persistence were influenced by satisfaction. Qualitative inquiry implemented afterwards was basically coherent with the quantitative findings.

Keywords: Servqual; satisfaction; retention; explanatory-design; IPA-CSI; SEM

Introduction
It is observably recognized that some factors lead to student satisfaction and its relations to retention perceived from service quality (Servqual) outlooks (Brown, 2006; Arokiasamy & Abdullah, 2012). The framework of Servqual leading to satisfaction has been formulated by Parasuraman, Zeithaml and Berry (1988) and elaborated in educational sectors by Tan & Kek (2004), Petruzzelis, D’Uggetto & Romanazzi (2006), and Rojas-Méndez, Vasquez-Paraga, Kara, & Cerda-Urrutia (2009). These efforts are imperative since many students who endeavored to earn a degree failed to persist (Robert & Styron, 2009) as the service delivered is below the required standard. To certain extent, this phenomenon is tightly relevant to Universitas Terbuka Indonesia ambiance as documented by Sembiring (2014 & 2015).

Issues related to persistence, academic performance, and retention as a result of satisfaction in the context of Universitas Terbuka are now indispensably consistent with maintaining the size and growth of the student body. In 2014, for example, it was expected students to total 361,461 nationally and 3,000 regionally; the latter refers to students living overseas. The targeted number nevertheless dropped short of that goal and totaled up to 333,501 nationally and 1,814 regionally (Universitas Terbuka, 2015b). This implies that there was a gap between the initial target and the realization. This fact drives us to explore: Was it as a result of many students having graduated? Was it a question of fewer new students registered? Or, was it due to the fact that many students did not re-register themselves in a consecutive semester consistently? If the latter is the most probable case, we then come to the inquiry of student persistence and/or retention associated with student satisfaction within Servqual configurations.

The primary aim of the study is therefore to evaluate the Servqual implemented and its dimensions as they were expected and experienced by students. It is also significant to reveal the crossing...
points between satisfaction along with persistence, academic performance, retention, and career advancement in Open and Distance Learning (ODL) settings. The answers to these questions are related to the efforts on maintaining the size and growth of the University’s student body, such that all services provided meet as many students’ needs and expectations as possible (Ostegard & Kristensen, 2005). Besides, the University will be able to anticipate and concentrate the entire associated efforts productively with respect to assuring better and faster services viewed from a student perspective.

Related Literature and Framework

Servqual and satisfaction, even in the educational sector, attract many scholars in a wide variety of disciplines (Kitcharoen, 2004). The dimensions of Servqual mentioned previously: reliability, assurance, tangibility, empathy, and responsiveness were adopted in this inquiry. Previous work by Tileng, Wiranto and Latuperissa (2013) gave confidence to utilize this basis within Universitas Terbuka context. The origin of the study was Servqual and satisfaction integrated with prominent constructs within retention and/or persistence (Tinto, 1982, 1993 & 1997) and attrition (Bean, 1983 & 1985). It makes such a progress in understanding elements of Servqual, satisfaction and retention (Hanaysha, Abdullah & Warokka, 2011). Furthermore, Ilias, Hasan and Rahman (2008), Mailany (2011) and Martirosyan, Saxon and Wanjohi (2014) recognized that evaluation on satisfaction leads to increasing academic performance. Students also search for a program that will prepare them for more promising and great career advancement in their future. It is then believed that many students expected to gain more established forthcoming jobs (Archambault, 2008).

Having considered these expectations, it becomes just right to introduce an integrated structure of this study by uniting all relevant factors in Servqual framework, satisfaction, and associated possible links as the conceptual framework of this research (Figure 1).

![Figure 1: Conceptual Framework](image-url)
This conceptual framework would be a tool for measuring student satisfaction and its inferences viewed from Servqual outlooks. This would allow ODL institutions to change important aspects of their operations to accommodate student expectations. It might also focus on institutional directions to fulfill student needs extensively so that the universities can maintain and make progress on the size and growth of their student bodies as it was prearranged.

Before establishing the operational framework as a furtherance of the conceptual one, it is worth noting that student satisfaction is conceptually determined by Servqual. It is operationally demarcated on five dimensions (reliability, assurance, tangible, empathy, and responsiveness). Each dimension is further elaborated accordingly into attributes. Moreover, satisfaction is operationally a pointer to persistence, academic performance, retention, and career advancement. To ease the research design, all variables engaged associated with their dimensions are systematically arranged as shown in Table 1.

Table 1 is utilized as a basis to develop an instrument in the form of questionnaire. All questions incorporated in X, as the independent variables ($X_{11}$–$X_{53}$), are answered two times by respondents simultaneously. The first and second answers measure satisfaction and its level of importance. The rest are answered by respondents to view the impact of satisfaction related to persistence, academic performance, retention, and career advancement from students' perspectives.

<table>
<thead>
<tr>
<th>No</th>
<th>Variables</th>
<th>Dimensions</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reliability</td>
<td>Curriculum</td>
<td>$X_{11}$: Curriculum of the program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relevance</td>
<td>$X_{12}$: Relevance between program and the work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reputation</td>
<td>$X_{13}$: acknowledgement from the society in large</td>
</tr>
<tr>
<td>2</td>
<td>Assurance</td>
<td>Services</td>
<td>$X_{21}$: Student service through electronic media</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schedules</td>
<td>$X_{22}$: The university academic calendar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fees</td>
<td>$X_{23}$: Tuition fee and other related expenses</td>
</tr>
<tr>
<td>3</td>
<td>Tangible</td>
<td>Website Design</td>
<td>$X_{31}$: Design of the web (<a href="http://www.ut.ac.id">www.ut.ac.id</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information in web</td>
<td>$X_{32}$: Information inside the web</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web interactivity</td>
<td>$X_{33}$: Interaction from students to the university via electronic media, and vice versa</td>
</tr>
<tr>
<td>4</td>
<td>Empathy</td>
<td>Attention</td>
<td>$X_{41}$: Response from student service official</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Support</td>
<td>$X_{42}$: Tutor support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complaints</td>
<td>$X_{43}$: Handling student complaints</td>
</tr>
<tr>
<td>5</td>
<td>Responsiveness</td>
<td>Feedback</td>
<td>$X_{51}$: University feedback mechanism to students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication</td>
<td>$X_{52}$: Information delivery system to students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Access</td>
<td>$X_{53}$: Student access to the management</td>
</tr>
<tr>
<td>6</td>
<td>Satisfaction</td>
<td>Registration</td>
<td>$Y_1$: Student registration service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Modules</td>
<td>$Y_2$: Module distribution system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tutorials</td>
<td>$Y_3$: Tutorial management system, classroom &amp; online</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exams</td>
<td>$Y_4$: Implementation of semester final exam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General admin</td>
<td>$Y_5$: Tuition fee payment scheme</td>
</tr>
<tr>
<td>7</td>
<td>Persistence</td>
<td>Re-register</td>
<td>$Y_6$: Re-registering regularly in each semester</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Active in tutorial</td>
<td>$Y_7$: Enthusiastically participate in tutorial activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Active in group</td>
<td>$Y_8$: Involve in study group activity via available media</td>
</tr>
</tbody>
</table>
At this stage, it is on the right spot to establish the study’s operational framework in accordance with the structure of the conceptual framework (Figure 1) and the essence of variables involved (Table 1) and then followed by their attributes. They are all displayed diagrammatically in Figure 2. This figure will be used as the basis for determining the methodology used, research design, and the way on how to ensure the analysis accomplished further.

Methodology, Design and Hypotheses

This study utilized mixed-methods, i.e., explanatory-design (Creswell & Clark, 2011). Technically, the research was prearranged to be implemented under a quantitative approach first and then followed by a qualitative sequence. Two instruments were developed; a questionnaire for quantitative purposes and a list of questions for in-depth interviews and/or focus group discussions to be analyzed qualitatively.

Figure 2 describes the highlights affecting Student Satisfaction (Y1–5) leading to Persistence (Y6,7,8), Academic Performance (Y9,10), Retention (Y11,12,13), and Career Advancement (Y14,15). Satisfaction (Y) includes Registration (Y1), Module (Y2), Tutorial (Y3), Examination (Y4), and Administration (Y5). Satisfaction (Y) was assessed by perceiving the components of Servqual, including the attributes of Reliability (X1), Assurance (X2), Tangible (X3), Empathy (X4) and Responsiveness (X5).

The instrument consists of 2x20 questions related to satisfaction and its level of importance, plus ten additional questions to validate whether or not persistence, academic performance, retention and career advancement were relatable to satisfaction. This approach is meant to address the conceptual and operational framework, research design, hypotheses, survey and sampling techniques, data collection and processing, and finally drawing the conclusions quantitatively. Serially, these will be unified with the results obtained from the qualitative approach.

Variables involved were explored through a questionnaire inspired by Tjiptono & Chandra (2011). A survey was implemented to collect data from respondents (Singarimbun & Effendi, 1989). Proportional (for quantitative purposes) and purposive (for qualitative purposes) sampling techniques were chosen to select eligible respondents (Sugijono, 2012). IPA-CSI were utilized afterwards to measure the satisfaction level along with its importance (Kitcharoen, 2004; Silva & Fernandes, 2010; Wong, Hideki & George, 2011). SEM was finally utilized to detect probable relations among variables engaged (Wijayanto, 2008).

This approach will assess the hypotheses (H), which consisted of nine entries (Figure 2). They are: Satisfaction is directly influenced by Reliability (H1), Assurance (H2), Tangible (H3), Empathy (H4), and...
Validating student satisfaction related to persistence, academic performance, retention and career advancement within ODL perspectives

(H6), and Responsiveness (H7). Moreover, Persistence (H6), Academic Performance (H7), Retention (H8), and Career Advancement (H9) are directly influenced by Satisfaction.

**Results and Arguments**

Before conferring the outcomes, it is convenient to represent the main characteristics of the respondents of the study as shown in Table 2, as it will certainly enhance our perspectives on the end results. This picture would also give us broader insights of the context and the methodology used. The results of analyses are detailed in the following clarification, table, and figures.

**Table 2: Respondents’ Characteristics**

<table>
<thead>
<tr>
<th>Number of Countries Students Domiciled Overseas = 27</th>
<th>Total Students = 1,814</th>
<th>Questionnaires Distributed = 350</th>
<th>Completed = 169</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Domicile (%)</td>
<td>Hong Kong 18.34</td>
<td>Taiwan 17.75</td>
<td>South Korea 18.93</td>
</tr>
<tr>
<td></td>
<td>Malaysia 19.52</td>
<td>Singapore 17.15</td>
<td>Others 8.28</td>
</tr>
<tr>
<td>Study Program (%)</td>
<td>Communication 25.43</td>
<td>Management 23.66</td>
<td>English 38.46</td>
</tr>
<tr>
<td></td>
<td>Business Admin 2.36</td>
<td>Accountancy 8.28</td>
<td>Others 1.77</td>
</tr>
<tr>
<td>Profession (%)</td>
<td>Public Service 0.00</td>
<td>Private Sector 23.07</td>
<td>Industry 28.99</td>
</tr>
<tr>
<td></td>
<td>Own Business 5.32</td>
<td>Non Formal 38.46</td>
<td>Others 4.14</td>
</tr>
</tbody>
</table>

Figure 2: Operational Framework
Table 1: Distribution of Respondents

<table>
<thead>
<tr>
<th>Number of Countries Students Domiciled Overseas = 27</th>
<th>Total Students = 1,814</th>
<th>Questionnaires Distributed = 350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents = 169</td>
<td>12.82</td>
<td>2.50–2.59</td>
</tr>
<tr>
<td>Completed = 169</td>
<td>3.50–4.00</td>
<td>50.88</td>
</tr>
<tr>
<td>GPA (2014, %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.00–1.99</td>
<td>4.73</td>
<td>2.00–2.49</td>
</tr>
<tr>
<td>3.00–3.49</td>
<td>21.30</td>
<td>10.65</td>
</tr>
<tr>
<td>Age (Year, %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–25</td>
<td>40.82</td>
<td>28.99</td>
</tr>
<tr>
<td>36–40</td>
<td>4.73</td>
<td>1.18</td>
</tr>
</tbody>
</table>

Figure 3 evidently shows that all the nine hypotheses were validated by the analysis. They are: (1) $H_1 = 7.88$ (Reliability to Satisfaction), $H_2 = 11.68$ (Assurance to Satisfaction), $H_3 = 7.92$ (Tangible to Satisfaction), $H_4 = 6.84$ (Empathy to Satisfaction), $H_5 = 13.58$ (Responsiveness to Satisfaction), $H_6 = 7.06$ (Satisfaction to Persistence), $H_7 = 7.67$ (Satisfaction to Academic Performance), $H_8 = 8.95$ (Satisfaction to Retention), and $H_9 = 14.38$ (Satisfaction to Career Advancement); for all $t$-values $\geq 1.96$ (for $\alpha=5\%$). This implies that they are all validated positively and directly by the analysis.

Figure 3: $t$-value of the Framework

Before describing the end results, it is worth revealing satisfaction level and its importance degree obtained from IPA-CSI structures. The analysis generates the spots of Servqual components with respect to related quadrants to comprehend the degree of their importance (Figure 4). Figure 4 below has four quadrants. They are: (1) Concentrate Here, (2) Maintain Performance, (3) Low Priority, and (4) Possible Overkill; following Wong et al. (2011).

**Quadrant 1 (Concentrate Here)** has eight important attributes that should be seriously noted. They are: (i) Handling Complaints, (ii) Communication, (iii) Tutorial, (iv) Access to Management, (v) Attention, (vi) Module, (vii) Support from Faculty, and (viii) Student Service. This quadrant indicates that satisfaction is at a low level whereas the degree of its importance is high. The University must pay attention to these eight critical facts and put them in a top priority so that student expectations can be fulfilled and they are more likely to complete their study as intended.

Open Praxis, vol. 7 issue 4, October–December 2015, pp. 325–337
Quadrant 2 (*Maintain Performance*) includes four points that should be recognized. They are: (i) Examination, (ii) Information in Web, (iii) Schedule, and (iv) Registration. This quadrant is a symptom of both satisfaction and the degree of their importance being concurrently placed at a high level. The University, therefore, must take care of these aspects so that more students will get advantage of these conditions and will pursue their studies with intent. All attributes that fall into this quadrant are the strength and pillar of the University; altogether, they should become the pride of the University.

Quadrant 3 (*Low Priority*) has three points which should be remarked. They are: (i) Reputation, (ii) Web Interactivity, and (iii) Feedback Mechanism. This quadrant is an indication that both satisfaction and the degree of its importance are in the low category. The University should classify these aspects as ‘the next’ focus after concentrating on the critical spots found in Quadrant 1 and Quadrant 2. Therefore, any of the attributes falling into this quadrant is not important and poses no threat.

Finally, in Quadrant 4, five points are classified as *Possible Overkill*. They are: (i) Administration, (ii) Fee, (iii) Curriculum, (iv) Web Design, and (vi) Relevance of the Program. This quadrant indicates that the Servqual provided is considered much less important but respondents considered them as high in satisfaction. Here, attention to the attributes included can be less focused so that the University can save costs by redirecting them to take up vital spots in Quadrant 1 and maintain fundamental spots in Quadrant 2.

Having positioned variables and dimensions in relation to the appropriate quadrants based on IPA-CSI approach, we are now in the position to relate loading factors of the framework. This is to observe the power of relations between each variable involved in the operational framework as a comprehensive framework under SEM (Wijayanto, 2008; Hair, Black, Babin & Anderson, 2009), to work out the end results (Figure 5).

*Open Praxis*, vol. 7 issue 4, October–December 2015, pp. 325–337
Figure 5 above obviously displays five prime final upshots quantitatively, as follows:

1. The first is related to the main five variables which directly influence satisfaction (orderly rank). They are: (i) Responsiveness ($X_5 = 0.40$), (ii) Assurance ($X_2 = 0.34$), (iii) Tangible ($X_3 = 0.19$), (iv) Reliability ($X_1 = 0.18$), and (v) Empathy ($X_4 = 0.16$).

2. The second finding is related to the ranks of the dimensions in Responsiveness ($X_5$). They are: (i) Access to management ($X_{53} = 1.00$), (ii) feedback scheme ($X_{51} = 0.26$), and (iii) Communication ($X_{52} = 0.09$). The ranks in the dimensions of Assurance ($X_2$) are: (i) Fee ($X_{23} = 0.99$), (ii) Service ($X_{21} = 0.90$), and (iii) Schedule ($X_{22} = 0.11$). The standings in dimensions of Tangible are: (i) Web design ($X_{31} = 0.89$), (ii) Information in the web ($X_{32} = 0.72$), and (iii) Web interactivity ($X_{33} = 0.69$). The positions of dimensions in Reliability ($X_1$) are: (i) Curriculum ($X_{11} = 0.86$), (ii) Relevance ($X_{12} = 0.84$), and (iii) Reputation ($X_{13} = 0.49$). The ranks in the dimensions of Empathy ($X_4$) are: (i) Attention ($X_{41} = 0.80$), (ii) Support ($X_{42} = 0.69$), and (iii) Handling Complaints ($X_{43} = 0.66$).

3. In the third finding, respondents put the order of satisfaction ($Y$) from the provision of services related to: (i) Registration ($Y_1 = 0.86$), (ii) Examination ($Y_4 = 0.80$), (iii) Tutorial ($Y_3 = 0.78$), (iv) Administration ($Y_5 = 0.76$), and (v) Module ($Y_2 = 0.70$).

4. The fourth result is associated with the power of relations between satisfaction ($Y$) and Persistence ($Y_{6,7,8}$), Academic Performance ($Y_{9,10}$), Retention ($Y_{11,12,13}$), and Career Advancement ($Y_{14,15}$). Figure 5 clearly confirms satisfaction has a very significant effect on: (i) Career Advancement ($0.37$), Retention ($0.19$), (iii) Academic Performance ($0.17$), and Persistence ($0.15$) successively.

5. The fifth effect is the ranks on dimensions of: (1) Career Advancement: (i) Civic contribution ($Y_9 = 0.86$) and (ii) Future career ($Y_4 = 0.83$); (2) Retention: (i) Study up to finish ($Y_{11} = 0.91$), (ii) Further study ($Y_{12} = 0.74$), and (iii) Recommendation to others ($Y_{13} = 0.10$); (3) Academic Performance: Assignments ($Y_9 = 0.68$) and (ii) GPA ($Y_{10} = 0.44$); and (4) Persistence: (i) Active in Study Group ($Y_6 = 0.83$), (ii) Re-register Regularly ($Y_8 = 0.81$), and (iii) Active in Tutorial Activities ($Y_7 = 0.69$).
Before moving to the qualitative findings, it is worth considering whether the SEM result is labelled as a 'good fit' category so it is possible to assess the hypotheses and engender the loading factors of the framework. The analysis showed that they were all considered in 'good fit' category (Table 3). This means that the framework is reliable. The conceptual and basic (operational) frameworks in this research are substantially and methodologically aligned with each other (Wijayanto, 2008).

Having collected and aggregated outcomes accomplished under qualitative inquiry, there are three major effects, which need to be noticed thoughtfully. The first outcome is related to the conceptual and operational framework of the research (it refers to Figure 1, Figure 2, and Figure 3; including Table 1). The second is on the IPA-CSI chart results (it refers to Figure 4). The third concerns the methodology used (mixed-methods, i.e., explanatory-design).

<table>
<thead>
<tr>
<th>Goodness of Fit</th>
<th>Cut-off Value</th>
<th>Results</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMSEA – Root Mean Square Error Approximation</td>
<td>≤ 0.08</td>
<td>0.063</td>
<td>Good Fit</td>
</tr>
<tr>
<td>RMSR – Root Mean Square Residual</td>
<td>&lt; 0.05 or &lt; 0.10</td>
<td>0.008</td>
<td>Good Fit</td>
</tr>
<tr>
<td>GFI – Goodness of Fit</td>
<td>≥ 0.90</td>
<td>0.960</td>
<td>Good Fit</td>
</tr>
<tr>
<td>AGFI – Adjusted Goodness of Fit Index</td>
<td>≥ 0.90</td>
<td>0.950</td>
<td>Good Fit</td>
</tr>
<tr>
<td>CFI – Comparative Fit Index</td>
<td>≥ 0.90</td>
<td>0.980</td>
<td>Good Fit</td>
</tr>
<tr>
<td>NFI – Normal Fit Index</td>
<td>≥ 0.95</td>
<td>0.950</td>
<td>Good Fit</td>
</tr>
<tr>
<td>RFI – Relative Fit Index</td>
<td>≥ 0.90</td>
<td>0.940</td>
<td>Good Fit</td>
</tr>
</tbody>
</table>

It is understood that the conceptual framework structure quantitatively confirms career advancement as the primary aspect and is then followed by retention, academic performance, and persistence successively. In general, this result is in agreement with the qualitative inquiry. It implies that four factors are also found from in-depth interviews and focus group discussions. In terms of its order, however, the selected respondents express that satisfaction leads to (in different order of ranks than that of quantitative results): (i) Academic Performance, especially for the GPA, (ii) Persistence, especially for re-registering regularly in consecutive semesters, (iii) Retention, especially for study up to finish, and (iv) Career Advancement especially for future career. These are the things that are most preferably beheld by the selected eligible respondents. This, to a certain extent, is comparable to the work of Swail (2004).

In this upshot, it seems that there is a slight discrepancy between quantitative and qualitative outcomes in terms of the positions of the variables involved and their dimensions. This gap lightly exists but it does not create a vivid contradiction that shall drive us to take opposite position further. It rather gives us a wider perspective to be kept in mind for further consideration if we conduct comparable research in the future.

In addition, quantitative outcomes partially put ‘access to management’ (X53=1.00) as the prime attribute in prime variable (X1, Responsiveness) that leads to Satisfaction (Y). From the discussions, it was detected that selected respondents prefer to place communication as the top rank in this dot. This is imperative since the students are domiciled overseas and at the same time they are not full-time students. This implies that they have a shortage of time to attend academic activities, such as face to face tutorial or student orientation with regular and fixed schedules (Sawitri & Sembiring,
2013). Students prefer to have other communication arrangements that allow them to access activities, despite not being able to come physically to the specified session. Again, this result does not contradict the other, such that they are totally considered to be opposite to each other in the level of the variable. This even gives us broader angles, as there are many details and aspects that should be taken care of to fulfill various students’ need and expectation.

The rest of the quantitative outcomes other than explained above are entirely consistent with the qualitative marks. It implies that from the five dimensions of Servqual only two of them have slightly different ranks from the initial framework; they are only different in terms of the rank. It is the same in the case of the dependent variables, since the difference between what was obtained quantitatively versus qualitatively in the impact of satisfaction was only related to the rank; including ranks in attributes within the variables/dimensions, i.e., career advancement, retention, academic performance, and persistence.

Referring to the second finding from IPA Chart (Figure 4), results from qualitative inquiry are exclusively equivalent with the quantitative ones. To some extent, it implies that they are remarkably the same. It is a pity, however, that the communication system fell in Quadrant 1 (Concentrate Here). All the same, students consider this attribute critical for most of them, as they are part-time based students; this is in line with Roberts & Styron (2009). Students moreover believe that the communication system in an academic context is extremely important and most of them placed it in the “unsatisfied” level. Additionally, access to management is extremely crucial according to students, it fell in the first quadrant. This entails that the University should put these two attributes as a top priority to be tackled particularly, to suit the needs and expectations of those overseas students.

Support from faculty and tutorial support are also dropped in this quadrant. These two services however are tightly related to academic service. It implies that the two services are crucial according to students and concomitantly they found it unsatisfactory. This vital issue should be taken care of as it will promptly influence student performance in academic sense; it finally affects students’ GPA.

Looking up to the third effect, from a methodological perspective, it appears that mixed-methods used in this study are proper. There are slight and minor differences in terms of the end results but they are firmly limited in numbers as well as trivial or low in implications and consequences with respect to the initial conceptual and operational frameworks. Differences in terms of end results took place in the level of ranks, not in the sense of conceptual or even theoretical outlooks. Although they differ, this does not indicate that they are in contradictory dots. To a certain extent, it can be inferred that the differences that emerged were actually in the sense of widening our perspectives, and that they support each other methodologically in practicable intensity (Creswell & Clark, 2011).

From a methodological direction, the outcomes of the study give us durable bases that the mixed-methods with the choice of explanatory-design, is suitable to assess Servqual and its dimensions with respect to their plausible linkages. Quantitatively, it is understandable that IPA-CSI approach is able to display distinctively what are the things that should be placed within the top priority to be controlled prudently (Quadrant 1). The approach is proficient enough to classify which things should be persistently maintained (Quadrant 2), what are the things to be classified as the next priority and pose no threats (Quadrant 3), and what are the things considered to be less important so that there is no need to rush and take them into account by all means (Wong, Hideki & George, 2012).

Correspondingly, IPA Chart effects are reinforced quantitatively by SEM outcomes. Combining these end results will objectively direct the University to formulate alternative courses of action for future needs with respect to student outlooks. It is fortunate that the qualitative inquiry was also in accordance with the previous results implemented under the quantitative approach. It has been a phenomenon that most universities are generally limited by tangible resources, they are referred to
Validating student satisfaction related to persistence, academic performance, retention and career advancement within ODL perspectives

In Universitas Terbuka contexts, this result will be incredibly useful to “re-formulate” the things that should be put as a top priority to fulfil students’ expectations in conjunction with satisfying needs of those students living overseas. At least eight aspects dropped into Quadrant 1 should be brilliantly controlled with high intent. Additionally, four aspects that drop into Quadrant 2 should also be repeatedly preserved as they are the pillar and the pride of the University. By all means, some aspects from Quadrant 1 can be moved on to Quadrant 2. If this takes place, it will improve the number of students feeling satisfied. The more students are satisfied, the more likely they will persist. Persistence is operationally defined as students doing their registration regularly in each and every semester. It implies that the University is able to maintain the size and growth of the student body as it was initially planned (Archambault, 2008).

**Concluding Remarks**

The research has created a quantitative framework of student satisfaction and its dimensions with respect to their links, extended from a comprehensive analysis of educational perspective in terms of student’s behavior literatures. The framework was validated using SEM, assessing the empirical data from a survey of 169 Universitas Terbuka students living overseas. The study ascertains that satisfaction leads to career advancement, retention, academic performance, and persistence successively. Besides, satisfaction is affected by responsiveness, assurance, tangible, reliability, and empathy, in this order. Under IPA-CSI procedures, eight aspects should be taken into account cautiously (they are: handling complaints, communication, tutorial, access to management, attention, module, support, and student service) from a student standpoint. Methodologically, results under a quantitative approach are consistent with the results from the qualitative series. Although there is a difference, they only slightly differ in ranks of dimensions/attributes; not in theoretical or conceptual levels. It can be inferred that they are empirically supplemented one to another.

Further research is also necessary, including follow-up studies with students who did not enroll each semester successively. It should also explore satisfaction level beyond attributes that were included in the five dimensions explained. The scope should also be broadened beyond students living overseas. By doing so, it would put forward a more comprehensive perspective, especially on persistence, academic performance, retention, and career advancement, since meeting the needs of ODL students will improve at least for both the persistence and retention rates (Sampson, 2003).

It is sincerely hoped that these results will provide opportunities for the University to be more contributive in helping Indonesia government to eradicate restraints for the nations to gain access to higher education as well as improving their qualifications. In a more general sense, if this experience is emblematical of universities worldwide, then universities’ management and academy would be well recommended to cogitate student satisfaction as being instruments to prolonged accomplishment and continued existence of their institution. If student persistence and retention can be achieved through excellent Servqual approach, this implies that the University is on the right path to encourage its upright mission of making higher education open to all. This is consistent with the 31st anniversary tagline of the University, i.e., *membangun pagar bangsa* (advancing/protecting the nation through flexible quality education). The University will ultimately be poised to achieve the vision of becoming a world quality institution in the provision of graduates with world quality standards (Universitas Terbuka, 2015a).
Acknowledgements

I am grateful to Professor Tian Belawati, the Rector of Universitas Terbuka Indonesia, and Kristanti Ambar Puspitasari, Ph.D., the Director of Research Institute, Universitas Terbuka, for the incessant supports, such that the research and the paper are finally accomplished.

This paper has been awarded an ICDE Prize for Innovation and Best Practice at the 26th ICDE Conference, held in Sun City (South Africa) in October 14th–16th 2015.

References


Validating student satisfaction related to persistence, academic performance, retention and career advancement within ODL perspectives


From OER to OEP: shifting practitioner perspectives and practices with innovative learning experience design

Shironica P. Karunanayaka  
*The Open University of Sri Lanka (Sri Lanka)*  
spkar@ou.ac.lk

Som Naidu  
*Monash University (Australia)*  
somaiya.naidu@monash.edu.au

J.C.N. Rajendra & H.U.W. Ratnayake  
*The Open University of Sri Lanka (Sri Lanka)*  
jcraj@ou.ac.lk & udithaw@ou.ac.lk

**Abstract**

Like any other educational resource, the integration of OER in teaching and learning requires careful thought and support for the teaching staff. The Faculty of Education at the Open University of Sri Lanka approached this challenge with the help of a professional development course on OER-based e-Learning. Modules in the course incorporated the use of authentic learning scenarios with learning tasks that facilitated capacity building in a collaborative manner. This paper reports the impact of this course in shifting their perspectives and practices in relation to open educational practices. In addition to a much richer grasp of conceptual knowledge and skills related to searching, identifying, evaluating and integrating OER, participants developed competencies in designing, developing and implementation of an OER-based e-Learning course.

**Keywords:** Open Educational Resources; Open Educational Practices; Learning Experience Design; Professional Development

**Introduction**

Open Educational Resources (OER) are rapidly gaining momentum in education systems worldwide. While the use of OER serves as an effective strategy to address access and cost related issues in higher education, there are still many gaps within the Asian academic community in the adoption of OER (Dhanarajan & Abeywardena, 2013; Hatakka, 2009).

While advocacy is essential, building capacity in the integration of OER is equally important. Why and how OER can make any difference to teaching and learning, as opposed to any other learning resource is a matter of great interest. There needs to be a focus on innovative open educational practices and on OER-based e-Learning (Ehlers, 2011). The Open University of Sri Lanka (OUSL) implemented a professional development course on OER-based e-Learning (OEReL), adapted from a course developed with the support from Commonwealth Educational Media Centre for Asia (CEMCA). A key focus in this course was to take a whole course approach to capacity building in OER integration, as opposed to a piecemeal approach of intermittent workshops which are typical.

This course consists of five modules—Concept and Practices of OER; Search and Evaluation of OER Materials; Licensing and Copyrights; Designing Learning Experiences for OER-based e-Learning and Integrating OER in e-Learning. These five modules are very practice-oriented and designed to be of immediate help to the educators in their point of need. The course design incorporates the use of authentic learning scenarios, peer-based collaborative and cooperative learning, and reflective practice. This paper reports the impacts of this course for educators and their capacity development in integrating OER in their teaching.
**Conceptual framework**

While efficient integration of OER is supported by ICT, effective use of OER in teaching and learning can only be enhanced through the adoption of a systematic course design process. Educators have the primary responsibility for finding and integrating appropriate OER materials in the teaching-learning process (COL, 2011).

According to the 4R Framework of OER – Reuse; Revise; Remix and Redistribute (Wiley & Green, 2012) users are permitted not only free use of materials, but also the ability for re-purposing them through improvement and creation of new materials, as well as innovative teaching practices using OER. This focus on OER extends beyond mere ‘access’ to engagement in ‘innovative open educational practices’ (OEP), with different degrees of openness in the usage and creation of OER, ranging from “no usage” or “OER (re-) usage” to “OER (re-) usage and creation” (see OPAL, 2009).

![Figure 1: Matrix 1—Constitutive Elements of OEP (Source: Ehlers, 2011, p. 4)](image1)

In the OPAL framework (see Fig. 1), OEP is seen as use of resources in an open learning architecture with different degrees of openness in both aspects (Ehlers, 2011). And since OEP is essentially a collaborative practice involving shared knowledge creation among individuals, the diffusion of OEP within a context can be analyzed using a second matrix (see Fig. 2). It presents how OEP is socially embedded based on two dimensions: the individual freedom to practice open education and the involvement of others in OEP through shared practices (Ehlers, 2011).

![Figure 2: Matrix 2 – Diffusion of Open Educational Practices (Source: Ehlers, 2011, p. 4)](image2)
While the first framework (Fig. 1) provides a structure to analyze the degree of implementation of OEP by individuals within a given context, the second framework (Fig. 2) is suitable for analyzing the extent to which OEP is embedded within the environment. Hence, both these become useful strategies when designing and developing, as well as implementing and evaluating OER initiatives.

This kind of engagement of teachers in OEP comprises significant change in their thinking and actions. And those who embrace this process are considered ‘change agents’ and/or ‘innovators’. Adopters of innovations are categorized as follows: Innovators (2.5%); Early adopters (13.5%); Early majority (34%); Late majority (34%); and also Laggards (16%) (Rogers, 2003).

The adoption of OER as an innovation will be truly effective only if it reflects a change in the thinking, mindsets and actions of change agents. For building greater change in the capacity of educators, four core capacities have been identified—personal vision-building, inquiry, mastery, and collaboration (Fullan, 1993). Experience, reflection, and support are key common components supporting this process.

In a capacity development program on integrating OER in which the participants are expected to develop various competencies, careful orchestration of learning experiences with very clear and specific guidelines and support would be required. This is very effective when more context-centric learning approaches such as scenario-based learning are adopted (Naidu & Karunanayaka, 2014).

In this case learners are situated in an authentic learning scenario, which acts as the anchor for all teaching and learning activities. This real life story-like approach starts with a trigger to activate the learning process, and then take learners through a series of events including various learning and assessment tasks (see Naidu, 2010).

**The learning ‘engine’ for effective, efficient and engaging learning**

The following developmental process serves as the learning ‘engine’ for the development of such a learning experience (see Fig. 3), and in which the subject matter content serves as the ‘essential fuel’ that drives the learning engine (Naidu & Karunanayaka, 2014).

All five modules that comprised the OEReL online course adopted this design. The learning experience starts with a learning scenario, including learning activities consisting of both individual as well as group-based tasks leading to the assignments. The assessment included three sections—specific individual tasks; participation in the group discussion forum; and a self-reflection. These were assessed according to specific assessment rubrics prepared for each assignment.

Various forms of OER including text as well as multimedia were integrated within the content in different ways to support the learning and assessment tasks. Careful integration of OER in this manner serves as the ‘essential fuel’ for the ‘learning engine’ (Naidu, 2010). Each module was structured in the same manner maintaining consistency in the course design. Figure 4 is a screen capture of a sample module format.

The online learning environment created in Moodle (LMS) was designed considering the key design principles appropriate for e-Learning including real world, problem-based learning situations where learners are encouraged to become self-regulated learners (Naidu, 2006; Salmon, 2011). Group-based e-learning via text-based asynchronous conferencing in online discussion forums was extensively used, where peer-facilitated collaborative and cooperative learning was enhanced.

The integration of OER, which was the key feature in the OEReL course, was done in different ways and at different levels within the modules. The key focus in the approach taken was, starting from the first phase of access to and availability of OER, and then moving on to the second phase in OER development, shifting from the focus on resources to a focus on OEP, based on the OPAL Framework (Ehlers, 2011).
OER integration in the learning experiences was done horizontally within each module, as well as vertically across the modules. Horizontal integration was done by linking OER among the different elements within a single module. It included an OER-related learning scenario, leading to OER-related individual and group tasks, with the support of different forms of OER as learning resources. Further, vertical integration was done moving from simple activities that required only OER reuse in the first module, and gradually increasing the complexity of the activities requiring revise, remix and finally creation of OER in the fifth module.
Figure 5 illustrates how the ‘engine’ was implemented with different degrees openness in the usage and creation of OER, ranging from ‘no usage’ or ‘OER (re-) usage’ to ‘OER (re-) usage and creation’ (OPAL, 2009). For instance, in Module 1, when the concept of OER was novel to a majority of the participants (‘no usage’), the learning experience was designed in a very simple manner requiring them only to refer to the existing OER (‘OER re-usage’) to develop their understandings.

During the progression with each module the complexity of these aspects were gradually increased. Finally, in Module 5, when the participants were quite comfortable with OER reuse and revise, they were required to engage in creation of an OER through revising/remixing, and redistribution by integrating it in an eLearning scenario (‘4Rs’).

![Figure 5: Engine in Action—Matrix of different ways and levels of OER integration horizontally and vertically in the learning experiences](image)

Further, in each module, the participants were also required to share their draft submissions with peers (‘sharing’), review each other’s work through discussions (‘collaboration’), and reflect on their learning experience (‘reflection’). This enhanced moving from OER to OEP, and also from a lower to a higher degree of OEP.
Evaluation of impact

Research design and research questions

The focus of the research was to explore the impacts of an innovative professional development online course for educators on OER-based e-Learning. A case study approach was adopted, which allows an in-depth examination and gaining first-hand understanding of people and events in a real life context (Yin, 2003).

The following research questions guided this line of inquiry:

- What changes in capacity were observed in educators?
- What factors facilitated the professional development process?
- What factors hindered the professional development process?
- What are the impacts of the professional development process on educators?

Participants

The participants comprised 35 academic staff members. They constituted 18 females (51%) and 17 males (49%), indicating a gender equity in enrolment in the OEReL course. While a majority were with postgraduate qualifications, either PhD (n=13; 37%), Masters Degree (n=12; 35%), or Postgraduate Diploma (n=1; 3%), there were 9 participants (26%) with only a first degree as their highest qualification. Individual experience as an educator in the higher education sector ranged from 5 years or less (n=13; 37%) to more than 20 years (n=7; 20%), and 15 participants (43%) with 6–20 years of experience.

Methods of data collection and analysis

Data was collected using a variety of strategies at different stages during the 6-month course of study. These included administering general questionnaires, online learning experience questionnaires, a concept mapping exercise, analysis of discussion forum posts, analysis of self-reflections and conducting focus group interviews.

Table 1 presents a summary of the multiple data collection strategies adopted.

<table>
<thead>
<tr>
<th>Data collecting strategy</th>
<th>Stage</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General questionnaires</td>
<td>Pre/Mid/End course</td>
<td>03</td>
</tr>
<tr>
<td>2. Learning experience questionnaires</td>
<td>At the end of each module</td>
<td>05</td>
</tr>
<tr>
<td>3. Concept mapping exercise</td>
<td>Pre/Mid/End course</td>
<td>03</td>
</tr>
<tr>
<td>4. Discussion forum activities</td>
<td>Within each module</td>
<td>14</td>
</tr>
<tr>
<td>5. Self-reflections</td>
<td>After each assessment within each module</td>
<td>14</td>
</tr>
<tr>
<td>6. Focus group interviews</td>
<td>Pre/Mid/End course</td>
<td>03</td>
</tr>
</tbody>
</table>

Multiple sources of data allowed triangulation in order to establish causation.
Results and discussion

What changes in capacity were observed in educators?

Data gathered shows that capacity building occurred in different ways, in terms of development of new knowledge, thinking, perceptions, attitudes and skills, and specifically in the following aspects: understanding around key concepts related to OER and their relationships; skills in identifying, evaluating, adapting, developing and integrating OER in teaching and learning; competency in OER-based online course design; and confidence in applying the new knowledge and skills in their professional practice.

Participants’ existing understandings about OER and related concepts revealed that a majority (above 60%) were quite familiar with open learning, open access and OER, while their familiarity was much lower with open licensing, open scholarship, open badges, MOOCs, Open Educational Practices, and OER-based e-Learning. Yet, all participants (100%) believed that OER has great potential for enhancing teaching-learning process, and were highly motivated to integrate it.

By mid-course, out of 35 registered, only 14 participants (40%) were actively engaged, and 10 participants (29%) successfully completed the full course having achieved online badges for all five modules. The 10 successful participants consisted of 07 females and 03 males including 01 Professor, 07 Senior Lecturers; and 02 Lecturers. This gradual decrease in the number of active participants perhaps is an indication of the notion that some are more open to adaptation (innovators, early adopters, early majority) than others (late majority; and laggards), who may need more time and support to adapt to an innovation (Rogers, 2003).

All successful participants agreed that their views had significantly changed from their original perceptions, gaining great familiarity with OER and related concepts. Figure 6 indicates how participants’ understandings around key concepts related to OER have changed during the course as revealed by their perceptions at pre/mid/end course evaluation questionnaires. It demonstrates a gradual increase in their understandings and by the end of course, 100% understanding is claimed for all concepts except for two—Open Scholarship and MOOCs.

![Figure 6: Participants’ development of understandings on OER-related concepts](image)

These changes were also graphically captured by the concept maps created by participants at different stages. A significant increase in the number of OER-related concepts and relationships among them was revealed, as illustrated by two versions of concept maps of a participant presented in Figure 7.

Similar results in the analysis of different versions of the concept maps of other participants’ also confirmed the fact that the OEReL course enhanced developing understandings of OER-related concepts among educators.

**What factors facilitated and hindered the professional development process?**

Feedback received through the learning experience questionnaires on the participants’ perceptions on different aspects on each module identified various facilitative as well as hindering factors that had affected their professional development process. These are summarized in Table 2.

**Table 2: Participants’ perceptions on each module**

<table>
<thead>
<tr>
<th>Statements</th>
<th>Average (Out of 5 Point Likert scale)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The learning outcomes were made clear to me.</td>
<td>M1 4.15  M2 4.40  M3 3.71  M4 4.29  M5 4.00</td>
</tr>
<tr>
<td>2. The learning resources incorporated study of current and up-to-date content.</td>
<td>M1 3.77  M2 4.30  M3 3.57  M4 4.57  M5 4.17</td>
</tr>
<tr>
<td>3. The learning activities extended my knowledge of the topic.</td>
<td>M1 4.46  M2 4.30  M3 4.14  M4 4.43  M5 3.67</td>
</tr>
<tr>
<td>4. The learning activities helped me to learn effectively.</td>
<td>M1 4.15  M2 4.30  M3 3.86  M4 4.43  M5 3.83</td>
</tr>
<tr>
<td>5. The learning activities created opportunities for me to learn from my peers.</td>
<td>M1 4.46  M2 4.60  M3 4.43  M4 4.14  M5 3.83</td>
</tr>
<tr>
<td>6. The learning activities enabled me to judge the quality of my own work.</td>
<td>M1 4.15  M2 4.20  M3 3.71  M4 4.00  M5 4.00</td>
</tr>
<tr>
<td>7. The learning activities prepared me to complete my assessment tasks.</td>
<td>M1 4.08  M2 4.30  M3 3.57  M4 4.14  M5 3.67</td>
</tr>
<tr>
<td>8. The learning experience engaged me with authentic issues and problems.</td>
<td>M1 3.15  M2 3.50  M3 4.00  M4 3.57  M5 3.83</td>
</tr>
<tr>
<td>9. The goals of the assessment tasks were made clear to me.</td>
<td>M1 4.31  M2 4.00  M3 3.86  M4 4.43  M5 3.83</td>
</tr>
<tr>
<td>10. The assessment tasks helped me to learn effectively.</td>
<td>M1 4.31  M2 4.30  M3 4.00  M4 4.14  M5 3.67</td>
</tr>
</tbody>
</table>
From OER to OEP: shifting practitioner perspectives and practices with innovative learning experience design

<table>
<thead>
<tr>
<th>Statements</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Feedback I received on assessment tasks was timely.</td>
<td>4.00</td>
<td>4.40</td>
<td>4.14</td>
<td>4.00</td>
<td>3.83</td>
</tr>
<tr>
<td>12. Feedback I received throughout helped me to learn effectively.</td>
<td>4.00</td>
<td>4.30</td>
<td>3.71</td>
<td>3.86</td>
<td>3.83</td>
</tr>
<tr>
<td>13. There was a clear connection between the learning outcomes,</td>
<td>4.31</td>
<td>4.40</td>
<td>4.14</td>
<td>4.29</td>
<td>4.33</td>
</tr>
<tr>
<td>learning activities and the assessment tasks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. The use of MOODLE tools helped me to learn effectively</td>
<td>4.08</td>
<td>4.30</td>
<td>4.00</td>
<td>3.86</td>
<td>3.83</td>
</tr>
<tr>
<td>15. It was possible to complete all the learning and assessment</td>
<td>3.15</td>
<td>3.80</td>
<td>3.00</td>
<td>3.14</td>
<td>2.50</td>
</tr>
<tr>
<td>activities within the specified timeframes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. The learning experience enabled me to achieve the learning</td>
<td>4.08</td>
<td>4.50</td>
<td>3.71</td>
<td>4.57</td>
<td>4.00</td>
</tr>
<tr>
<td>outcomes of this module</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A high average of satisfaction level (above 4) was evident in a majority of aspects in the learning experiences of all modules, while the specified timeframe received the lowest satisfaction. Self-reflections and focus group interviews further supported these. Table 3 provides a summary of thekey facilitative and hindering factors.

**Table 3: Facilitative and hindering factors in the professional development process**

<table>
<thead>
<tr>
<th>Category</th>
<th>Codes</th>
<th>Supportive quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution-related</td>
<td>Relevance</td>
<td>“The great motivation here was that it was very much related to my profession...”</td>
</tr>
<tr>
<td></td>
<td>Time</td>
<td>“Managing everything at office and at home and finding time...was a big challenge...”</td>
</tr>
<tr>
<td>Course-related</td>
<td>Design</td>
<td>“The SBL design...learning resources...assessments...constructive feedback...helped me understand the concepts...”</td>
</tr>
<tr>
<td></td>
<td>Workload</td>
<td>“Having assignments to submit each and every week is challenging and time consuming and sometimes frustrating too...”</td>
</tr>
<tr>
<td>Peer-related</td>
<td>Forum discussions</td>
<td>“Group discussion was interesting to interact...knowledge exchanged...peer learning was a great strength...”</td>
</tr>
<tr>
<td></td>
<td>Non-participation</td>
<td>“The biggest failure in my learning exercise...is that I could not post any comments for my colleagues...I too did not get much feedback...”</td>
</tr>
<tr>
<td>Personal</td>
<td>Motivations</td>
<td>“From the beginning I was excited with this course as I am a firm believer that the knowledge should be shared...”</td>
</tr>
<tr>
<td></td>
<td>Frustrations</td>
<td>“To answer this assignment you need to read and understand well which I could not, due to the heavy workload...I felt bad with my delay...”</td>
</tr>
</tbody>
</table>

Factors such as relevance of the content, SBL pedagogical design, learning and assessment tasks, peer-facilitated discussion forums, learning resources, study schedules, assessment rubrics, constructive feedback, flexibility with deadlines, self-motivation and award of badges have facilitated the process. A vast majority (80%–100%) were very satisfied with clear alignment between the learning outcomes, learning activities and assessments. All agreed that discussion forum was the
most helpful that facilitated them not only to understand content but also to self-assess and judge the quality of their work. These findings re-affirm the fact that the opportunity to experience, reflect, and support, has facilitated building the capacity of educators in the four areas—personal vision-building, inquiry, mastery, and collaboration (Fullan, 1993).

A common concern was about the allocated time. Above 80% had difficulty in completing all the learning and assessment activities within the specified timeframe of one week. About 50% stated that in certain modules, relevant learning resources were inadequate. While such hindering factors may have resulted in the non-completion of the course by 71% of the participants, it was evident that those who successfully completed the course (N=10; 29%) found solutions to overcome these issues with great commitment. They would be the ‘innovators’ and ‘early adopters’ (Rogers, 2003) who were able to adopt an innovation fast.

What are the impacts of the professional development process on educators?

Despite the challenges, all participants (100%) expressed that they highly enjoyed the learning experience. During their learning process, the participants were given ample opportunities for reflection – ‘reflect on action’ and ‘reflect in action’ (Schön, 1983). This was facilitated by including a self-reflection ‘on’ the learning experience as one assessment component in all the assignments and encouraging reflecting at discussion forums, while engaging ‘in’ the learning experience. It revealed how different aspects of the innovative practice have affected the participants.

Table 4 presents how different aspects of the innovative practice have impacted the participants.

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Supportive quotes</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning and Assessment</td>
<td>“...This part of the module sprang out another revelation to me. That is, even though the learn may look somewhat simple and small (in amount), the richness of information available within it could be much deeper and richer. The postings that were done by my colleagues in the discussion forum further emphasized this. It is really an exhilarating experience. Here I found different persons looking at things from different viewpoints and bringing out the richness in the lesson material...”</td>
<td>Changes in Perspectives; Changes in Practices; Satisfaction; Motivation; Self-confidence; Becoming a Learning Community; Becoming Reflective Practitioners.</td>
</tr>
<tr>
<td>Learning Resources (OER) - Relevance</td>
<td>“...I did go through the resources in great detail...as I was interested in reading the material and took time more than I anticipated. But I am happy...as they are very relevant and interesting...”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“...I finally located suitable material which permitted me to remix and revise...which I consider a great success. I managed to locate OER material in a variety of formats...it enhanced the e-learning experience...”</td>
<td></td>
</tr>
<tr>
<td>Learning Scenario-Relevance; Authentic; Goal-based; Application;</td>
<td>“...It motivated me to involve in this study as it is an authentic one and felt that I am a part of it...Overall, this was a thought provoking exercise....Nevertheless I learned a lot...I felt so happy about it and will be using this experiences in future activities...as now I am very much competent with a diverse knowledge on OER...”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“...This whole exercise is a challenging one....Nevertheless all my efforts putting into this exercise is a fruitful one as I am practically involved in developing OER for OUSL. I will be using this knowledge in my future activities...Now I feel more confident in handling any OER related issue than earlier...”</td>
<td></td>
</tr>
</tbody>
</table>

Analysis of reflections revealed common patterns of impacts on the participants in different aspects, and it was supporting them to become "reflective practitioners" during the process. The foregoing findings further implied that this learning experience has caused participants to move from a position of mere resource access toward open educational practices. All participants started the process at a state of "no usage" of OER, but then gradually moved towards different degrees of openness in the usage and creation of OER, either “OER (re-) usage” or “OER (re-) usage and creation” (Ehlers, 2011).

**Conclusion**

Participants’ expectations in this course have been met beyond ours, and their expectations. They have been very happy with the development of their knowledge, skills and attitudes in relation to OER-based e-Learning. In addition to the enhancement of conceptual knowledge and skills related to searching, identifying, evaluating and integrating OER, participants also developed their competencies in designing, developing and implementation of an OER-based e-Learning course.

Despite various challenges the successful participants’ commitment and motivation to find solutions and proceed with completing the course was commendable. The participants claimed that the experience gained through the engagement in this OER-based e-Learning course has been very effective in building their capacity as university educators, especially in an ODL system. It was evident that this innovative practice has significantly impacted adoption of OER by educators and their capacity to engage in OER-based e-Learning.

At a time where online teaching and learning is becoming widely popular within the higher education system in Sri Lanka, and with the growing need for raising awareness on the potentials of OER among educators, we believe this has been a timely venture. Both the facilitators and the participants, as co-learners, were able to engage in a very constructive series of activities related to their functions as OUSL academics. As an empowered and motivated group of academics in OER-based e-Learning at OUSL, they could actively and constructively contribute towards future challenging endeavors which should ultimately have a significant impact on OUSL taking the leadership in Sri Lanka, in this novel arena.

**Acknowledgements**

The authors are grateful for the support of the Commonwealth Educational Media Centre for Asia (CEMCA) and the Open University of Sri Lanka (OUSL) in the development and implementation of this professional development course, and to the participating academic staff members of OUSL for their perseverance in the roll out of its first iteration.

This paper has been awarded an ICDE Prize for Innovation and Best Practice at the 26th ICDE Conference, held in Sun City (South Africa) in October 14th–16th 2015.

**References**


Papers are licensed under a Creative Commons Attribution 4.0 International License
The impact of OER on teaching and learning practice

Martin Weller, Bea de los Arcos, Rob Farrow, Beck Pitt & Patrick McAndrew
Institute of Educational Technology, Open University (United Kingdom)
martin.weller@open.ac.uk, b.de-los-arco@open.ac.uk, rob.farrow@open.ac.uk,
beck.pitt@open.ac.uk & patrick.mcandrew@open.ac.uk

Abstract
The OER Research Hub has been investigating the impact of OER, using eleven hypotheses, and a mixed methods approach to establish an evidence base. This paper explores the findings relating to teaching and learning. The findings reveal a set of direct impacts, including an increase in factors relating to student performance, increased reflection on the part of educators, and the use of OER to trial and supplement formal study. There are also indirect impacts, whose benefits will be seen after several iterations. These include the wide scale reporting of adaptation, and the increase in sharing and open practice that results from OER usage.

Keywords: Open education; OER; Open textbook; impact

Introduction
Open Educational Resources have been part of the educational landscape since 2001 with the announcement of MIT’s OpenCourseWare project, and longer if the Learning Objects movement is viewed as a precursor to OERs (Weller, 2014). There are several definitions of OERs, but with a good deal of overlap. The William and Flora Hewlett Foundation, who funded the MIT project, define OER as:

- teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge. (Hewlett Foundation n.d.)

This is a broad definition that covers whole courses (MOOCs) as well as individual resources, textbooks and software. A key element to it is the stress on the license that permits free use and re-purposing. In order to satisfy the Hewlett definition it is not enough to simply be free, it has to be reusable also. There are other definitions of OERs available [see Creative Commons (2013) for a comparison of these] but even if they do not explicitly mandate an open license, they all emphasise the right to reuse content.

Following on from the MIT announcement, an OER movement began, with many other universities following suit. These projects were often funded by foundations such as the William and Flora Hewlett foundation, or national initiatives such as the Joint Information Systems Committee (JISC) in the UK.

Similar initiatives were founded in most regions around the globe, with considerable funding from national governments. It is worth considering the motivations for these numerous OER initiatives. A JISC review of the various OER programmes in the UK identified five major motivations (McGill, Falconer, Dempster, Littlejohn & Beetham, 2013):

- building reputation of individuals or institutions or communities
- improving efficiency, cost and quality of production
- opening access to knowledge
- enhancing pedagogy and the students’ learning experience
- building technological momentum

As the authors point out, these motivations are not exclusive and often overlap. Similarly, the Hewlett Foundation (2013) state five motivations for why they fund the OER field:

- Radically reduce costs
- Deliver greater learning efficiency
- Promote continuous improvement of instruction and personalized learning
- Encourage translation and localization of content
- Offer equal access to knowledge for all

These are often stated as beliefs about what OER will, or can achieve. In the early phases of a movement, there is often a lack of evidence, as the development projects are required to generate the data. It is also the case that with OER projects many are focused on developing and releasing OER content rather than researching its impact, and so reliable data is often absent. However, the field is now reaching a level of maturity, and one of the stated goals is for it to become mainstream practice (Hewlett Foundation, 2013). In order to realize this, reliable evidence regarding the nuanced impact and effectiveness of OERs is required.

The OER Research Hub is a project at the UK Open University which was funded by the Hewlett Foundation to address this perceived need to develop a more robust evidence base for the impact of OERs. Drawing on previous research and in dialogue with the Hewlett Foundation, the project developed eleven hypotheses which represented some commonly stated beliefs and motivations regarding OERs. These were derived from previous experience, consultation with Hewlett Foundation and stakeholders, and analysis of common claims in OER literature. The full set of hypotheses is:

A - Performance: Use of OER leads to improvement in student performance and satisfaction
B - Openness: The Open Aspect of OER creates different usage and adoption patterns than other online resources
C - Access: Open Education models lead to more equitable access to education, serving a broader base of learners than traditional education
D - Retention: Use of OER is an effective method for improving retention for at-risk students
E - Reflection: Use of OER leads to critical reflection by educators, with evidence of improvement in their practice
F - Finance: OER adoption at an institutional level leads to financial benefits for students and/or institutions
G - Indicators: Informal learners use a variety of indicators when selecting OER
H - Support: Informal learners adopt a variety of techniques to compensate for the lack of formal support, which can be supported in open courses
I - Transition: Open education acts as a bridge to formal education, and is complementary, not competitive, with it
J - Policy: Participation in OER pilots and programs leads to policy change at an institutional level
K - Assessment: Informal means of assessment are motivators to learning with OER

In this paper the most significant hypotheses relating to teaching and learning will be examined, namely hypotheses A-F. An analysis of all hypotheses can be found in de los Arcos, Farrow, Perryman, Pitt and Weller (2014).
Methodology

The project adopted a mixed methods approach. As well as gathering existing evidence onto an evidence map (oermap.org), the project worked with 15 different collaborations, across four sectors: K12, Community College, Higher Education and Informal Learning. Interviews, case studies, and quantitative data were gathered, but this paper mainly reports on responses to surveys. A set of survey questions was created, addressing the 11 hypotheses. Although slight variations were permitted depending on context, the same pool of questions was used across a wide range of respondents. These included students in formal education, informal learners, educators at K12, Community College and Higher Education level and librarians. In total 21 surveys were conducted, with nearly 7,500 responses.

The collaborations were as follows:

1. The Flipped Learning Network (FLN) – a community of teachers whose mission is ‘to provide educators with the knowledge, skills and resources to successfully implement flipped learning’ (Flipped Learning Network, n.d.).
2. Vital Signs – a citizen-science programme for middle-school children run by the Gulf of Maine Research Institute. The aim is for 7th and 8th grade kids to learn science by doing science ‘using inquiry, peer review and scientific tools to investigate genuine research questions about invasive species’. (Vital Signs, n.d.)
3. Community College Consortium for OER (CCCOER) – a coalition of more than 240 colleges across 11 states in the USA, who are starting to use OER.
4. Open Course Library (OCL) – a collection of shareable learning materials, including syllabi, course activities, readings, and assessments designed by teams experts in the Washington area.
5. OpenLearn – the OU’s web-based platform for OER. It hosts hundreds of online courses and videos and is accessed by over 3 million users a year.
6. TESS-India – a project developing OERs for teacher training in India.
7. Bridge to Success – a project that developed and piloted whole course OER in math and learning/personal development skills (Succeed with Math and Learning to Learn, respectively).
8. OpenStax CNX (formerly Connexions) – a repository of OER, which have been shared and peer-reviewed by educators. The OpenStax CNX platform also enables users to remix and create their own resources. OpenStax College are providers of a range of open textbooks.
9. School of Open – an initiative of Creative Commons and Peer to Peer University (P2PU) which provides facilitated and non-facilitated open courses on different aspects of “openness” (e.g. copyright and licensing, OER, Wikipedia etc.).
10. BCcampus Open Textbook Project – this aims to create 40 open textbooks for use in HE institutions in British Columbia, Canada.
11. MERLOT – an OER repository and community.
12. ROER4D – a project investigating the impact of OER in the Global South.
13. The Saylor Academy – a non-profit organization offering free courses.
14. Siyavula – math and science open textbook providers based in South Africa
15. Project Co-PILOT (Community of Practice for Information Literacy Online Teaching) – this project promotes OER on digital and information literacy in the Higher Education sector.

Each of the collaborations had a researcher from the Research Hub assigned to work with them. Three or more of the 11 hypotheses were also allocated to each collaboration, with hypotheses A
(performance) and B (openness) being relevant to all. In addition one fellow from each collaboration visited the Open University to focus on a specific area of research.

Supplementary to the evidence acquired from these targeted collaborations the project also incorporated evidence from the OER community and published research which was added to the evidence map. The team adopted an agile methodology adapted from software development. This is focused around week-long sprints which targeted particular hypotheses. One such sprint has focused on populating the evidence map from research repositories and through regular review of academic journals.

The overall survey data was gathered across the collaborations, with 7498 respondents in total, and the frequencies analysis of this data constitutes the main evidence basis for this paper. The breakdown of respondents from each of the collaborations was as follows:

- Flipped Learning Network (n=118)
- CCCOER (n=128)
- Saylor (n=3213)
- OpenLearn (n=1668)
- OU iTunesU (n=1114)
- Siyavula (n=89)
- Librarians (n=218)
- General Survey (n=147)
- School of Open (n=129)
- BCCampus (n=85)
- Open Stax (n=400)
- OU YouTube (n=189)

Hypotheses Analysis

This section will provide a breakdown of results according to each of the first five hypotheses, which represent the main focus on teaching and learning.

Hypothesis A - Performance

Use of OER leads to improvement in student performance and satisfaction

This was an overarching hypothesis for the project in that it was addressed in all collaborations; it can also been seen as an overarching belief for the OER movement in general. The additional element of satisfaction has been added to performance, as many observers suggested that OER based courses may not lead to improved performance, but that students preferred them due to variety and quality of resources.

On the impact of OER on student satisfaction, 62.1% (n=524) of educators agreed or strongly agreed that OER increased student satisfaction with the learning experience, an opinion shared by 60.7% of formal students (n=707). On the subject of performance understood in terms of improved grades, only 44.1% (n=372) of educators believed that OER use resulted in better test scores for students, a percentage that decreased to 38.9% (n=453) for the responses of formal students.

There is stronger belief for OER improving non-grade related aspects of performance, with a majority of educators (59.6%, n=503) agreeing that OER improved student engagement with lesson content and increased students' experimentation with new ways of learning (60.3%, n=501); 59.5% (n=505) that students are more independent and self-reliant as a result of using OER, and 60.8% (n=524) that students become more interested in the subjects taught. The impact for learners can be dramatic as this quote demonstrates:

“I went from being horrible in AP Biology to actually reading these and went from a D 66% up to a A 90% so far.”

(Open Stax student)

There is strong evidence that OERs benefit learners' engagement, as formal learners rank ‘increased interest in the subjects taught' as the biggest impact that OER have on their learning (61.9%, n=720), followed by ‘increased enthusiasm for future study' (60.4%, n=702); and ‘becoming interested in a wider range of subjects than before I used these resources' (54.7%, n=637). Looking at users of Saylor resources in particular, more than half of learners believed that they grew more confident,
became interested in a wider range of subjects, their learning experiences became more satisfactory and their interest in formal studies increased.

**Hypothesis B - Openness**

**The Open Aspect of OER creates different usage and adoption patterns than other online resources**

Hypothesis B was intended to guide exploration of whether the open licensing of open educational resources is a contributory factor to their being used differently from non-open online resources. To what extent does openness (which in this case we interpreted as openly licensed resources) make a difference over their simply being online and free? Disentangling the influence of these elements is problematic, as the contribution of all factors will influence the use of a resource.

One indicator of the influence of openness is the degree to which resources are adapted. The OER Research Hub found a comparatively high level of adaptation amongst all types of users (77.7%, n=1890), regardless of being educators (79.8%, n=674), formal learners (77.3%, n=338) or informal learners (84.7%, n=792). What constitutes adaptation varies for these users, and is an area that requires further investigation. This is in contrast to other research which found previously low levels of adaptation (Wiley 2009). However, what constitutes adaptation may vary. For some users it means using the resources as inspiration for creating their own material, as this quote illustrates:

> “What I do is I look at a lot of free resources but I don’t usually give them directly to my students because I usually don’t like them as much as something I would create, so what I do is I get a lot of ideas.”
> Math Teacher, Grade 11

While this is an important use of OER (and perhaps under-reported), it arises principally as a result of their online availability rather than open licence. However the freedom to reuse ideas is encouraged with an open licence and users feel encouraged to do so. For other users, adaptation is more direct, editing or reversioning the original, or aggregating elements from different sources to create a more relevant one, as this quote demonstrates:

> “The problem where I teach now is that we have no money; my textbooks, my Science textbooks are 20 years old, they’re so out-dated, they don’t relate to kids (…) so I pick and pull from a lot of different places to base my units; they’re all based on the Common Core; for me to get my kids to meet the standards that are now being asked of them, I have no choice, I have to have like recent material and stuff they can use that’ll help them when they get assessed on the standardised test.”
> Math & Science Teacher, Grades 7–8

And for others, adaptation may be taking an existing resource and placing it in a different context within their own material, for example:

> “I will maybe look and find an instructional video that’s maybe 2 or 3 minutes long that gets to the point better than I could, and I would use it, or I will look for lessons and if they are for Grade 5 or Grade 3 I don’t use all of it, I just adapt it, I take out what I don’t want and rearrange it.”
> Math teacher, Grade 2

What this suggests is that one impact of openness is that it allows a continuum of adaptation to develop, ranging from adapting ideas for teachers’ own material to full reversioning of content. This extensive adaptation of OERs is in contrast with the use of open licences for sharing content. Only 14.8% (n=125) of educators (N=845) shared resources with a Creative Commons license, although a majority (70.4%, n=285) considered open licensing important and were familiar with the Creative Commons logo (41.1%, n=171). This is however consistent with the fact that only 28.2%
(n=281) of educators were concerned with not knowing whether they have permission to use or change a resource. There is a disparity between consumption and sharing practice, for instance for Flipped Learning educators, 82.5% (n=90) say that they adapted OER, 43.3% (n=42) created resources and shared them publicly online, but only 5.1% (n=5) published them under a CC license.

An open licence is not the most significant factor for many users when selecting an OER, with relevance and reputation being most salient. The significance of an open licence varies across users however, depending on purpose. For users of Saylor content who are primarily independent learners, only 17.7% (n=483) said that CC licensing was an important factor for them when choosing OER, whereas for Community College educators and learners, this rises to 51%.

Openly licensed content also allows for experimentation and innovation, in allowing educators to adapt, alter and share content. This ability to experiment is possibly one of the most significant factors of OERs for educators. For instance, high percentages of both OpenStax College (64.4%) and Siyavula (78%) educators reported that using these OERs increased learners’ experimentation with new ways of learning. A majority of OpenStax respondents (80%) reported that they were more likely to discuss using OER with college administrators having used it once.

There is some evidence for the ‘openness as virus’ hypothesis, that once users have been ‘exposed’ to open resources they seek them out elsewhere. For example, high numbers of both OpenStax College using educators and Siyavula educator survey respondents report being “more likely” to use other free educational resources/open educational resources for their teaching as a result of using Siyavula/OpenStax (Siyavula: 90.2%, n=55 and OpenStax: 79.5%, n=58). The following quotes also indicate a similar trend and what appears to be an increased sense of community around the use, creation and sharing of OER:

“I tend to share my materials more freely than before. I like for people to use my materials since I benefit so much from other people’s free sharing”

Siyavula teacher

Elsewhere over 50% of Siyavula educator respondents reported that they collaborated more with colleagues as a result of using OER (51.7% “strongly agree” or “agree” n=31) and over 70% reported that they more frequently compared their own teaching with others (72.1% “strongly agree” or “agree” n=44).

**Hypothesis C - Access**

**Open Education models lead to more equitable access to education, serving a broader base of learners than traditional education**

Based on evidence from our research with collaborations there is a mixed picture as to whether open education models lead to more equitable access to education. There is some negative evidence in the demographics of the informal learners, 57% of whom already have an undergraduate or postgraduate degree. This is in line with similar findings for MOOCs (Meinel, Willems, Renz & Staubitz, 2014).

However, one use of OER that was evident was either to support formal students studying already or for trialling a subject before committing to formal study. For example, 41% of learners (n=398) used OERs to try university-level content before signing up for a paid-for course. The Open University reported a 10% conversion rate of learners using OpenLearn OER materials, and then going on to the formal sign up page of a relevant course (Perryman, Law & Law, 2013). There is evidence to show that OER enables students to develop an interest in their subjects as this quote demonstrates:
“It has allowed for me to develop knowledge easily in areas that I thought would be difficult to learn in due to the inability to buy an in-depth textbook.”
Saylor user

Some learners are using OER as a replacement for formal education which they might not otherwise have access to. For example, 88.8% of all learner respondents (n=3657) indicated that the opportunity to study at no cost was significant, and for Saylor users 26% of the formal students said they used Saylor as a replacement for HE, perhaps to indulge an interest in a subject they don’t feel they can afford to study institutionally. Amongst OER users who were already in higher education, 52.7% indicated that they were using OER to supplement their formal studies.

A longitudinal study would be required to determine if this trialling of formal content prior to, or supplementing formal study has any effect on student retention. Given the increasing cost to students of entering higher education, this function of OER in supporting their choice and also allowing diversity in their study is under-represented in the literature, and may represent a growing role for OER in the sector.

Hypothesis D - Retention

Use of OER is an effective method for improving retention for at-risk students

Educators (N=576) were asked to agree or disagree on a 5-point Likert scale with the statement ‘OER use increases the likelihood of students at risk of withdrawing, continuing with their studies’. A majority (51%) were undecided and while the percentage of those in favour was 36.6%, the proportion of those who disagreed or completely disagreed was lower at 12.3%. As one educator commented

“Many at risk students . . .have more complicated extrinsic factors impacting their lives, which may require more intensive contact from the instructor to keep them involved in the course. OER is not going to be a make or break issue of retention. It is not a panacea for at-risk students.”

A small number of educators (N=100) were queried about the aspects of OER that help improve retention for students at risk of dropping out of their course of study (Table 1). Cost and access can be identified as the most important factors influencing retention.

Table 1: Aspects of OER affecting retention

<table>
<thead>
<tr>
<th>Aspect of OER</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced cost of study materials</td>
<td>85</td>
</tr>
<tr>
<td>Greater range of learning methods</td>
<td>53</td>
</tr>
<tr>
<td>Materials can be used flexibly</td>
<td>66</td>
</tr>
<tr>
<td>Materials can be accessed at any time</td>
<td>80</td>
</tr>
<tr>
<td>Materials can be adapted to suit student needs</td>
<td>49</td>
</tr>
<tr>
<td>Use of resources for improving study skills</td>
<td>50</td>
</tr>
<tr>
<td>Materials can be used for improving non-native language skills</td>
<td>28</td>
</tr>
<tr>
<td>Materials are available in different languages</td>
<td>16</td>
</tr>
<tr>
<td>Availability of culturally-relevant materials</td>
<td>25</td>
</tr>
</tbody>
</table>

The view from formal learners who were using OER was more confident, with 46.9% (n=546) stating that OER have a positive impact in helping them complete their course of study.
There is some overlap here with Hypothesis C, as the usage there could lead to increased retention, and Hypothesis F which examines financial impact of OER. The free aspect of OER attracted most attention with this hypothesis, and a more longitudinal study would be required to determine whether other aspects of openness have an effect, such as the ability to adapt content to suit learners, or to provide a range resources which might suit different learner’s needs.

**Hypothesis E - Reflection**

*Use of OER leads to critical reflection by educators, with evidence of improvement in their practice*

There was strong evidence that use of OER tends to lead to reflection on their own practice by educators. This could be a result of exposure to other teaching approaches, of raising awareness of issues that had not been considered before, or through the process of adaptation.

The question here asked educators their views on the impact of OER use on their own teaching practices: 64.3% (n=620) said that they used a broader range of teaching and learning methods; 59.4% (n=558) agreed that they reflected more on the way that they teach; 44.5% (n=416) that they more frequently compared their own teaching with others; 40.3% (n=262) that they now used OER to develop their teaching. Data from other questions in the surveys also revealed that 32.8% (n=363) of educators say they have written a blog post in the last year, 14.3% (n=121) have added comments to a repository suggesting ways of using a resource, and 23.8% (n=201) commented on the quality of a resource.

As reported earlier educators often use OER to draw inspiration. For example most educators using Saylor content said they did so to get new ideas for teaching (73%); prepare for teaching (53%); to learn about new topics (55%) and to supplement lessons (51%). While overall 37.3% of educators felt that using OER encouraged them to collaborate more with colleagues, in some cases this was more marked: 78% of Community College respondents felt this was the case.

Exposure to OER tends to lead to educators incorporating a wider range of content, which itself leads to reflection; for instance, with Siyavula educators, 92.2% of respondents reported that they “strongly agree” or “agree” that they use a broader range of teaching and learning methods as a result of using OER (n=59) whilst over half of all educator respondents indicated that they “strongly agreed” that OER had broadened their coverage of the curriculum (n=34).

**Hypothesis F - Finance**

*OER adoption at an institutional level leads to financial benefits for students and/or institutions*

Where open textbooks are used to replace costly purchased ones, there is an obvious saving for students, or if purchase occurs at an institutional or regional level the savings can be more considerable. This represents a major advocacy point for the adoption of OER, and one area of OER impact that has seen considerable research [eg. Bliss, Hilton III, Wiley & Thanos (2013) and Wiley, Hilton III, Ellington & Hall (2012)].

Unsurprisingly a majority of educators (73.1%, n=264) believed that using OER saves students money; a smaller percentage of students (60.9%, n=196) agreed with educators, however librarians were mainly undecided (51.2%, n=83).

Quantifying these savings can be problematic as such calculations often rely on the assumption of 100% purchase by students. However, more precise calculation of student savings is possible. For example, the student savings of over $1 million at De Anza College were calculated as follows:

*Open Praxis, vol. 7 issue 4, October–December 2015, pp. 351–361*
“Students never paid more than $50 for the books, at the bookstore, new. We estimated based on how many students had used the book and at $50 about three quarters of them would buy it new. I started surveying the students to see buying it new, buying it from their friend, buying it used... So we estimated that $50 with about three quarters of the students who were using the book, buying it new” (Interview with Barbara Illowsky, November 2013)

Just under 80% of OpenStax College textbook-using students (both informal and formal) believed that they had saved money by using the OpenStax textbooks (79.6%, n=39) with a conservative average saving estimate of $208 per student (n=24).

In response to the question ‘Do you think that your institution benefits financially by using OER?’ respondents tended to agree positively but it was in the ranks of the educators where the highest percentage of No answers occurred. Amongst librarians over 40% reported that they didn’t know whether savings had been made through the use of OER and just over half of all librarian respondents said they didn’t know whether students had saved money by using OER. Similar confusion was seen with Community College respondents, of whom 44% thought that OER had saved money, but 37% didn’t know (and 19% thought they hadn’t). This perhaps indicates an issue around transparency regarding any institutional savings made from OER adoption. The qualitative data throws some light onto the issue, which indicates that savings may not be as direct as assumed:

“Indirectly. Making college more affordable allows our students to stay at our university.”
Community College educator

Discussion

The findings of the OER Research Hub reveal a complex picture of OER use in teaching and learning, and a range of impacts that could be usefully explored for the next wave of OER implementation. OER has a positive impact on student’s attitudes and perceptions of learning, even if comparative data of score improvement is difficult to obtain. There was no evidence that OER use negatively influenced student’s performance, but acquiring robust pre and post implementation score data is problematic as there are usually confounding variables. In the absence of such data however, the attitudinal response that OER improves factors relating to student performance, such as enthusiasm, engagement and confidence represent a strong case for their adoption on a purely pragmatic grounds for education institutions.

Beyond this the data also reveals several other benefits of OERs, which are under-reported in much of the OER literature. Firstly, there is a positive benefit in the reflection on practice by educators that accompanies OER adoption. Secondly, the use of OERs by students to supplement or trial formal education has benefits for both learners and institutions, as it has the potential to improve retention, performance and recruitment, although detailed longitudinal study would be required to measure if these impacts are seen. Lastly, the financial benefits, which is one aspect that has been well researched, were in evidence in our findings also. There were other advantages of free resources beyond just the cost saving: many students reported that having access to the material immediately was important, as the practice was often to wait until a course had commenced to evaluate whether a costly textbook was worth buying. For educators, being able to assume that all students had access to the resource was also reported as beneficial.

These findings represent direct impacts of OERs, that is ones that have immediate impact for learners, educators and institutions. Taken as a whole they make a compelling case for high quality, free resources being released. However, most of these benefits emphasise the free, online, digital nature of OERs, and not the openly licensed aspect. Separating out the influence of these factors has proven problematic for the OER community, but the OER Research Hub evidence suggests
one way of viewing them. While the primary impacts arise from free cost and access, there are a range of indirect, longer term impacts that emerge from this open aspect. For example, the finding that the majority of users adapt OER materials in some manner is influenced by open licensing. This type of use will have an impact indirectly, in that learners may benefit from improved course design, resources or teaching. Similarly, the manner in which OER use encouraged sharing and collaboration between educators will have its influence felt at one or two degrees removed.

What the findings of the OER Research Hub identify are areas of OER research that can now be pursued to find detailed evidence of impact. They also demonstrate how complex the impact of movements such as OER can be to detail. For instance, gathering quantitative, comparative data on performance is difficult because of concerns around data protection and also the inexact manner of the intervention. Combine this difficulty with the nebulous nature of OER adaptation, and it is perhaps not surprising that the depth of research evidence has not yet emerged for how OER adaptation improves performance. However, the OER Research Hub evidence now highlights where this adaptation is occurring and what type of benefits are being seen with different users.

By considering these direct and indirect impacts, research can be focused appropriately to examine them in further detail. For example, now that the continuum of adaptation has been observed, specific research can focus on the impact of these different types of adaptation, by taking a longitudinal approach to assess the impact over time. Similarly, tracking students who have used OER prior to study and then go onto register for formal study is a proposal to demonstrate that type of impact.

The OER community has been around for over a decade, but compared to many fields it is still in its relative infancy. Now that sufficient implementation projects have been established, the type of research required to find the impact of OER can be undertaken. The findings in this paper help map the OER usage landscape, and reveal a complex picture of different type of usage, with a range of positive benefits.

References
Creative Commons (2013) What is OER? http://wiki.creativecommons.org/What_is_OER%3F

*Open Praxis*, vol. 7 issue 4, October–December 2015, pp. 351–361


Teaching strategies to promote immediacy in online graduate courses

Manuel Flores Fahara & Armida Lozano Castro
Tecnológico de Monterrey (México)
manuel.flores@itesm.mx & armida.lozano@itesm.mx

Abstract

The present study is the result of the research question: How do teachers promote immediacy through interaction with their students in online graduate courses? Research was carried out at Tecnológico de Monterrey, a Mexican private university that offers online courses. The research methodology employed a qualitative approach of virtual ethnography, which entails non-participative observation and interviews with head professors and teaching assistants with the purpose of exploring the manner in which teachers foster immediacy in the discussion forums of online courses. The findings are organized into three main categories: instructional design, forms of communication and teaching strategies promoting immediacy, which show the manner in which teachers use immediacy when interacting with their students; immediacy that was also found in the administrative and academic forums of the online courses researched.

Keywords: immediacy; interaction; instructional communication; online teacher; online course; social presence

Introduction

Immediacy first appeared in the “face-to-face” educational modality. Mehrabian (1967a) defined it as the degree in which communication behaviors facilitate physical or psychological closeness in interpersonal communication. Gorham (1988) broadened this definition to include any verbal interaction that increased the psychological closeness between teachers and students. This concept includes communication behaviors reducing the perceived distance between people (Thweatt & McCroskey, 1996). If the student manages to feel psychologically close to his or her teacher, this translates into teacher-student immediacy.

The immediacy phenomenon has been extensively studied in the face-to-face educational modality in which it originated (Andersen, 1979; Gorham, 1988; Plax, Kearney, McCroskey & Richmond, 1986; Richmond, Gorham & McCroskey, 1987). However, there is scarce research on how the teacher-student immediacy manifests itself in online courses. In Latin America, distance education has been developing only since the last decade, and because of that, immediacy in this modality and educational context has not been a subject researched enough. This situation is why further in-depth research is needed on this topic.

This study attempts to investigate the manner in which some distance education teachers achieve immediacy or psychological closeness to their students, by trying to answer the following question: How do teachers promote immediacy through interaction with their students in online graduate courses?

In light of how distance education using the Internet has become commonplace as an educational modality for universities, there is a growing need to investigate and analyze the online learning experience (Dennen, Darabi & Smith, 2007).
Interaction is at the heart of the distance learning experience (Moore, 1989). The Transactional Distance (TD) theory is one of the founding theories of distance education, which originated from a doctoral research in which instructor and student were physically apart (Moore & Kearsley, 1996). The transactional distance was conceived as a function of the student’s dialog, structure and autonomy. Moore (1989) proposed that distance was a pedagogical phenomenon rather than a function of geographical separation, a phenomenon that exists in classes from both face-to-face and distance modalities.

Moore and Kearsley (1996) point out that the interaction between teachers and students is an important aspect of learning in both face-to-face and distance modalities. However, the need to identify critical factors related to this type of interaction in the distance modality, given the physical distance and the communication signals between student and teacher, has turned particularly relevant in a technology-mediated environment (Moore, 1991).

According to Ghamdi, Samarji and Watt (2016), the TD theory is closely related to the concept of teacher immediacy because it explores the level of dialogue between the teacher and the student. In other words, the theory focuses on the social presence between the teacher and the student which is the core focus of teacher immediacy (pp. 18–19).

In general terms, learning interaction is considered a reciprocal event between the student and a part of the learning environment that brings the student closer to achieve an educational goal (Wagner, 1994). Instructor-student interactions can be those that quickly come to mind, and have been the most important in relation to the students’ perception of learning (Marks, Sibley & Arbaugh, 2005).

According to Anderson (2002), it is not surprising that elements of the teacher-student interaction are frequently examined and discussed in distance learning literature. There have been research attempts to discover and document better practices for distance teachers to face and to solve the potential problems related to student’s learning, fatigue, failing or dissatisfaction (Dennen, Darabi & Smith, 2007).

Woods and Baker (2004) add that, when interaction is encouraged, it leads students to positive communication behaviors, like immediacy or psychological closeness with their teacher, social presence and a feeling of community inside the online classroom.

Mehrabian (1967b), widely considered the creator of immediacy theory, defines it as the degree in which select communication behaviors improve physical or psychological closeness in interpersonal communication. It can have verbal and non-verbal forms. Non-verbal forms refer to psychological closeness through physical communication behaviors, like face expressions, visual contact, posture, proximity, and touch, on the other hand, verbal forms refer to a sense of psychological closeness created through a choice of words. For example, using the word “us” promotes a deeper closeness in relationships and is considered more immediate than “you and me” (Woods & Baker, 2004). In an online modality, this is achieved by the word selection of written messages found in emails and work and discussion forums. Also the quickness of teacher’s response to students through the various electronic communication means contribute to creating a sense of “online” closeness between the students and the teacher regardless of the many miles that might be separating them (Ghamdi, Samarji & Watt, 2016, p.18).

Although immediacy was originally developed within the context of interpersonal communication, it has been used in instructional communication research for the last two decades. However, thanks to the rapid spread of the Internet as a communication tool and as an important means of distance communication, immediacy theory has been adapted to the virtual learning environment.
education, interpersonal communication has been emphasized in this learning environment. While
the concept may not be necessarily called by name, there is a definite conceptual coincidence
between observations of traditional immediacy resulting in behavior change and the discussion of
online interpersonal communication dynamics (Woods & Baker, 2004).

According to Hutchins (2003), immediacy through verbal interaction includes the use of humor,
frequent use of the student’s name, motivating discussions and following up on the comments
started by students in order to promote a sustained contact with them, as well as sharing personal
examples. Ghamdi, Samarji and Watt (2016) mentioned in their study some verbal teacher immediacy
behaviors in online teaching and learning environments as initiating discussion (story), asking
questions (Does anyone have answer the question?), using humor (funny story or funny photos),
using self-disclosure (In the last weekend, I watched this movie at the cinema), addressing students
by name (Please Adam can you . . .), and using inclusive pronouns (you, your, we, our).

The first immediacy research on face-to-face modality (Andersen, 1979; Andersen, Norton &
Nussbaum, 1981; Andersen & Withrow, 1981) studied the teacher’s non-verbal immediacy as a
potential predictor of instructional effectiveness; it concluded that perceptions of closeness were
highly correlated with favorable attitudes from students. Teachers showing proximity behaviors
toward students were considered as more positive and effective, which in turn increased their
esteem toward the instructor and the course itself. These studies hinted at the expressiveness of
the concept as a potentially meaningful factor to improve instructional effectiveness. According to
Ghamdi, Samarji and Watt (2016) there are non-verbal teacher immediacy behaviors in an online
education as smiling (happy face emoticon), monotone voice (italics or caps: WELL or GOOD),
vocal expressions (TODAY), gestures (using emoticons), vocalization (interjections in online
immediacy), animated moves (emoticons with movement).

Both in the face-to-face and online modalities exists a scaffolding, a metaphor coined by Wood,
Bruner and Ross (1976), based on Vygotsky’s idea of the zone of proximal development. It is used
to explain the tutorial role of support or establishment of cognitive bridges between teacher and
students, which involves the interaction between an expert or more experienced individual, the
teacher, and a novice or less experienced individual, the student. The primary role of the teacher
is to act as a mediator or intermediary between the learning contents and the constructivist activity
of the students to assimilate them. Vygotsky’s theory highlights the importance of a socio-emotional
link between teacher and student, and the closer this relationship is, this link could enhance the
student’s engagement in the teaching-learning process with his or her teacher. Immediacy is based
on a theory of approach-avoidance and is a construct based on affection (Christophel, 1990).

**Methodology**

For this study it was decided to use the qualitative research approach of netnography or virtual
ethnography; this involved extensive observation of the natural environment of the online courses’
discussion forums where the teacher-student interactions took place, as well as interviewing the
participant teachers. This approach was chosen as it was considered that online communication
and interaction could provide immediacy and access to emotional expression. Hine (2000) notes
that virtual ethnography involves studying online environments and argues that the agent of change
is not the technology itself, but the uses and construction of sense around it. Ardévol, Bertrán, Callén
and Pérez (2003) called ‘virtual ethnography’ an observation work performed through a computer
screen, with the objective of showing how social life is organized, based on the interaction and
communication facilitated by a computer.

Open Praxis, vol. 7 issue 4, October–December 2015, pp. 363–376
Context and participants

The study was carried out at Tecnológico de Monterrey, a private institution of higher education in Mexico, which offers online graduate programs using the Blackboard technology platform. Three graduate programs from different academic areas were selected. From these, two online courses from each area were chosen in conjunction with the director of each program, according to the disposition and consent from the head professors and teaching assistants to grant access to the courses and observation of their discussion forums, as well as to being interviewed. See Table 1.

Six head professors and seven teaching assistants participated in this study, giving their full consent for their courses to be observed, as well as to being interviewed. A head professor is a teacher with a doctorate degree, expert in the course’s academic area, who is the author of the contents and the designer of the course; his or her responsibility is to administrate and monitor the development of the course, as well as to answer conceptual questions from the students. A teaching assistant (TA) is a teacher with a graduate degree who collaborates with the head professor to guide and track the performance of the students, provides feedback on their homework, answers questions and assesses their work.

Instruments

The instruments used were the non-participant observation of asynchronous discussion forums of the six courses where the teacher-student interaction took place, as well as conducting semi-structured interviews with the head professors and teaching assistants of each course.

The interviews with the head professors explored the types of teaching and communication strategies used, as well as their thoughts regarding the instructional design of the courses to facilitate the teacher-student interaction and immediacy.

The interviews with the teaching assistants inquired on the teacher-student communication strategies used, the feedback methods, the dynamics to facilitate discussions and the collaborative work in the work forums.

For non-participant observation, a guide following the recommendations of Merriam (2009) was designed. Interactions and notes (memos) were tracked and recorded in a log during observation. These observations were carried out using the observation guide since the first days of the semester, in the period corresponding to January-June of 2010. During this observation period, we identified the manner in which each head professor configured their discussion forum, and at the same time we tried to determine which forums had higher interaction between teachers and students and if expressions of closeness or interest from teachers toward students were present in the messages.
**Data analysis**

The data analysis started with the transcription of the recorded interviews with the teachers, as well as of the messages posted on the courses’ forums by students and teachers. When transcribing the interview data and the messages published on the forums, particular attention was given to identifying key ideas, words and phrases that conveyed immediacy. This exploratory procedure of constant examination continued for the duration of the transcription process, until all the interviews and observation notes had been verified by the participants’ member checking for their validation (Lincoln & Guba, 1985). All this data shared by the participants gave way to the creation of categories, which were populated throughout the study. Our findings come from the analysis of these observations, as well as from the messages in various course’s forums that hinted at the presence of immediacy, and with the creation of the categories further explained below.

**Results and discussion**

After observing different discussion forums from the six online graduate courses, two different types of forums were recognized: Administrative and Academic. An Administrative forum was designed to post messages with questions regarding the course, administrative advice, and use of technology, while the Academic forum had the function of answering questions regarding the specific contents of the course, as well as questions regarding individual and collective learning activities.

The Administrative forum appeared in the six observed courses. Less immediacy was found in these forums than in the Academic forums. However, there is a noticeable effort to create an environment of trust. Below are various examples of the different messages recorded through the observation of the forum of a humanities course and of an administration and business course, in which it is possible to appreciate messages with comments alluding to immediacy.

**Humanities course’s Administrative forum:**

Hello Miss Lupita, I’m still having problems with the file, I can’t extract it, it’s giving me error messages, I don’t know if you could send it to me another way, as a pdf file or if one of my classmates could send it to me, I kindly ask anyone that was able to download it. Thanks and greetings.

Your student, Cecy

Hello, Cecy. We would like you to tell us if you managed to get the file, to re-send it or just to make sure you have it. Thanks.

In addition to the head professor’s message, the teaching assistant adds:

Cecy. I reported the issue to María Elena, and since compressing it is the only way to ensure the file’s integrity, they are not able to re-format it. They analyzed the file, and it worked on their end. Let’s hope a classmate figures out a solution, so you’re able to download it. Another option would be to try to track down the file on the Internet, and maybe you could find an English version.

Cheers,

The student replies to the messages posted by the head professor and teaching assistant:

Thank you, Pedro and Lupita, an expert on compressed files finally helped me, and also Jánea emailed me the PDF files, thanks again for your attention.

Cecy H.

The head professor closes the message thread with the following comment:

Those are very encouraging news, Cecy.

I wonder if you could help Laura Elena García, who is facing the same problem to download Bajtin’s file.

I’d appreciate any help you can give her, and also thank Jánea and the expert on my behalf for their contributions to solving the problem.

Greetings (Observation No. 1)
Administration course’s administrative forum:

One of the students asked the head professor a question regarding his grades:
Hello Mrs. Myrna, I just have a very big question, for the second part of the project we got 98% as a team, and when I checked the grades in the Excel file you provided, it says 93.5... How is it that you calculated that grade? Thank you very much, best regards.

The head professor replied:
Hello, Miguel. I hope you are well. The grade obtained for the project is multiplied by the co-evaluation of the team during that time. I hope this was helpful, if it wasn’t, I’ll be waiting for your comments. Have a nice day. (Observation No. 2)

On the messages written by the student, the head professor and the teaching assistant of the Humanities course, we can observe a particular type of personalized messages, addressing each other by name in a casual way and even using diminutives. The professors show concern for the student’s technical problem, and she expresses her gratitude. In the case of the Business course, in her messages the head professor first greeted and offered well wishes to the student, explained the situation regarding his grade and commented on how she hoped she was of assistance but, if needed be, she’d be awaiting further questions, showing concern for the student, and only then she signs off.

The Academic forums, on the other hand, revolve around the interaction between teachers and students through messages discussing the course’s contents and seeking advice regarding the course’s conceptual and theoretical topics. The following messages took place in the Humanities and Education courses:

Humanities course’s Academic forum:

Sandra says:
Dear doctor, the first thing I’m trying to understand is that, out of the 10 identified procedures, some apply to production (who, where, under which circumstances the discourse is produced) and others to the utilization (to whom, where, how is it transmitted). Then, would it be correct to consider that the exclusion procedures (forbidden, reason/insanity exclusion, true/false exclusion) and those of internal control (commentary, author, discipline) to correspond to procedures of production and (ritual speech, discourse society, doctrine and social adequacy of speech) correspond to the conditions of use of semiotic-discursive practices? Thank you, and I’ll be waiting for your comments. Your student, Sandra (Observation note No. 3)

The professor replies:
Dear student. Welcome to the forum. The comments you made about the mechanisms proposed by Foucault can surely be accepted. It happens that with many mechanisms, as we understand that discursive practices are in a dialectic between production and reception, it is a bit complicated to place some in production and others in reception...

What you could propose is that some mechanisms lean more toward production and others toward reception, but not separate them altogether. I hope I have helped you. Best regards

Your professor (Observation note No. 3)

Education course’s Academic forum:

In a message providing academic advice, the teaching assistant apologizes to a student for not replying promptly:
“I’m sorry I took too long to reply, but I wanted to be 100% sure of my answer”. (Observation note No. 4)

On the same message, she closes with the following phrase:
I hope I’ve been of help to solve your questions. If I haven’t, please let me know, without hesitation. With appreciation, Martha. (Observation note No. 4)

After one of the students had received a full message from the teaching assistant answering his questions, he reacted in the following manner:
I read your reply yesterday, but I neglected to thank you; I offer you an apology for this lack of attention. I send my best regards. Juan Pablo Rodriguez. (Observation note No. 4)
On another message of academic advice, the same student replied to the teaching assistant writing:
Good morning, Professor: Thank you very much for your feedback and comments; they are a great motivator for the development of our latest work. Greetings and let's keep in touch. (Observation note No. 4)

On the recorded messages, phrases like “dear doctor”, “dear student”, “your student, Sandra”, “welcome to the forum”, “let me know without hesitation”, and “they are a great motivator” are used. In them, the immediacy between students and teachers comes through, since it is palpable how teachers welcome students, boost their confidence and show a willingness to help and to solve the students’ questions. The reaction of students’ is also notable, as they express gratitude, feeling motivated, and a sense of belonging to the group and toward the teachers by signing off as “your student”. These types of messages between teachers and students show that interaction via online courses is not cold or impersonal. On this regard, Walther (1994) states that researchers with experience working with online teaching and learning reject the notion that interaction in these environments is impersonal: if anything, it can be “hyper-personal”.

From the data generated from interviews with the head professors and teaching assistants, as well as from observing the interactions with students in discussion forums through messages, the following three categories of analysis emerged: instructional design and immediacy, forms of communication that promote immediacy, and teaching strategies that promote immediacy, which are described and illustrated below.

**Instructional design and immediacy**

It is expected that, if interaction and collaboration are encouraged in an online course, with activities that teachers monitor and provide feedback to on discussion forums created for this purpose, immediacy could occur between teachers and students. This category includes the relationship between instructional design and immediacy, in which participants, from their perspective, point out various elements of the instructional design of their courses that could favor teacher-student immediacy. These are presented in table 4.

Table 4: Category. Instructional design and immediacy

<table>
<thead>
<tr>
<th>Incidents</th>
<th>Professors’ quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open forums of voluntary participation</td>
<td>(The design) has had a favorable effect on interactions via forums, emails and Messenger, and has guided (students) in the design of their project. (Interview – head professor 2)</td>
</tr>
<tr>
<td>Design as if it were the professor</td>
<td>. . .but we must not forget it is not enough to explain how the head professor should be; we must also analyze how learning is mediated within the course, and for that we need to consider the instructional design is itself a teacher, just as the students are. (Interview – head professor 1)</td>
</tr>
<tr>
<td>Activity design that promotes interaction.</td>
<td>. . .thinking about this subject, I realize that subconsciously we develop learning activities as if wanting them to be a perfect substitute for the teacher, that is, we try to turn instructional design into a surrogate teacher. (Interview – head professor 1)</td>
</tr>
<tr>
<td>Design based on project-based learning techniques and collaboration that favor dialog.</td>
<td>My online course uses a Project Oriented Learning technique, in conjunction with Collaborative Learning, giving particular importance to the continuous dialog between teachers and students. (Interview – head professor 3)</td>
</tr>
<tr>
<td>Design of collaborative activities to interact with students</td>
<td>In my case, I use collaborative activities designed by myself, which help me stay in touch with them because I think interaction is very dependent on the disposition of the head professor. (Interview – head professor 6)</td>
</tr>
</tbody>
</table>
These comments indicate that the instructional course design is a significant aspect to promote immediacy with students, since discussion forums, emails, Messenger, etc. are means for interaction just as much as the constructivist instructional design approaches, such as project-oriented learning and collaboration, since these incorporate dialog and interaction. Some teachers commented and reflected on instructional design as a surrogate teacher, or that the design is a teacher itself. Hutchins (2003) notes that immediacy is related to course design and cites Gagne, Briggs and Wager (1992), who have stated how the teacher deliberately prepares a set of external events to support the internal process of student learning, while distinguishing between teaching and instruction, since instruction may include events generated by animate or inanimate events (television, book, image, etc.), while teaching can play an essential role in organizing such events.

De Verneil and Berge (2000) have noted the importance of the designer explicitly including learning in a social context in courses since the learning process itself occurs within a social framework.

**Forms of communication that promote immediacy**

Online courses create opportunities to increase responsibility and communication through discussion between students and their teachers (Borthick, Jones & Wakai, 2003; Brandon & Hollingshead, 1999; Qing, 2002; Swan & Richardson, 2003). The creation of a highly interactive and cooperative virtual classroom is a necessity for true dialogic communication and immediacy. According to Johannsen (1990), this form of interaction means to promote conversation through dialogs that stimulate support, collaboration and motivation for learning and not the monolog that currently dominates the classroom.

Table 5 shows some of the communication forms or strategies the head professors and teaching assistants of the online courses implemented from this category.

**Table 5: Category. Forms of communication that promote immediacy**

<table>
<thead>
<tr>
<th>Forms of communication that promote immediacy</th>
<th>Professors’ quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish communication with different people</td>
<td>. . .replying quickly to their queries helps students to feel that closeness, according to their opinion. (Interview – head professor 7).</td>
</tr>
<tr>
<td>Establish closeness and empathy</td>
<td>. . .maybe that’s the most complicated part of an online course; here I try to see how they react to my observations and from that I try to establish different forms of communication for each person. (Interview – TA 1).</td>
</tr>
<tr>
<td>Use of language and protocol; polite greetings and goodbyes</td>
<td>. . .it gets very complicated when members of a team have differences, and you need to intervene very carefully, here it is very important they feel you are not far away from them. (Interview – TA 1).</td>
</tr>
<tr>
<td>Use the familiar “you” to address each other</td>
<td>. . .you need to try and be empathic and, sometimes, even complicit, and always respect the student. Even if it is an obvious question, it is an important question for whoever formulated it, and thus merits attention. (Interview – TA 3).</td>
</tr>
<tr>
<td>Send emails and instant messages</td>
<td>He added that he had lost his patience on occasion: . . .specially when they ask, and they ask, and they ask the very same thing, something I had already answered a long time ago, but, well, I try not to lose my patience. (Interview – TA 5).</td>
</tr>
<tr>
<td>Reply to emails on the same day</td>
<td>. . .always try to call them by the familiar “you”, by their name, greeting them, asking them how they are doing or about their health. And then, after that, I start to explain the answers and my comments. (Interview – head professor 5).</td>
</tr>
<tr>
<td>Communication as if it happened in an actual classroom</td>
<td></td>
</tr>
<tr>
<td>Establish a dialog</td>
<td></td>
</tr>
</tbody>
</table>

*Open Praxis, vol. 7 issue 4, October–December 2015, pp. 363–376*
Forms of communication that promote immediacy

<table>
<thead>
<tr>
<th>Incidents</th>
<th>Professors’ quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>. . . a communication that is effective, direct, kind, polite, making them feel the distance between the teacher and the student is under 50 centimeters. (Interview – TA 2).</td>
<td>The first communication strategy to achieve immediacy is to address them with the familiar “you”, and if they have a preferred way to address them, then use that one; an example would be to use “Yola” instead of “Yolanda”. Another form of communication is to welcome someone joining a discussion already in progress. A third one is to highlight the participation of students that “I miss”, stating something like “we were missing your contribution”. A fourth communication strategy could be through brief participations or just greeting them in the discussion boards or the Group Pages, so they feel cared for and that we are listening to them every day. (Interview- TA 5).</td>
</tr>
</tbody>
</table>

Some professors stressed the importance of addressing students with the casual “you” in their communication to build trust. Others seek empathy, as well as trying to make them feel some closeness and a reduction of distance by replying immediately and encouraging dialog and communication with each student. These findings match what Mehrabian (1971) wrote about verbal immediacy, seeing it as verbal communication behaviors that reduce the psychological distance in the interaction between teachers and students. On the other hand, Swan (2001) finds that cognitive presence occurs through frequent interaction with the reading material; teaching presence happens through frequent and affectionate interaction with the professor; and social presence occurs through frequent and affectionate interaction with students.

Teaching strategies that promote immediacy

These strategies relate to the instructional procedures used by professors in their courses, on which immediacy can be perceived. As shown in Table 6, techniques, design, motivation, questioning and other aspects were considered.

Table 6: Category. Teaching strategies that promote immediacy

<table>
<thead>
<tr>
<th>Incidents</th>
<th>Professors’ quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A problem and project-based learning design favors interaction and dialog.</td>
<td>My online course uses a Project Oriented Learning technique, mixed with Collaborative Learning, which puts high emphasis on the dialog between student and teacher (interview – head professor). . . . First, using the same design of the course activities; second, by my presence on the forums and through general announcements; third, by timely attention to their concerns in the forum and in my personal email account, and finally also by the feedbacks to each of their exercises. (Interview – TA 4).</td>
</tr>
<tr>
<td>Presence and attention paid to students in forums</td>
<td>One of the forms and better practices I have is motivating the students to ask freely and to make them consider the forums as if we were gathered in a classroom to share our opinions, questions, and answers. (Interview – TA 14).</td>
</tr>
<tr>
<td>The professor as a professional mindful of his own practice</td>
<td></td>
</tr>
</tbody>
</table>
### Teaching practices that promote immediacy

<table>
<thead>
<tr>
<th>Incidents</th>
<th>Professors’ quotes</th>
</tr>
</thead>
</table>
| Unplanned situations, falling outside of the instructional design | You can establish a more personal link, but unidirectional, from teacher to student, if the professor presents himself as a professional mindful of what's happening in the course... just by sending unplanned messages, outside of the instructional design where he can show himself as a thinking individual, concerned about the same subject students are trying to learn. (Interview – head professor 9).  
...a simple comment like “Keep it up!” or “This isn’t goodbye, we’ll keep in touch”, are phrases that communicate clear objectives and make me stand apart from other teaching assistants, showing a general interest and, to do it in an individual manner, we send them personalized messages along with their grades reports, regarding their performance and opportunities for improvement. (Interview – TA 8) |
| Encourage students to ask questions |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

Instructional communication is any form of communication, be it oral, written, kinesthetic or visual, used for teaching purposes. In this process teachers and students instill meaning into each other’s minds using verbal and non-verbal messages (McCroskey, 1968; Mottet, Richmond & McCroskey, 2006).

These findings show how professors use certain teaching techniques when designing their courses, such as Project oriented learning, to stimulate a dialog between teachers and students, their presence in forums, feedback on the student's tasks, and motivational messages. Stacey (2002), and Tu and McIsaac (2002) mention that, according to the results of their investigation, the professor’s presence in online courses can improve the motivation of the student. These instructional actions seemingly incorporate immediacy by showing concern from teachers. Similarly, Fisher and Katt (2007) and Marks, Sibley and Arbaugh (2005) cite that a professor can make his presence felt and increase the motivation of his students through verbal behaviors that incorporate immediacy with students.

**Conclusions**

To answer the research question *How do teachers promote immediacy through interaction with their students in online graduate courses?* we analyzed the forums of the courses selected for the study and found two distinct types: Academic and Administrative forums. It is possible to find immediacy in both. After extensive observation of the online courses, we analyzed the students’ reply messages from the discussion forums, where we could infer immediacy to be present. Forum observation revealed that when the professors participated, interacted and were involved with students and the course’s activities, students were immediately aware of the fact. According to Beuchot and Bullen (2005), the presence of socio-affective contents tends to motivate a higher degree of interactivity. Interactivity, then, is not a characteristic of the electronic medium, but a condition to be developed by students and teachers.

Forum observation and teacher interviews generated three main categories: 1. Instructional design and immediacy; 2. Forms of communication that promote immediacy; and 3. Teaching strategies that promote immediacy. The first category, Instructional design and immediacy, shows how the participant professors consider course design an important factor to promote the immediacy they claim to incorporate, through learning activities, forum layout, and collaborative learning techniques, project-based learning, encouraging to engage in discussions and overall interactions to foster
immediacy. Regarding interaction, Berge (1999) supports the perspective of interaction as an element of the course’s design, since it does not occur spontaneously and must be deliberately integrated into the instructional program. Merrill (1994) maintains that distance education specifically calls for the design of instructional methods and interaction.

In the second category, Forms of communication that promote immediacy, head professors and teaching assistants remarked on how replying immediately to students’ questions, trying to be empathic, addressing them with the casual “you” and asking them about personal details like their health, welcoming them, engaging students with low participation, trying to treat the online interaction as if it happened in a real classroom and giving their questions the importance they deserve, are all forms of communication with students that encourage immediacy and psychological closeness between teacher and student, indicating a social presence. In this regard, Gunawardena (1995) defines social presence as the ability to connect and communicate with students living in different places and an opportunity for students to see the teacher and the other participants as real persons.

In the third category, Teaching strategies that promote immediacy, it is of note that teachers mention the following strategies: the importance of social presence, paying attention to students, motivation, personalized messages, establishing personal links and making them feel as if they were in a real classroom. Easton (2003) mentions that strategies to increase online immediacy include writing in a conversational style, using the name of the students in messages and including personal notes when giving group feedback.

The three categories that are part of the findings of this paper could be developed as a guideline manual for online distance education teachers. The use of instructional strategies designed to encourage interaction between the instructor and the remote students should be employed consistently in online education (Bohnstedt et al., 2013).

It could be argued that the findings of this study offer some evidence supporting the principles of the Transactional Distance theory (Moore 1993), as well as of Merabian’s (1967a, 1971) immediacy. Evidence has been shown of how the participant teachers incorporated immediacy and interaction to their pedagogical practice in their online courses, demonstrated by forum observation and the categories created using their interview answers. The results suggest that teachers make a distinction between the simple particular presence of dyadic communication and the authentic presence of a social interaction that incorporates immediacy to improve the online learning experience. Further research on this topic is recommended, in the hopes of more findings that could bear witness to the importance of immediacy and interaction in online courses, be it teacher-student, student-teacher or student-student, in order to achieve higher academic performance and motivation in distance education modality, which will surely keep developing further into the XXI century.

References

Open Praxis, vol. 7 issue 4, October–December 2015, pp. 363–376


Open Data as Open Educational Resources: Towards transversal skills and global citizenship

Javiera Atenas  
*University College London (United Kingdom)*  
j.atenas@ucl.ac.uk

Leo Havemann  
*Birkbeck, University of London (United Kingdom)*  
l.havemann@bbk.ac.uk

Ernesto Priego  
*City University London (United Kingdom)*  
ernesto.priego.1@city.ac.uk

Abstract

Open Data is the name given to datasets which have been generated by international organisations, governments, NGOs and academic researchers, and made freely available online and openly-licensed. These datasets can be used by educators as Open Educational Resources (OER) to support different teaching and learning activities, allowing students to gain experience working with the same raw data researchers and policy-makers generate and use. In this way, educators can facilitate students to understand how information is generated, processed, analysed and interpreted.

This paper offers an initial exploration of ways in which the use of Open Data can be key in the development of transversal skills (including digital and data literacies, alongside skills for critical thinking, research, teamwork, and global citizenship), enhancing students’ abilities to understand and select information sources, to work with, curate, analyse and interpret data, and to conduct and evaluate research. This paper also presents results of an exploratory survey that can guide further research into Open Data-led learning activities. Our goal is to support educators in empowering students to engage, critically and collaboratively, as 21st century global citizens.

Keywords: Open Data; Open Educational Resources; Research based learning; Critical Thinking; Global Citizenship; Higher Education

Introduction

*The illusion of access promoted by computers provokes a confusion between the presentation of information and the capacity to use, sort and interpret it.*  
(Brabazon, 2001)

In today’s information society, knowledge must be constructed by critically analysing streams of information from various sources and formats, and moreover, by understanding data and becoming capable of analysing and interpreting it. For Nowotny, Scott and Gibbons (2001), “the emergence of the knowledge society means that a much wider range of social, economic and even cultural activities now have ‘research components’” (p. 225); and as Castells (2000) notes, we should “foster lifelong learning, a major asset in the knowledge-based social organization characteristic of the society” (p. 16). Beetham, McGill and Littlejohn (2011) highlight the growing importance of digital literacy, which they describe as “those capabilities which fit an individual for living, learning and working in a digital society”; and we would suggest that in addition to the digital, overlapping competencies in information and data literacy are key enablers for our students and graduates in meeting these challenges.
Indeed, higher education is already seeing a turn towards the development of transversal skills, which are defined by UNESCO (2015) as “critical and innovative thinking, inter-personal skills; intra-personal skills, and global citizenship” (p. 4); and as Rychen & Salganik (2003) note for the OECD, “certain areas of competence are needed not only in the labour market but also in private relationships, in political engagement and so on, and it is these transversal competencies that are defined as key” (p. 7). In this context, new pedagogies are reflecting these concerns, driving the adoption of problem- and research-based learning (e.g. Van Heuvelen, 1991; Dolmans, De Grave, Wollfagen & Van Der Vleuten, 2005) and reframing of the role of the student as a producer rather than consumer of knowledge (e.g., Kotzé & Du Plessis, 2003; Neary & Winn, 2009).

Our purpose in this paper is to consider how curricula can enable students (particularly at HE level) to engage more frequently with the needs of society through critical engagement with raw data - which is now increasingly made available by international organisations, governments, NGOs and academic research institutions as ‘Open Data’. As yet, the literature on Open Educational Resources (OER) has made little reference to Open Data and its potential use as a form of OER. We also present initial qualitative data obtained through an exploratory online survey with academics regarding their use of Open Data in teaching, with the purpose of offering an initial springboard for further research and more complex questions. In connecting these open dots, our aim is to initiate a discussion around good practice in the use of Open Data as a basis for research-based learning activities that can contribute to the development of students’ transversal skills and field-specific competences.

Unlocking the potential of Open Data in Higher Education

Students may be less effectively educated and trained if they are unable to work with a broad cross-section of data. (Uhlir & Schröder, 2007, p. 201).

As content has become increasingly digital, and thus potentially much more accessible, governments, international bodies, and academic organisations are advocating for the right to access information and knowledge as public goods (especially where these have come about as a result of public funding). Consequently, we have seen the rise of parallel open or ‘opening’ movements, focusing on OER; open course delivery (OpenCourseWare, MOOCs); Open Access (OA); and Open Data, which have led to a series of declarations (on OA, Open Education, OER and Open Data). While remaining somewhat discrete in their concerns, these movements are interconnected by drives for transparency, collaboration, democratisation, and citizenship.

Open Data is, by definition, accessible, interoperable, reusable and universal. Also, it is characterised by “a commitment to make data available publically in non-proprietary, machine-readable formats at the lowest level of granularity possible” (Johnson, 2014, p. 264). Among other champions of opening data, Huijboom and Van de Broek (2011) argue that “publishing of government data can empower citizens to exercise their democratic rights” (p. 4). Open Data can also be considered an invaluable resource for scholarly communities. For Arzberger et al. (2004), “open access to, and sharing of, data reinforces open scientific inquiry, encourages diversity of analysis and opinion, promotes new research, makes possible the testing of new or alternative hypotheses and methods of analysis” (p. 139). For Molloy (2011), “better science - in terms of transparency, reproducibility, increased efficiency, and ultimately a greater benefit to society - depends on open data” (p. 4). However, we would concur with the advisory issued by Zuiderwijk et al. (2012) when they state that “the process in which data are published, found, used, linked, reused and discussed, which is here referred to as the open data process, seems to encounter many socio-technical impediments” (p. 156).
The argument that scientists and researchers can benefit from the openness of data is compelling, but as Worthy (2015) notes, “the public were supposed to be the beneficiaries of the new data. Exactly who the ‘public’ users are remains a bit of a mystery”. For Gurstein (2011),

This drive towards increased public transparency and allowing for enhanced data–enriched citizen/public engagement in policy and other analysis and assessment is certainly a very positive outcome of public computing and online tools for data management and manipulation. However, as with the earlier discussion concerning the “digital divide” there would, in this context, appear to be some confusion between movements to enhance citizen “access” to data and the related issues concerning enhancing citizen “use” of this data as part, for example, of interventions concerning public policies and programs.

And for Davies (2010), “there will be greater need in future for capacity both in state and society to be able to debate the meaning of data, and to find responsible ways of using open data in democratic debate” (p. 5). While the availability of open data in civil society and its adoption within the business sector is growing, it appears that educational use is not yet widespread. In our view, public engagement with these datasets is only likely to grow if educators take up a key role in fostering an understanding of them as sites of enquiry and supporting the development of relevant skillsets.

As we see it, the educational value of Open Data is as a key component in research- and scenario-based learning activities, where its deployment can enhance information and digital literacies and support the development of critical, analytical, collaborative and citizenship skills. Therefore, the use of Open Data as OER can enable mechanisms for collaboration, discussion and engagement with local communities towards the development of global citizens.

Research-based learning can be understood as teaching and learning activities guided by the scientific method of enquiry, which therefore involve posing research questions, testing these questions using quantitative and qualitative techniques, and presenting findings within a framework of research integrity, thus supporting students’ reflective practice (Gilardi, & Lozza, 2009; Ambrose, Bridges, Di Pietro, Lovett & Norman, 2010; Wagner, 2014). In the context of a research-based approach, educators can use scenarios or problems relating to local and global problems, with the aim of developing a skilled data-savvy workforce, active and critical learners, and conscious citizens (Bindé & Matsuura, 2005; Borne et al., 2009; Littlejohn, Beetham & McGill, 2012; Eve, 2013).

Drilling down further into educational research literature regarding the skills, abilities and attributes that students should develop in higher education, we have identified a set of core, discipline-agnostic competencies that we believe students can acquire in the context of research-based learning activities based on open datasets.

- **Critical thinking:** For Weinberger & Fischer (2006), “learners are supposed to engage in an argumentative discourse with the goal to acquire knowledge” (p. 4); therefore, it is necessary to embed creative and innovative approaches in face-to-face, blended and distance teaching and learning (Silberman, 1973; Papert, 1987).

- **Data curation skills:** For Mazon et al. (2014), when setting the aims and objectives of a research-based instance, it is necessary to provide students with data curation techniques including data organisation models, data repositories, and data analysis software that can help them to achieve the expected results facilitating learning through the use of open data. In addition, Baker & Duerr (2015) recommend careful selection of data collections, development of a data curation plan, keeping data collection activity logs and providing training in summarising the results.

- **Research skills:** Open Data can facilitate the education of new researchers; for example, openly available datasets can be used to create games, activities and resources in order to promote learning in science education (Uhlir & Schröder, 2007; Bradley, Lancashire, Lang &
Williams, 2009). Students should be provided with learning experiences in which they collaborate, analyse information and data, and communicate results effectively and by relating these tasks to specific scientific or social problems (Zamorski, 2002; Barrie, 2004; Fischer, Rohde & Wulf, 2007; Smith, 2008).

- **Statistical literacies:** Schield (2004) considers that “students must be information literate: they must be able to think critically about concepts, claims and arguments: to read, interpret and evaluate information”. Statistical literacy is an essential component of information literacy; according to Wallman (1993), the “our citizens, who encounter statistics at every turn in their daily lives often are unequipped with the statistical literacy required to evaluate the information” (p. 5). Therefore, for Watson & Callingham (2003), “statistical literacy is not only important to our society as a whole; it is also relevant to the individual members of society” (p. 4).

- **Teamwork skills:** In research-, scenario-, and problem-based activities, students collaborate, sometimes within multidisciplinary research teams, solving complex problems; for Duch, Groh and Allen (2001) this collaboration develops skills in explaining results to others by learning to write reports and papers and to model graphics to visualise the data in order to make it comprehensible for readers.

- **Global citizenship:** Higher education not only educates future professionals; it educates citizens who should be able to think critically, evaluating information in order to be aware of local and global problems (Evans & Nation, 1993; Soder, Goodlad & McMannon, 2001). According to Willems & Bossu (2012), “While the new technologies are a source of social change, they can only become a promise of development for all through the alliance of freedom of expression, knowledge, democratic principles and the concept of justice” (p. 185). However, for Johnson (2014), “open data cannot be expected to universally promote justice. It can just as easily marginalize groups that are not part of the data: people whose lack of privilege excludes them from the kinds of interactions that produce data and makes their viewpoints invisible to those who collect data” (p. 267). We would also agree with Gurstein (2011) that for “open data to have a meaningful and supportive impact on the poor and marginalized, direct intervention is required to ensure that elements currently absent in the local technology and social ecosystem are in fact, made available”.

**Open Data-led activities in Research-based curricula**

*Open data and a change of mindset is the next step in the internet revolution*  
(Berners-Lee, 2011)

For students to engage with contemporary social problems, it is key to embed Open Data principles in research-based teaching and learning contexts provides students with the experience of working with the same raw materials scientists and policy-makers use (Atenas, Havemann & Priego, 2015), applying different methodologies in real scenarios and presenting the results in research papers that can be assessed, therefore connecting learning with real world problems (Kasl, Marsick & Dechant, 1997; Barron et al., 1998; Hmelo-Silver, 2004; Davies, 2010; Piorun et al. 2012).

In the previous section we outlined the core benefits students might develop by engaging with Open Data. We conducted an exploratory survey disseminated via a blog post and social media between March and May 2015 in which we asked academics to describe how they used or embedded open data in their teaching and learning practices, and which portals they most frequently used. This survey was intended to provide us with some indications of the range of data sources in use and of disciplines in which academics already see educational value in such datasets. We had 26
responses from North America, Latin America and Europe, and from academics teaching many different subject areas. The intention was to provide initial building blocks for further correlation between the core competencies we have outlined and the educational objectives of the learning activities in which Open Data has been used.

Out of these 26 responses, 11 reflected clear uses of Open Data, describing activities within the contexts of academic development, PhD training, library and information science, classical studies, communications, engineering, archaeology, digital humanities, biomedical sciences and social sciences. The remaining 15 answers referred to the use of other types of open content, and types of data which are not open. While those have therefore been excluded from our reporting below, we believe it is noteworthy that less than half of our respondents appear to have clearly understood what we meant by the phrase ‘Open Data’, indicating that there is some way to go in raising the awareness of academics of this topic. The table below summarises the 11 responses, which pertain specifically to the use of Open Data in teaching (see table 1).

<table>
<thead>
<tr>
<th>Region</th>
<th>Examples of how you used open data in your teaching</th>
<th>Which portals have you used to retrieve open datasets?</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America</td>
<td>To train early career researchers in data curation techniques and research data management</td>
<td>European Union Open Data Portal</td>
<td><a href="https://open-data.europa.eu/en/data/">https://open-data.europa.eu/en/data/</a></td>
</tr>
<tr>
<td>Europe</td>
<td>We have used data from Twitter, the Old Bailey Online and Altmetric to do text analysis and create new datasets</td>
<td>Altmetric</td>
<td><a href="http://www.altmetric.com/">http://www.altmetric.com/</a></td>
</tr>
<tr>
<td>Europe</td>
<td>In Data Expeditions related with data journalism</td>
<td>Hub of Russia</td>
<td><a href="http://hubofdata.ru/">http://hubofdata.ru/</a></td>
</tr>
<tr>
<td>Europe</td>
<td>Ancient Greek and Latin texts (analysis, visualisation), GIS for the ancient world</td>
<td>Perseus Digital Library</td>
<td><a href="http://www.perseus.tufts.edu/">http://www.perseus.tufts.edu/</a></td>
</tr>
<tr>
<td>Europe</td>
<td>In my course I used data from the archaeology data service to teach GIS</td>
<td>Archeology Data Service UK</td>
<td><a href="http://archaeologydataservice.ac.uk">http://archaeologydataservice.ac.uk</a></td>
</tr>
<tr>
<td>North America</td>
<td>We are building data driven curriculum modules based off of data sets housed in Dryad Digital Repository. The modules represent a collaborative effort between the researcher and pedagogical expert.</td>
<td>Dryad Digital Repository</td>
<td><a href="http://datadryad.org">http://datadryad.org</a></td>
</tr>
</tbody>
</table>

Table 1: Summary of survey responses organised by country of affiliation of respondent
<table>
<thead>
<tr>
<th>Region</th>
<th>Examples of how you used open data in your teaching</th>
<th>Which portals have you used to retrieve open datasets?</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>In a postgraduate programming module, I devised coursework around open data as a raw material. Firstly, students were asked to produce an e-reader that could be used with books from <a href="http://www.gutenberg.org/">http://www.gutenberg.org/</a>, secondly, they were tasked with creating a live parking monitor application, based on data available through.</td>
<td>Open Data Nottingham</td>
<td><a href="http://www.opendatanottingham.org.uk">http://www.opendatanottingham.org.uk</a></td>
</tr>
<tr>
<td>Europe</td>
<td>Reusing open data through project-based learning within the degree in Computer Engineering group activity</td>
<td>US Open Gov Data</td>
<td><a href="http://data.gov">http://data.gov</a></td>
</tr>
<tr>
<td>Europe</td>
<td>Database design in a computer science HE course using mainly government census data</td>
<td>UK Open Gov Data</td>
<td><a href="http://data.gov.uk">http://data.gov.uk</a></td>
</tr>
<tr>
<td>Europe</td>
<td>I have taught classes and workshops on Linked Open Data and Semantic Web technologies in digital humanities. I covered topics such as RDF and SPARQL.</td>
<td>British Museum Open Data Collection</td>
<td><a href="http://collection.britishmuseum.org">http://collection.britishmuseum.org</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dbpedia</td>
<td><a href="http://dbpedia.org/sparql">http://dbpedia.org/sparql</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kerameikos org Open Data</td>
<td><a href="http://kerameikos.org/sparql">http://kerameikos.org/sparql</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interamerican Development Bank Open Data</td>
<td><a href="http://data.iadb.org">http://data.iadb.org</a></td>
</tr>
<tr>
<td>Europe</td>
<td>Using open EEG data to let students experiment with brain open data and connectivity analyses</td>
<td>Medical Education Linked Arena</td>
<td><a href="http://www.meducator3.net/melinaplus/">http://www.meducator3.net/melinaplus/</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Laboratory of Medical Physics - Medical School of Aristotle University of Thessaloniki</td>
<td><a href="http://medphys.med.auth.gr/">http://medphys.med.auth.gr/</a></td>
</tr>
</tbody>
</table>

**Going forward with Open Data as OER**

*All citizens should have equal opportunities and multiple channels to access information, be consulted and participate. Every reasonable effort should be made to engage with as wide a variety of people as possible* (OECD, 2009, p. 17).

Arguments in favour of opening data have been advanced somewhat in isolation from parallel open education debates, which have tended to focus much attention on the matter of Open Educational...
Resources (OER). OER have been defined variously but for UNESCO, they are “any type of educational materials that are in the public domain or introduced with an open license”. It is our contention that open datasets can therefore certainly be understood as a form of ‘educational materials’, whether or not originally created as such, and therefore as OER; and indeed, not only can, but should be used in this way.

Already educators are at liberty to take advantage of Open Data by facilitating and encouraging students to select and use open datasets from different countries, thus to experiment with data at a global level; portals that provide access to such transnational datasets include Open Data Index place overview and the Data Repository directory. However, for us it is also vital to start providing students with access to datasets being produced within the academy, using the same research methodologies that students are learning to master. This can be facilitated via policies that will support scholars in making these datasets openly available at the institutional level, enabling spaces for multidisciplinary approaches to research projects inside each university.

The embedding of research principles in higher education curricula can support the development of critical thinking and rigour in academic practice, helping them to become data literate at different levels developing skills that can enhance their employability (Healey, 2005; Tanner, 2006). Table 2 showcases examples of different levels of expertise and proficiency in open data related research based activities.

<table>
<thead>
<tr>
<th>Skills/Level</th>
<th>Basic</th>
<th>Intermediate</th>
<th>Proficient</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical thinking</strong></td>
<td>Students understand basic concepts of critical thinking</td>
<td>Students can use data to verify information from the media</td>
<td>Students can analyse phenomena from their region using data and write reports critically analysing solutions</td>
<td>Students are able to develop and present complex evidence-based arguments in key academic formats</td>
</tr>
<tr>
<td><strong>Data analysis skills</strong></td>
<td>Students can analyse data using quantitative and qualitative methods</td>
<td>Students gain experience in using popular software for data analysis such as SPSS or NVivo</td>
<td>Students use proficiently software for data analysis which are relevant for their own disciplines</td>
<td>Students can present complex reports based upon data analysis in the form of research papers or posters</td>
</tr>
<tr>
<td><strong>Data curation skills</strong></td>
<td>Students can organise datasets in simple folders</td>
<td>Students can identify different sources of datasets and organise them in databases</td>
<td>Students can use electronic tools for data curation and share it with others</td>
<td>Students can develop databases and automate the process to organise and merge datasets, and embed metadata into the files to facilitate access to the resources</td>
</tr>
<tr>
<td><strong>Data information management skills</strong></td>
<td>Students can identify datasets from different sources</td>
<td>Students can select datasets from different portals in different formats</td>
<td>Students can extract, filter and compare data from different data sources creating a single dataset</td>
<td>Students can filter and format data in different formats analyse it creating complex datasets</td>
</tr>
</tbody>
</table>
In addition to the development of these practical research and data handling skills, we consider that Open Data poses a real opportunity for students to engage as active, curious and informed citizens, with local and global issues. In order to develop such citizenship skills we suggest (in table 3) a series of activities at different levels that can be considered as guidelines to promote civic engagement.

### Table 3: Activities for civic engagement differentiated by level

<table>
<thead>
<tr>
<th>Activity/Level</th>
<th>Initial</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>All levels</td>
<td>Invite subject and data experts to discuss face to face or online with your students about local and global issues.</td>
<td>Engage students with political and legal deliberations and discussions at local and global level asking them to analyse the data related to it.</td>
<td>Establish a model for students to understand the process and engage them in policy making by reviewing and analysing data and official reports.</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>Engage students in evaluating facts and contrasting information by analysing data presented in news media.</td>
<td>Encourage students to use digital tools to engage and monitor political activities and to assess reports and news by analysing their data.</td>
<td>Support students in assessing data from their government to identify problems and compare local with global information.</td>
</tr>
<tr>
<td>Activity/Level</td>
<td>Initial</td>
<td>Intermediate</td>
<td>Advanced</td>
</tr>
<tr>
<td>---------------</td>
<td>---------</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>Support students in identifying organisations that are campaigning in citizenship issues and enable instances for students to engage in civic monitoring activities and evaluate data driven arguments</td>
<td>Promote student collaboration with civil society organisations, in order to gain experience working with their data, supporting their activities, and enhancing their openness through data and publications</td>
<td>Support students in writing dissertations based on analysis of open data which engages with a real local or global problem; encourage them to publish findings in an open format</td>
</tr>
</tbody>
</table>

It is not our intention to oversimplify the extent to which key concepts, data, and research methods vary across the disciplines, and the extent to which activities must be designed carefully for different skill and experience levels. But we would assert that students at any level can begin to engage critically with data. It is necessary to make a preliminary diagnosis when planning a research-based activity, in order to understand the following: if students have developed communication and collaborative skills, if they have worked in teams before, if they understand research data management, including having training in software they will use, and if they are capable to apply different research methods to be able to collectively describe the results in a format that can be assessed by their peers and lecturers (Van Heuvelen, 1991; Doucette & Fyfe, 2013).

In addition, we recommend that academics intending to implement research-based activities using open data should:

- Identify and describe the learning outcomes for the intended activities;
- Identify the portals which will source the data;
- Clearly identify and describe the challenges students might face;
- Provide training materials for the software students will need to analyse the data;
- Support students in communicating their findings to local or wider communities.

There is much research still to be done to join the dots between Open Data, Open Educational Resources and the development of transversal skills and discipline-specific competences. There is a world of potential to be explored, particularly in relation to the development and adoption of methods of assessment that identify how the use of Open Data can feed into specific competences. Moreover, there is still a paucity of research regarding any linkages between communities of practice in Open Data and research and education.

If we understand learning as a transformation of knowledge, mere field-specific “competences” may not be enough; it is necessary to “cross boundaries” (Wenger, 1998, p. 140) in order to be exposed to different modes of behaviour, processes and outcomes. So far, it seems that engagement with Open Data has been driven by experience, rather than competence, but competences have been developed through the exposure (experience with) open datasets. In order to formalise more objective mechanisms of assessment, it is necessary to engage critically with, and foster further interconnections between, those engaged in Open Data and those engaged in education.

Notes
1 The Open Definition “sets out principles that define “openness” in relation to data and content. It makes precise the meaning of “open” in the terms “open data” and “open content” and thereby ensures quality and encourages compatibility between different pools of open material” http://opendefinition.org
References


Gurstein, M. B. (2011). Open data: Empowering the empowered or effective data use for everyone? *First Monday*, 16(2). http://dx.doi.org/10.5210/fm.v16i2.3316


List of reviewers 2015 (volume 7)

In alphabetical order

Ishan Sudeera Abeywardena, The Open University of Sri Lanka, Sri Lanka
José Francisco Álvarez, Universidad Nacional de Educación a Distancia (UNED), Spain
Maureen Andrade, Utah Valley University, USA
Muhammad Husni Arifin, Universitas Terbuka, Indonesia
Tai Arnold, SUNY Empire State College, USA
Javiera Atenas, University College London, United Kingdom
Melinda de la Pena Bandalaria, University of the Philippines Open University, Philippines
Tian Belawati, Universitas Terbuka, Indonesia
César Bernal, University of Almeria, Spain
Nikhila Deep Bhagwat, Women's University, Mumbai, India
Mandar L. Bhanushe, University of Mumbai, India
Cinzia Bianchino, Agenzia delle Entrate (Italian Revenue Agency), Italy
Carina Bossu, University of Tasmania, Australia
Hemlata Chari, Institute of Distance and Open Learning-IDOL, University of Mumbai, India
Robert James Clougherty, Glasgow Caledonian University New York, USA
Jane Costello, Memorial University of Newfoundland, Canada
Kathy-ann Daniel-Gittens, University of Central Florida, USA
William Diehl, International Museum of Distance Education & Technology, University Of New England, USA
Daniel Dominguez, Universidad Nacional de Educación a Distancia (UNED), Spain
Colin Elliot, Athabasca University, Canada
José Luis Fernández-Vindel, Universidad Nacional de Educación a Distancia (UNED), Spain
Alexander Gonzalez Flor, University of the Philippines Open University, Philippines
Genevieve Gallant, Memorial University of Newfoundland, Canada
Suresh C. Garg, Indira Gandhi National Open University, India
Sandhya Gunness, University of Mauritius, Mauritius
Carmel Haggerty, Whitireia Community Polytechnic, New Zealand
John Hilton III, Brigham Young University, USA
Meena Hwang, Open Education Consortium, Republic of Korea
Juan Vicente Izquierdo Soriano, La Ribera University Hospital, Spain
Mahdi Javanmard, Payam Noor University (PNU), Iran
Sukon Kanchanaraksa, Johns Hopkins University, USA
Kjrsten Keane, SUNY Empire State College, USA
Jeremy Knox, University of Edinburgh, United Kingdom
Mehmet Kokoç, Karadeniz Technical University, Turkey
Gangappa Kuruba, Centre for Continuing Education, University of Botswana, Botswana
Janine M. Lim, School of Distance Education, Andrews University, USA
Thomas P. Mackey, SUNY Empire State College, USA
Beatriz Malik, Universidad Nacional de Educación a Distancia (UNED), Spain
Monica Masino, The University of the West Indies Open Campus, Barbados
Michael W. Massey, The University of Georgia, USA
Patricia Mata Benito, Universidad Nacional de Educación a Distancia (UNED), Spain
Marta Mena, Universidad Tecnológica Nacional (National Technological University), Argentina
Catherine Moore, Swinburne University of Technology, Australia
Lina Morgado, Universidade Aberta (Portuguese Open University), Portugal
Charity Ntomboxolo Ndereya, University of the Free State, South Africa
Betty Obura Ogange, Maseno University, Kenya
Nelson Piedra, Universidad Técnica Particular de Loja, Ecuador
Alena Pistovčáková, Slovak Technical University, Slovakia
Jennifer Joyce Roberts, University of South Africa, South Africa
Mohsen Saadatmand, University of Helsinki, Finland
Thomas Salmon, Cape Peninsula University of Technology, South Africa
Robert Schuwer, Fontys University of Applied Sciences, Netherlands
Kathy Snow, Cape Breton University, Canada
José Manuel Suárez, Universidad Nacional de Educación a Distancia (UNED), Spain
Adhi Susilo, Universitas Terbuka, Indonesia
Alan Tait, Open University, United Kingdom
Deborah Taylor, Kansas City Kansas Community College, USA
Gemma Tur, Universitat de les Illes Balears, Spain
Belinda Tynan, Open University, United Kingdom
Gabi Witthaus, Loughborough University, United Kingdom
Roxanne Ward Zaghab, University of Maryland, USA