Editorial policies

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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.

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Brief report on Open Praxis editorial process

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This issue, the last one in 2014, implies that Open Praxis has reached two years of regular publication in its new stage, when it was relaunched as the ICDE scholarly, peer-reviewed and open access journal.

The editorial project for the relaunching included three main aspects: editorial process, scientific quality and dissemination (Gil-Jaurena & Malik, 2011). In this issue, we publish the names and affiliation of those reviewers who have contributed to the quality of volume 6 of the journal in 2013 and 2014 (also acknowledged in our site). Let’s take advantage of this recognition to explain how we develop the editorial process, and specifically the peer-review process, in Open Praxis.

The fact that we use use an electronic journal management and publishing tool, Open Journal System (OJS), facilitates the editorial process for a quarterly journal, such as Open Praxis (Gil-Jaurena, 2013). The journal website is available since May 2012. It includes basic and relevant information about the journal: submission guidelines, information for reviewers, our presence in indexes and databases, archives, etc. Content is updated regularly with new call for papers and announcements. The web design team at the Spanish National Distance Education University-UNED (CinDeTec) designed the interface. Submission and review processes are developed within the journal website through OJS. This journal management system keeps track of all the tasks, including emails among users (authors-editor; reviewers-editor).

Peer-review is among the most important quality standards for scientific journals and is a key issue for being selected in relevant databases, such as Thomson Reuters (Testa, 2012) or Scopus (Elsevier, 2014). In Open Praxis, research articles and innovative practice articles are subject to double-blind peer review by a minimum of two reviewers. To ensure that anonymity is maintained throughout the blind peer review process, authors delete their name and those of co-authors as well as their own article titles from the text, from references and endnotes, and replace with “Author” and year. This is checked before sending the paper for review. Reviewers are selected among those registered in our database, where there are more than 200 experts from all over the world.

An open call for new reviewers is open permanently. Candidates are invited to register as a reviewer willing to conduct peer review of submissions. They have to complete their profile in the journal website, specially their affiliation, bio statement and reviewing interests. Additionally, they are requested to send a short CV by email. The minimum requirements for being appointed as a reviewer in this journal and which candidates should include in their CV are:

- be proficient in English
- hold a higher education degree, preferably PhD
- work or have experience in higher education and have expertise in open and distance education.

The request for reviewing a paper is made by the editor and is based on stated reviewing interests (substantive areas and research methods) and expertise. We assure that at least one of the reviewers is an English native speaker and at least one of the reviewers holds a PhD. Considering...
the international scope of the journal, contributions and reviewers are geographically and institutionally balanced.

As a journal, we adhere to COPE (Committee on Publication Ethics) guidelines and expect our reviewers (Hames, 2013) and authors (Wager & Kleinert, 2011) to do so. According to these, it is our will to strive to constantly improve their journal (COPE, 2011).

After this brief report on Open Praxis editorial process, let’s introduce this last Open Praxis issue in volume 6, which includes three articles in the research papers section and three in the innovative practice papers section, two of them related to OER.

Aisha Muhammad Din and Sadia Jabeen (Eliminating educational Inequality through e-learning: the case of Virtual University of Pakistan) analyze the contribution of e-learning teaching mode to breaking the educational and social gap, presenting results for Virtual University of Pakistan. With a sociological background, they study the role of their university in facilitating access to quality higher education for all, and conclude that Virtual University of Pakistan is enhancing the educational level in the country and reducing class differences.

S. Joel Warrican, Coreen J. Leacock, Benita P. Thompson and Melissa L. Alleyne (Predictors of Student Success in an Online Learning Environment in the English-Speaking Caribbean: Evidence from the University of the West Indies Open Campus) study a main problem in online learning, students’ success, retention and completion rates, at course and programme levels. They focus on the case of their context and university, and identify factors that influence these rates. The analysis leads to providing suggestions for early identification and support to most vulnerable students.

Rick J Arrowood, Eva Kampits and Heidi Gregory-Mina (Setting the Stage for “Good, Better, or Just Right” in Online and Blended Graduate Courses) analyze students’ satisfaction in a course, considering course design, content and delivery, and compare the results in online and blended modalities of the same course. They present some lessons learned and recommend actions that can be developed to adjust teaching to an increasingly diverse range of students and, thus, of expectations and demands.

The innovative practice articles section is opened with a contribution by Helen Sara Farley and Joanne Doyle (Using digital technologies to implement distance education for incarcerated students: a case study from an Australian regional university), who describe and analyze a set of projects for students in prison, with the aim of enabling these students without Internet access to have comparable study experiences to other distance education students. They reflect on the results, evolution, limitations and envisaged future, when the project will be expanded in Australia.

John Hilton III, Lindsay Murphy and Devon Ritter (From Open Educational Resources to College Credit: The Approaches of Saylor Academy) contextualize Saylor Academy and present its implemented practice for attaining college credit using OER. They explain three models they use for providing opportunities to learners to test for credit, and reflect about the promising results they are getting in these early stages of the project, considered by the authors as a disruptive innovation.

Finally, Pradeep Kumar Misra (Online training of teachers using OER: Promises and potential strategies) presents OER-based teaching as a valuable approach for teacher training, both in initial education and professional development. He summarizes different initiatives taken place across the globe and provides a set of strategies that could be of interest for using the potential of OER for improving training of this specific professional group.

These six papers close Open Praxis volume 6, which in 2014 has published a total of 31 papers in its four issues. We hope that they contribute to reflection, discussion and improvement of open, distance and flexible education.

Special thanks from Open Praxis to the authors and reviewers who have contributed to this issue.

References

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Eliminating educational Inequality through e-learning: the case of Virtual University of Pakistan

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Abstract
This study aims at examining the role of e-learning in combating the issues of inequality in terms of access and quality in the field of higher education in Pakistan. The education system in Pakistan is mainly characterized by educational disparity. The standard of education is directly proportional to the investment students make in the form of registration and fees. Another important issue is the non-availability of reputed educational institutes in small towns and villages. Unfortunately, very few people from rural areas have access to quality higher education. Virtual University of Pakistan through its distance e-learning mode has come forward to break this trend in social inequality by providing equal educational opportunities to all social classes through its affordable fee structure yet ensuring high standards of teaching. For the purpose of testing these assumptions with reference to a Virtual education system, the existing patterns of enrollment, income structure of guardian/students, professors’ profile, and alumni’s profile data were obtained from IT department of Virtual University of Pakistan. Descriptive statistics and independent sample t-test were used for data analysis. It could be ascertained from the conclusion that Virtual University of Pakistan has successfully broken the chain of educational inequality through its e-learning mode. In case of virtual education, discrimination on the basis of gender, social class and location, is no more applicable. The findings of current research have invalidated the existence of inequality in the e-learning system.

Keywords: education; e-learning; inequality; Virtual University of Pakistan (VUP)

Introduction
Access to higher education has always remained a major issue in the developing world due to resource limitation and unavailability of qualified teaching staff (Moll, 2004). Another major factor that has widened the gap of educational disparity in the developing world is the conditioning of quality education due to financial resources, which implies that those who have economic resources have better chances of getting quality education. Poor class is kept devoid of quality education due to the resource limitation and inaccessibility to reputed public institute. This phenomenon is believed to be the product of income inequality that has not only turned education into an industry but has also established an apparatus for the reproduction of the same social thought over the generations (Greaves, Hill & Maisuria, 2007).

Many sociologists (Ball, 2004; Lawler, 2005; Skeggs, 2004) have reached the consensus that acquiring education is mainly a matter of availability of resources, specifically economic resources. In this social class ladder, a specific group grasps all the resources in their hands; ultimately they enjoy all the privileges and opportunities. Basically it is a war between Have’s and Have-not’s where “have nots” suffer due to resource exploitation and are bound to remain in the same social position throughout their life. Same patterns of social inequality are being observed today as well and social class is considered to be a determinant of the educational opportunities. Education is still a matter of the class and serves the interest of elites (Reay, 2006).

According to UNESCO Meta Survey (2004), the conventional education system in the developing countries has failed to abridge the gap between the two social classes i.e. rich and poor. In this
situation, it is unrealistic to build more infrastructures and to allocate more revenues for the same purpose. Many countries in the developing world are already spending an adequate portion of the Gross Domestic Product (GDP) on education but now they have no more room for steering. In such situations, e-learning can serve as an alternative tool to break the chain of inequality, as Leary and Berge (2006) stated “The challenge is to fully exploit electronic media, maximizing its usefulness and the realm of possible resources” (p. 57). Among purported advantages of e-learning the most significant benefit is the flexibility of learning, cost effectiveness and geographical openness (Liu & Hwang, 2009; Abdon, Ninomiya & Raab, 2007).

On the contrary, few scholars have strong reservation towards the applicability and the effectiveness of e-learning for lower socio-economic status groups. Anderson (2005) stated that “online education does not precede or bring democracy; its effective and universal delivery is conditional on democracy and the political action that occurs within a democracy” (p. 176). Further, Carr-Chellman (2005) explained that e-learning can only be used to promote inequality when inequalities at broader level might be treated properly.

Despite the criticism on the effectiveness of e-learning for the developing world, its worth in the changing world scenario cannot be denied. The world has become a global village and access to information technologies has provided new opportunities to combat the issue of social divide (Kling, 2000). The concept is derived from the McLuhan (1996) studies about Internet and World Wide Web. The world has turned into a village due to technology and this rapid information flood has served the purpose to strengthen political as well as social awareness among people. Further, it was asserted by theorists that this revolution of technology will be a gateway for “extension of consciousness” among the masses. The proposed idea is contrary to Karl Marx’s view, who proposed a utopian solution of the capitalists’ society in the form of communism.

While Karl Marx talked about the class division, McLuhan justified the technology as an alternative to combat this inequality. Technology has initiated a new social structure within the context of the world culture. E-learning, being part of this new culture, also serves to change the world culture (Rosenberg, 2008). Statistics regarding adoption of the e-learning mode around the world show the countries’ agreement on switching over to a new mode of education i.e. e-learning keeping in mind its perceived benefits of extended access to quality education. According to Edudemic report (Lepi, 2013) about e-learning around the Globe, eight countries i.e. United States, South Korea, India, South Africa, China, Malaysia, United Kingdom and Australia have made significant development towards e-learning.

Pakistan, being a developing country, is also facing the same dilemma of access and equality in education. Pakistan Social and Living Standard Measurement (PSLM) survey 2011–12 stated that overall literacy rate is 58 percent in Pakistan. As per CIA (2013) world fact book 2011–2012 statistics, 41.78 million of population is in the age group of 15–24 years out of which only 0.803 million are currently enrolled in higher education institutes. Thus, a huge gap of 40 million young people are identified with reference to lack of opportunities to higher education. In order to bridge this gap; e-learning mode was initiated in year 2002 by inaugurating the project of Virtual University of Pakistan by Higher Education Commission of Pakistan. VU was established as first distant learning university based on modern information and communication technologies. In a short span of time, VU has achieved many milestones along with the enrollment of more than one hundred thousand (100,000) students.

Keeping in mind the context of how access and the low literacy rate have become issues due to socio-economic divide, this paper aims at exploring the role of e-learning in eliminating the educational disparity in Pakistan.
Objectives
The main objectives of the study are:

1. To find out whether the e-learning mode has been able to tackle the issue of access and quality in higher education in Pakistan
2. To explore the role of Virtual University of Pakistan in breaking the existing status quo with reference to educational inequality in Pakistan
3. To examine whether Virtual University has ensured the access to education for all irrespective of the social classes

Research Question
Is e-learning system effective in eliminating the societal divide of education sector in Pakistan?

Conceptual Framework
The institutional divide of the education system serves the purpose of drawing the line between two classes by maintaining the status quo of elites in Pakistan (Bari & Sultana, 2011). In this process of class inequality, educational institutions are serving as agents of transforming certain values to specific classes. While applying this thought to educational institutes of Pakistan, a clear segregation of public and private institutes is visible, setting on different standards of pedagogy and affordability. Public educational institutes are perceived to serve the middle and the poor social class and private schools are set for specific groups of the upper class people. Due to this unaffordability, the middle and poor classes are bound to send their children to public institutes that are perceived as economical and of low quality (Bowles & Gintis, 2013).

This educational inequality as mentioned in figure 1 has been persistently visible for many years. In order to shrink this social divide in the education sector, alternative approaches to education have been introduced such as e-learning that works on the basis of access to quality education by
ensuring cost-effective study programs. In Pakistan, Virtual University of Pakistan works with the same vision of providing quality education to all irrespective of geographical location and financial limitations. In this regard, this University has taken the services of the country’s best available teachers affiliated to the finest educational institutes for the purpose of delivering course lectures. Thus, students, who due to financial constraints are unable to register in the renowned institutes, can study with these institutes’ faculty members through the platform of Virtual University whilst spending quite less money. In this research paper, researchers have tried to find out the role of e-learning in abridging the gap of social class inequality in the higher education in Pakistan.

**Method and Procedure**

The primary objective of conducting this research was to trace the role of e-learning mode of study of Virtual University of Pakistan in establishing a classless educational setup in Pakistan. There always existed a strong relationship between the economic class of the student and his/her institution of study, but virtual university has abolished this concept by providing equal opportunities of getting quality education for all.

In this study, secondary data was used for analysis purpose. The researchers being part of the Virtual University of Pakistan have obtained data related to the students enrolled in Semester Spring and Fall 2013 in different study programs with the assistance of IT department of the University. In order to find out the socio-economic status of VU students, the information of the guardian income was used whereas data unveiling city/district name to which student belong to, cater the purpose of verifying the University’s stance of widening the access to education all over the Pakistan. Lastly, the profiles of former VU students who are doing well in their professional careers were also obtained to explain the diversity of professional space they have in the market. With reference to the teaching standards of Virtual University, the researchers made use of the professors’ profiles who have imparted various courses at the Virtual University. For the data analysis purpose, descriptive statistics and Independent Sample t-test were applied.

**Results**

Table 1 represents the frequency and the percentage of the lower and the upper class enrolled students in Virtual University of Pakistan. In semester spring and fall 2013, about 20,533 students were enrolled in the Virtual University of Pakistan, out of these students 80.6 percent belonged to the lower class i.e. earning $2–10 per day. About 19.4% students were from the middle and the upper social classes.

<table>
<thead>
<tr>
<th>Income groups</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>2–10 $ per day</td>
<td>16,547</td>
<td>80.6</td>
</tr>
<tr>
<td>(3,000 to 32,000 Pak rupees)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 $ per day and above (&gt;)</td>
<td>3,986</td>
<td>19.4</td>
</tr>
<tr>
<td>(32,001 Pak rupees to above)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20,533</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Virtual University of Pakistan Information Management System

**H1**: There is a significant mean difference between the enrollment of the upper and the lower class in the e-learning system on the basis of the guardian income.

*Open Praxis*, vol. 6 issue 4, October–December 2014, pp. 321–329
Table 2: Independent Sample T-Test for Class Enrollment in the E-Learning System

<table>
<thead>
<tr>
<th>Variable</th>
<th>Upper class</th>
<th>Lower class</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Income</td>
<td>74318.41</td>
<td>52876.312</td>
<td>14060.60</td>
</tr>
</tbody>
</table>

The independent sample t-test was carried out to see the significant mean difference between two different social classes on the basis of their guardian income, i.e. the upper and the lower class while enrolling in the e-learning education system (table 2). Results showed that there is a significant difference between both groups which was clearly visible in the mean scores as well. Levine’s test is significant which reflects that both groups do not vary equally. Cohen’s d was calculated and the value is 1.6 which is quite high and reflects greater difference between the two income groups (Ellis, 2009).

Table 3: Table and Scatter Plot Showing Student Representation as Per Cities

Source: Virtual University of Pakistan Information Management System

Tables 3 and scatter plotted map show access to the Virtual University all over Pakistan ranging from the big cities like Lahore, Karachi, Faisalabad to the small towns such as Pishin, Thatha, Hangu, Kotli, Tunsar Sharif etc. Data represents the fact that the Virtual University e-learning system has successfully catered the issues of accessibility to higher education in Pakistan. Besides having access in the major 20 cities of the country, it has equally expanded its campuses to the small cities (49) and the towns (52). Only one exception was found with reference to access, i.e. Baluchistan region owing to socio-cultural and security hazards.

Table 4: Professor’s Qualification and Degree Institutes

<table>
<thead>
<tr>
<th>Subject</th>
<th>Qualification</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ph. Ds</td>
<td>MS</td>
</tr>
<tr>
<td>Computer Sciences</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Accounting, Banking &amp; finance</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>
Data in table 4 explains the educational profile of VU hired faculty showing a strong tendency towards highly qualified faculty. Out of total faculty (who have so far recorded video lectures for VU) 61% were Ph.D degree holders and 39% were having MS degrees. About 70% of the faculty members were found to be foreign qualified.

Table 4: Continued

<table>
<thead>
<tr>
<th>Subject</th>
<th>Qualification</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ph. Ds</td>
<td>MS</td>
</tr>
<tr>
<td>Management Sciences</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Marketing</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Mass Communication</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Psychology</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Statistics and Research</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Sociology</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pakistan Studies</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Physics</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>English</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject</th>
<th>Qualification</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
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<td>4</td>
<td>2</td>
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<tr>
<td>Mass Communication</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Psychology</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Statistics and Research</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Sociology</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pakistan Studies</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Physics</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>English</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>

Source: Virtual University of Pakistan Information Management System

Table 5: VU Graduates Professional Profile

<table>
<thead>
<tr>
<th>Professions</th>
<th>Socio-economic ranking</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Higher</td>
<td>Middle</td>
</tr>
<tr>
<td>Education</td>
<td>5</td>
<td>115</td>
</tr>
<tr>
<td>CS &amp; IT</td>
<td>21</td>
<td>350</td>
</tr>
<tr>
<td>Administration &amp; Management</td>
<td>63</td>
<td>1954</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>89</strong></td>
<td><strong>2448</strong></td>
</tr>
</tbody>
</table>

Source: Virtual University of Pakistan Information Management System

Data in table 5 shows the professional profile of Virtual University graduates. For the purpose of the analysis, data was segmented into four sections on the basis of the professional fields. In the first category all the graduates who are serving in the Education sector are mentioned. The second row refers to those who have jobs in the computer or IT related fields, while the data related to graduates working in the management or administration sector is shown in the third place. Former students (graduates), who have opted for professions other than the three mentioned categories are put in “Others” section. Against each section, professional ranking was done into “Higher” “middle” and “Lower” on the basis of students’ socio-economic status. The data shows that 6% of students are working in the education sector while 18.5% are doing the Computers or IT related jobs. Most graduates, i.e. 73.5%, are working in the management or administration sector due to the reason that enrollment in management sciences programs is higher as compared to other study programs. Two percent of graduates fall in the category of “Others”. Overall results show that a huge percentage of 80.5% is serving at middle level while 16.5% are doing lower level jobs. Three percent of the graduates are holding top ranks in different professional fields.

Conclusion

The conventional institutes, to a great extent are maintaining a class difference in our country with reference to educational opportunities while quality education is generally conditioned by the cost. A strong evidence of the phenomenon is visible in the existing vast differences between the fee structures of the private and the public educational institutes. Moreover, this educational divide can also be observed on the basis of the urban and rural areas. Almost all the well reputed institutes have their campuses in the big cities only, thus reserving the opportunity of acquiring the quality education only for the people of urban areas. Very few people from the rural areas can actually manage to migrate from their home towns for the sake of their studies and bear the expenditures of their education and accommodation. Thus, the educational system encourages those who are already enjoying a good status and promises good future to only those people who can afford high profile institutes and thus have more chances to get the higher education degrees and highly paid jobs. Whereas, the e-learning system with its novel features of accessibility and affordability has broken that myth. It has widened the prospects of quality education for all, irrespective of the socio-economic status of any person. It has been made possible by incorporating the feature of affordability in the e-learning mode, thus negating the assumption that working class has limited opportunities due to the social divide in the education sector.

Virtual University of Pakistan is devoted to improve the ratio of highly qualified people in the country by enhancing the accessibility to education to all across the country without any discrimination. Students enrolled in VU do not belong to a certain income group; in fact we can see clear representation of all the classes from the income group information of VU students. Thus, the notion of the restricted educational opportunities to the poor class and the marginalized people is strongly negated through research findings. Students’ representation has also been monitored on the basis of the cities they belong to and it was found that VU students are scattered all across the country whether it is a big city like Lahore or a small town like Hangu or Kotli, the geographical distance is no more an obstacle in achieving the higher education. Further, Virtual University of Pakistan has also ensured the accessibility of Internet services at all campuses in order to facilitate those students who don’t have Internet service available at home.

Another important point that confirms the status quo in the education sector is linking quality education with cost, i.e. the more you pay the better you get. But this is not the case with Virtual University’s e-learning system. Here the quality has been ensured along with the added feature of...
affordability. The majority of the professors who have recorded the courses for VU are foreign degree holders, highly qualified and all of them have gone through an audition process before actually being approved for teaching a certain course.

Here it is also pertinent to discuss the market value of the degree obtained through VU platform. As graduates, they are a VU “product” and their professional record can be taken as a strong evidence of the worth of their degree and learned skills. The majority of students who have completed their degree program from VU are serving at good designations in reputable organizations.

Hence, on the basis of the above narrated facts, it can be very well acclaimed that Virtual University has abolished the social divide in the education sector of Pakistan by extending access to quality education to all corners of the country without any discrimination.

Acknowledgement

We would like to express our deep gratitude to IT department Virtual University of Pakistan particularly Mr. Imran Abbas Khawaja, Senior Software Engineer for their valuable technical support in providing data for this research paper. Their willingness to give us data in time so generously has been very much appreciated.

Notes

1 Both authors have equal contribution in the paper.
2 Income distribution of lower and upper class is done as per ADB-Asian Development Bank (2010) social class division in Pakistan. In this case, lower middle class is added in lower class and upper middle class is merged in Upper class group in order to present two classes.

References


Predictors of Student Success in an Online Learning Environment in the English-Speaking Caribbean: Evidence from the University of the West Indies Open Campus

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Abstract
This paper investigated success rates and possible predictors of success among students at The University of the West Indies Open Campus. Archival data were mined from admissions and academic records of students from the 2008 intake to explore retention and completion rates, and for students enrolled in two online undergraduate courses in Semester 1 of the 2012/2013 academic year. The two courses had consistently high failure rates. Descriptive statistics and binary logistic regression were used to analyse the data. The results indicate that among the 2008 cohort, the retention rate was high (>75%) and the completion rate compared favourably with other similar institutions. Significant predictors of programme completion included sex and location of the students as well as cumulative GPA at the end of the first year of study. Predictors of success for individual courses included the location of the students and engagement with course resources.

Keywords: Caribbean; online learning; predictors of online success; retention; University of the West Indies Open Campus

Introduction
For many decades, distance education has been provided and used as an alternative to face-to-face instruction, and many individuals who for whatever reasons could not access face-to-face instruction, have made use of this facility. Distance education has journeyed from paper-based programmes sent by mail through radio and television broadcasts until more recently, with the advent and rapid development of electronic technology and the Internet, to online learning. Indeed, online learning is considered by some to be the new form of distance education (Moore, Dickson-Deane & Galyen, 2011) and there is a growing demand for this mode of learning worldwide. In countries such as the USA, online learning is an option for students at even the high school level (Kennedy & Archambault, 2012; Hawkins, Graham, Sudweeks & Barbour, 2013). As with face-to-face instruction, online learning has its strong points as well as its challenges and it is advisable not to see one as better than the other, but merely as different. Online learning is defined as "a structured learning activity that utilizes technology with intranet/internet-based tools and resources as the delivery method for instruction, research, assessment, and communication" (Michigan Department of Education, n.d., p. 1) and as “learning that takes place partially or entirely over the Internet” (Means, Toyama, Murphy, Bakia & Jones, 2010, p. 9). These definitions capture the notion that online learning is done via the Internet and the Michigan Department of Education (n.d.) indicates that there are different modes of delivery that fall under this term. These include teacher-led format where the instructor sets the pace and the activities and monitors the students' progress; the blended instruction format, a combination of traditional face-to-face and online instructional activities; teacher-facilitated formats where students take significant responsibility for their own
learning with face-to-face or online support from teachers; and self-paced formats where students navigate course material on their own with no access to teacher support. The Department of Education suggests that research has shown that students are most successful in a teacher-led environment. Indeed, a teacher-led environment may be extremely valuable for those who are venturing into online learning for the first time.

The fact is that many who encounter online learning for the first time, because of their previous learning experiences and environments, may not be prepared for virtual and asynchronous instructional activities, and consequently may hold unrealistic and inappropriate perceptions and views about this mode of teaching and learning. One of the areas that is often highlighted in relation to online learning is the apparently high levels of non-completion of programmes and failure rates for courses. Indeed, a common practice is to compare completion and failure rates for online programmes and courses with those for similar offerings in face-to-face contexts. In such cases, online learning is often portrayed in a negative light.

It should be borne in mind that there may be factors other than the delivery mode that influence the outcomes of online programmes when compared with face-to-face programmes. For example, Subotzky and Prinsloo (2011) in creating a model for predicting student success in open distance learning in South Africa, identify other factors for which student and institution must exercise joint responsibility to facilitate the students “walk” through essential processes such as choice of programme, admissions and learning activities, that leads to success. These include what Subotzky and Prinsloo (2011) refer to as key modalities, namely psychological constructs of attribution, self-efficacy, and locus of control. Furthermore, Tinto (2002) suggests that there are five conditions that facilitate student persistence towards success: expectation, advice, support, involvement and learning, which he later reduced to four, expectation, support, assessment and feedback, and involvement (Tinto, 2011). These writers suggest that student success can be considered in terms of the harmonization of student and institutional factors. Other writers focus on student factors solely as influences of student success. One such factor is the early grade point average (GPA) earned by the students. Research (DeBerard, Spielmans & Julka, 2004; American Institutes for Research, 2013) indicates that GPA is a good indicator of successful completion of programmes. Evidence suggests that weak students have lower GPAs than more academically-able students. GPA is used in colleges and universities as an indication of quality of student. Evidence also indicates that whatever the mode (online or face-to-face), cumulative GPA is a good predictor of success, with the lower the GPA, the lower the chances of the student completing the course/programme or experiencing success; and that weak students entering a programme are more likely to have low GPAs.

In the English-speaking Caribbean region, there has been discussion about the apparently low completion rates and high instances of failure among students registered for online programmes and courses with the University of the West Indies (UWI) Open Campus, the primary regional institution that offers higher education via this mode of delivery. This discussion is not unique to this region or institution. Simpson (2012) presented a chart in which the completion (graduation) rates for a number of institutions that offered online studies were presented along with similar rates for traditional face-to-face institutions. The completion rates for the online institutions, including the United Kingdom Open University, ranged from 0.5 percent to 33.5 percent. It must however be borne in mind that different institutions may have different methods of determining these rates and it is possible that those reported may be higher or lower than the actual ones. Relating to this, Haigh (2007) asserts that online learning is not suited for all students since many of them lack the skills and ability to do so successfully. Jenkins (2011) is in agreement with this, pointing out that some students who choose this mode of delivery lack the self-discipline, academic ability and technical
competence to be successful. This mismatch between student characteristics and the demands of online learning if not addressed can lessen the chances of students experiencing success.

This study focuses on issues relating to student success in an online learning environment in the Caribbean. It considers success in terms of achievement at the individual course level, persistence and retention, and completion of programme.

**Issues Relating to Online Learning: Exploring Existing Literature**

Online tertiary education is growing exponentially and in some cases surpassing face-to-face enrolment (Hawkins *et al*., 2013). Mon (2010) reports increases in the number of colleges and universities venturing into online education, and shows that enrolments in online education programmes in the United States increased from 1.6 million students in 1998 to over 3.9 million in 2007. The popularity of online learning is largely due to its anytime, anywhere flexibility, and though there are indications that suggest that younger students are capitalizing on this mode of study (Deka & McMurry, 2006), the general feel is that it tends to appeal to the more mature student; persons with work and family commitments whose schedules do not allow for face-to-face attendance at a brick and mortar campus (Jaggars, Edgecombe & Stacey, 2013).

As online learning becomes a more widely used means of pursuing higher education, discussions pertaining to several related issues have emerged. For example, there is concern about the perceived levels of frustration among some students and the apparently high attrition rates for online courses (Mon, 2010). These concerns raise questions about the conditions that would encourage student satisfaction and raise the rates of graduation from and the levels of retention in online programmes. Focusing on student outcomes is vitally important to providers of online learning since they can have an impact on the competitiveness and economic viability of their respective institutions (Atchley, Wingenbach & Akers, 2013). This focus should include making efforts to identify factors that may predict students' success in the online environment with a view to informing decision making as it relates to course offerings, student and faculty support services and allocation of resources (Colorado & Eberle, 2010).

One major outcome relating to online learning that is often considered is course completion rate, where online courses and programmes are compared with their equivalents in face-to-face programmes. Previous studies have reported mixed results; some in favour of the face-to-face mode (McLaren, 2004); some with no difference (Waschull, 2001; Gagne & Shepherd, 2001) and others in favour online programmes (Means *et al*., 2010). These conflicting findings may be attributable in part to differences in contexts in which the research was carried out. Despite this however, it is generally accepted that completion rates for online students are 10 percent to 20 percent lower than they are for students in face-to-face programmes (Carr, 2000).

Linked to the completion and attrition rates is the notion of students' academic performance. As with overall outcomes, research has produced mixed findings. Some studies found significant differences in academic performance across the two modes of delivery in favour of face-to-face delivery (Faux & Black-Hughes, 2000; Paden, 2006; Jenkins, 2011), while for others the difference was in favour of online delivery (Schoenfeld-Tacher, McConnel, & Graham, 2001). There are also studies in which no significant difference is found between the academic performance of students in face-to-face settings and those in online environments (Russell, 2001). Again, the variation in results may have to do with the factors such as the nature of the course being pursued, differences in assessment and student support systems, but the notion that perhaps there are mitigating factors that predispose some students to fare better in one setting or the other should not be dismissed. Indeed, it is both these possibilities that may have led some to question the suitability of some
subject areas for online delivery (Terry, 2001; Schmieder, 2008; Shum, Land & Dick, 2010), as well as the suitability of some students to engage in online learning (Carr, 2000; Haigh, 2007).

As mentioned earlier, the notion of suitability suggests that there are certain characteristics that may predispose students to be successful as online learners. Some insights into what these characteristics might be can be obtained from related literature. For example, literature suggests that characteristics such as age (Yukseturk & Bulut, 2007; Colorado & Eberle, 2010; Xu & Jaggars, 2013), sex (McSporran & Young, 2001; Xu & Jaggars, 2013), cumulative GPA (Colorado & Eberle, 2010; Wilson & Allen, 2011) and levels of student engagement with learning resources, peers and tutors (Swan, 2002; Deka & McMurry, 2006; Restauri, 2006; Grandzol & Grandzol, 2010; Zimmerman, 2012) are relevant factors to consider when investigating predictors of student success in online settings. Consequently, these factors were included in the current investigation as possible significant predictors of success among the students registered in online programmes with the UWI Open Campus.

Apart from overall success, this current study also investigated students’ success in two courses offered online, namely Introduction to Financial Accounting and Principles to Macroeconomics. These courses were selected for investigation because, since the inception of Open Campus, the success rate of students registered for these courses has been somewhat poor. While these may not have been the only courses with low success rates, these are two courses that have been of interest to other researchers, who wanted to determine factors that contribute to student performance. Previous studies indicate that performance in courses in these two areas can be influenced by factors such as gender, age, cumulative GPA, course load, motivation, and previous encounters with courses similar to these two (Ellis, Durden & Gaynor, 1998; Al-Tamimi & Al-Shayeb, 2002; Bennett, Padgham, McCarty & Carter, 2007; Kara, Bagheri & Tolin, 2011; Durr, n.d.). These studies suggest that the listed factors are legitimate considerations for an investigation such as the current one. Consequently, factors explored as influences of Open Campus students’ success in these two courses included some of these factors, along with others deemed important by the Open Campus (for example, student interaction with online resources and tutors’ interaction with students). While it is recognised there may be other factors not accounted for in this investigation that may have an impact on students’ successful completion of courses, the ones included here were those for which data were available.

The Context of the Research

The UWI has been in existence for over 65 years. It is a multi-site institution with traditional physical campuses that deliver face-to-face programmes in three countries of the English-speaking Caribbean: Jamaica, Trinidad and Tobago and Barbados. Prior to the establishment of its Open Campus, UWI maintained a physical presence in all of the countries of the English-speaking Caribbean in the form of Extra-Mural Departments (later named Schools of Continuing Studies) and other outreach centres. The University’s commitment to serving this region was evident in its then revolutionary use of what may now be considered primitive forms of open and distance learning. In a historical synopsis, in which Simmons-McDonald (2014) chronicles the path that led to the UWI Open Campus, several of the initiatives that pre-date it were mentioned. These include the Radio Education Unit (1958) which enhanced the University’s distance teaching efforts; the Challenge Examinations (1970) which allowed students to study on their own to write examinations for courses in the first year of selected programmes; and the UWI Distance Teaching Experiment/Enterprise (UWIDITE) (1983) which provided support for students in the Challenge programme. The University’s keen interest in providing dual mode delivery contributed to the establishment of the UWI Distance Education Centre (UWIDEC) in the late 1990s. UWIDEC incorporated the UWIDITE,
and through the upgrading and expansion of its teleconferencing capabilities as well as its computer networks at the teleconferencing sites, facilitated improved and widened access to higher education through online programmes.

In 2007, UWI began the amalgamation of all of its outreach centres in the English-speaking Caribbean into a single institution, under a common governance structure that constituted its Open Campus (Simmons-McDonald, 2014). The online programmes offered by this institution follow a teacher-led format (Michigan Department of Education, n.d.), where all students registered for programmes and/or courses are assigned an online tutor who guides the learning activities. Along with its online facilities, the Open Campus also includes country sites (the former Schools of Continuing Studies) that contribute to the support system for students registered in its programmes. Consequently, in addition to the online resources, students registered in Open Campus online programmes and courses are assisted through asynchronous and synchronous online support. Online support is provided by online programme managers, course coordinators, learning support specialists and course tutors. Online services also include academic advising as well as access to virtual library resources. Course tutors, apart from their initial training, also receive support from the Instructional Development Coordinator as well as all the other above mentioned personnel. Face-to-face support is provided by country site personnel in areas such as registration and academic advice. At these sites, there is also access to resources such as tele- and video-conferencing facilities, computer labs and libraries. As is the case in any learning environment, students in the online programmes and courses can seek additional support outside of their organised programme if they so desire. In some cases, the Open Campus online students may even request that the country sites organise this service for them, at a fee.

It is in this context that the current study was conducted. The UWI Open Campus is a relatively new institution that brings to the people of the region a mode of learning which is evolving. This investigation should contribute to the development of the Open Campus’s online programmes, providing empirical evidence to inform policies with regard to provisions for its students. It will also add to the global discussion relating to online education.

Methodology

In order to carry out this investigation, archival data were compiled and analysed. Data were mined from admissions and academic records for students who enrolled in bachelor’s degree programmes in the inception year (2008) of the Open Campus. Within the university system, these are three-year programmes for students with full-time registration. Data collected included demographics such as sex, age, country of residence, year of entry, programme pursued; academic profile such as entry qualifications, cumulative GPA at the end of the first year of study, quality of degree earned for those who had already graduated (honours: first class, upper second and lower second; pass); registration status by semester (registered/not registered; number of courses taken).

Apart from student programme data, data were also compiled for two individual courses (Introduction to Financial Accounting and Introduction to Macroeconomics) used to explore factors that influence success at the course level. These two courses were selected because from the inception of the Open Campus, they recorded high failure rates. It was felt that if factors that influence the likelihood of successful completion of such courses could be identified, then the campus could seek to ensure that these conditions are in place for future students who register for these courses. For this exploration, data were compiled for students who were registered for the courses in Semester 1 of the 2012/2013 academic year. Data collected included the sex, age and location of the students; the students’ interaction with the online course material, measured by the number of times the students logged into the course site; the online activities of the tutors (number
of times they viewed content, added to or updated resources on the site); the number of times the students took the course up to that point; and the students’ final results for the semester (pass/fail).

The data were compiled in electronic databases using IBM SPSS Statistics version 22, Release 22.0.0. The 2008 cohort consisted of 1944 students: 1571 (81%) were female and 373 (19%) male. In relation to the two courses that were examined, the breakdown of the sample involved is shown below (table 1) by sex.

Table 1: Breakdown of the Sample Used in the Examination of Two Courses by Sex

<table>
<thead>
<tr>
<th>COURSE</th>
<th>SEX</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unknown</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>ACCT1002</td>
<td>26</td>
<td>4.4%</td>
</tr>
<tr>
<td>ECON1002</td>
<td>22</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

Valid cases from these samples were included in the investigation of predictors of success in the courses involved. In the following section, descriptions and explanations of the different analyses run and the results are presented.

Findings

The findings presented here are arranged under subheadings that reflect the issues that featured in the investigation: student success as measured by overall programme completion rate, retention rates, and predictors of successful completion of programmes. Finally findings relating to predictors of success for two selected courses investigated are presented.

Programme Completion Rates

Rate of completion for online programmes is an issue that raises much discussion. In order to investigate the Open Campus’ completion rate, the data for its first cohort of students (the 2008 intake) were analysed. Records for the 2012/2013 academic year were examined to determine the status of these students at that time. As is common among open and distance education institutions (Simpson, 2012), within the Open Campus, students are allowed not only to register on a part time basis, but also to complete their programmes at a pace convenient to them. This sometimes includes taking breaks from their studies if their circumstances warrant it. The data were investigated to determine the proportion of students who completed their programme of study (graduated) within five years of starting. The results revealed that of the 1944 students who enrolled in bachelor’s degree programmes in 2008, approximately one-quarter of them (475) were able to graduate by 2013. This is indeed commendable since typically, students essentially are studying on a part-time basis and register for only one to three courses per semester.

Retention Rates

In order to address the issue of retention rates, the data for the 2008 cohort of students were again explored. Apart from the 475 students who had already graduated by 2013, the records were then examined to determine the status of the remaining 1469 who had not yet completed their programme five years after they enrolled at the Open Campus. The evidence indicated that 1065 of them were still registered for courses at the time and working steadily towards completion. This suggests that
of this cohort, 1540 students (475 graduated and 1065 working towards graduation) could be accounted for. This indicates a retention rate of 79 percent. The other 404 students (21%) could not be accounted for. The absence of these students from registration may be an indication that they are taking a break for the semester. It is also possible that they dropped out of the programme or that they simply vanished (McLaren, 2004). This categorization of students who have not completed their programmes but are not registered for courses during a particular semester was not available in the databases mined. The high retention rate observed is noteworthy however, considering the concern with low retention rates found in other studies of online learning (Carr, 2000; Mon, 2010).

In light of the suggestion that some students may not be suited for online learning (Carr, 2000; Haigh, 2007), the data were explored with a view to determining possible factors that might have some influence on the likelihood of students graduating within five years of enrolling in a bachelor’s programme with the Open Campus.

**Factors Influencing Programme Completion Rate**

In order to identify possible factors that influence the likelihood of Open Campus students graduating from their programmes of study, a binary logistic regression procedure was run with data for students in the 2008 cohort. A model including factors believed to be influential was built. Variables included in the model are shown below (table 2).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable Graduation status of the students by 2013</td>
<td>0 – Not Graduated 1 – Graduated</td>
</tr>
<tr>
<td>Predictor Variables Sex of Student</td>
<td>0 – Female 1 – Male</td>
</tr>
<tr>
<td>Qualifications</td>
<td>0 – CSEC (High School Certification) + Post-CSEC 1 – CSEC Only</td>
</tr>
<tr>
<td>English Language Proficiency Test (ELPT) Required</td>
<td>0 – No 1 – Yes</td>
</tr>
<tr>
<td>Remedial Math Required</td>
<td>0 – No 1 – Yes</td>
</tr>
<tr>
<td>Both ELPT &amp; Remedial Math Required</td>
<td>0 – No 1 – Yes</td>
</tr>
<tr>
<td>Location*</td>
<td>0 – Campus Country 1 – Non-campus Country</td>
</tr>
<tr>
<td>Age of Student on Entry (in years)</td>
<td></td>
</tr>
<tr>
<td>Student’s Cumulative GPA at End of First Year of Study</td>
<td></td>
</tr>
</tbody>
</table>

*Campus countries* are the three countries with brick and mortar campuses: Jamaica, Trinidad & Tobago and Barbados. *Non-campus countries* are the other 14 countries in the English-speaking Caribbean that support the University, but do not have brick and mortar campuses. These countries may have satellites sites of the Open Campus.
The logistic regression was run to assess the effects of the listed predictor variables on the likelihood of students graduating in a five-year period. The full model with all the predictors was statistically significant ($\chi^2=417.185$; df=8; $p<0.0005$; N=936). This suggests that the model is able to distinguish between students who graduated after 5 years and those who did not. The model explains between 36 percent (Cox & Snell R Square) and 48 percent (Nagelkerke R Square) of the variation in the graduation results, and was able to correctly classify 78.4 percent of the cases.

Table 3: Results for the Binary Logistic Regression Investigating Factors that Influence the Likelihood of Students Completing their Programme of Study

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I. for EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Sex of Student</td>
<td>-.490</td>
<td>.215</td>
<td>5.208</td>
<td>1</td>
<td>.022*</td>
<td>.613</td>
<td>.402</td>
</tr>
<tr>
<td>Qualification</td>
<td>-.377</td>
<td>.230</td>
<td>2.684</td>
<td>1</td>
<td>.101</td>
<td>.686</td>
<td>.437</td>
</tr>
<tr>
<td>Location</td>
<td>.793</td>
<td>.181</td>
<td>19.147</td>
<td>1</td>
<td>.000*</td>
<td>2.209</td>
<td>1.549</td>
</tr>
<tr>
<td>ELPT Required</td>
<td>.483</td>
<td>.208</td>
<td>5.380</td>
<td>1</td>
<td>.020*</td>
<td>1.621</td>
<td>1.078</td>
</tr>
<tr>
<td>Remedial Maths Requires</td>
<td>-.387</td>
<td>.375</td>
<td>1.066</td>
<td>1</td>
<td>.302</td>
<td>.679</td>
<td>.326</td>
</tr>
<tr>
<td>Age on Entering the Programme (in years)</td>
<td>.025</td>
<td>.011</td>
<td>5.422</td>
<td>1</td>
<td>.020*</td>
<td>1.025</td>
<td>1.004</td>
</tr>
<tr>
<td>GPA after First Year of Study</td>
<td>1.134</td>
<td>.084</td>
<td>182.350</td>
<td>1</td>
<td>.000*</td>
<td>3.108</td>
<td>2.636</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.533</td>
<td>.412</td>
<td>73.570</td>
<td>1</td>
<td>.000*</td>
<td>.029</td>
<td></td>
</tr>
</tbody>
</table>

# The output for IBM SPSS v22 is given to 3 decimal places. Hence a result of .000 suggests an actual value of <.0005.

* Statistically significant predictor at p<0.05.

The results of the procedure (table 3) indicate that being male (B=–0.490), having only CSEC as the highest entry qualification (B=–0.377), and requiring remedial mathematics (B=–0.387) or both remedial mathematics and ELPT (B=–0.316) reduced the probability of the students graduating within five years of entering a programme. Furthermore, the odds ratio statistics (Exp[B]) indicate that among this cohort of students, the odds of graduating within five years of entering a bachelor’s degree programme were higher for students from non-campus countries than for those from campus countries; for students who are required to take the ELPT than for those who are not required to take this test; for increasingly older students and for students with increasingly high cumulative GPAs at the end of the first year of studying. Significant predictors in the model include the sex and age of the student; the location of the student; whether or not the student was required to take the ELPT and the student’s GPA at the end of the first year of study. It should be remembered that there are other influential factors that are not accounted for in this model. Indeed, factors such as attitude to academics, motivation to succeed, locus of control and hours spent studying that have been shown to affect academic outcomes (Subotzky & Prinsloo, 2011) are not included here. Since the data analysed were already existing, it was not possible to go back to measure these characteristics.
Factors Influencing Success in Individual Courses

In order to investigate possible factors that contribute to success for individual courses, two courses with high failure rates (*Introduction to Financial Accounting* and *Introduction to Macroeconomics*) were considered. Using data from the Semester 1 2012/2013 examination results, binary logistic regression was run to assess factors that may influence the likelihood of passing the individual courses. A number of variables, shown below in Table 4, were compiled in a model. The number of times that the students’ online tutors logged onto the course site was added to the model on the assumption that, though not the best measure, on some level, this is an indication of the level of interaction between the students and the tutors. During these login periods, the tutors viewed and added/updated content.

Table 4: Regression Model for Investigating Factors that Influence the Likelihood of Students Passing Individual Courses

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>Student’s Performance on the Course</td>
</tr>
<tr>
<td>Predictor Variables</td>
<td>Sex of Student</td>
</tr>
<tr>
<td>Location</td>
<td>Location</td>
</tr>
<tr>
<td>Age of Student during the 2012/2013 Academic Year (in years)</td>
<td></td>
</tr>
<tr>
<td>No. of Times Student Took the Course up to 2012/2013</td>
<td></td>
</tr>
<tr>
<td>No. of Times Student Logged onto the Course Site</td>
<td></td>
</tr>
<tr>
<td>No. of Times Tutor Logged onto the Course Site</td>
<td></td>
</tr>
</tbody>
</table>

Below (tables 5 and 6) are the results of the regression that was run using the data for the two courses.

Introduction to Financial Accounting

The binary logistic regression was run to assess the effects of the listed predictor variables on the likelihood of students passing the course *Introduction to Financial Accounting* (ACCT1002). The full model with all the predictors was statistically significant ($\chi^2=76.80; \text{df}=6; p<0.0005; \text{N}=543$). This suggests that the model is able to distinguish between students who passed the course and those who did not. The model explained between 13 percent (Cox & Snell R Square) and 18 percent (Nagelkerke R Square) of the variation in the examination results, and was able to correctly classify 70 percent of the cases.

The results of the regression (table 5) indicate that being male (B=-0.084) and having taken the course multiple times (B=-0.335) reduced the probability of passing the course in Semester 1, 2012/2013. Furthermore, students in non-campus countries were more likely to pass this course than those from campus countries. Similarly, older students and those with increasingly higher numbers of times logging onto the course site were also more likely to pass. Lastly, the number of times that the tutors logged onto the course site had no effect on the outcome of the examinations for this course (pass/fail). Significant predictors in the model included the location of the student; the number of times the student took the course prior to the period of interest and the number of times the student logged onto the course site. As before, it should be remembered that there are
other influential factors that are not considered in this model, since this model accounted for less than 20 percent of the variation in the examination outcomes for this course.

Introduction to Macroeconomics

The logistic regression was also run to assess the effects of the listed predictor variables on the likelihood of students passing the course Introduction to Macroeconomics (ECON1002). The full model with all the predictors was statistically significant ($\chi^2=131.738$; $df=6$; $p<0.0005$; $N=339$). This suggests that the model is able to distinguish between students who passed the course and those who did not. The model explained between 32 percent (Cox & Snell R Square) and 44 percent (Nagelkerke R Square) of the variation in the examination results, and was able to correctly classify 80 percent of the cases.

The results of the regression (table 6) indicate that having taken the course multiple times ($B=-0.123$) reduced the probability of passing the course in Semester 1, 2012/2013. The results also indicated that male students and students from non-campus countries were more likely than their counterparts to pass this course. Furthermore, older students and those with increasingly higher numbers of times logging onto the course site were also more likely to pass. As with the other course, the number of times that the tutors logged onto the course site had no effect on the outcome of the examinations for this course (pass/fail). The only significant predictors in the model were location of the student (campus or non-campus country) and the number of times the student logged onto the course site.

Discussion

This study set out to investigate issues relating to online learning in the context of the UWI Open Campus, an institution created to serve the higher education needs of people in under-served

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**Table 5: Results of the Binary Logistic Regression Investigating Factors that Influence the Likelihood of Students Passing ACCT1002**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I.for EXP(B)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Sex of Student</td>
<td>-.084</td>
<td>.231</td>
<td>.132</td>
<td>1</td>
<td>.716</td>
<td>.920</td>
<td>.585</td>
<td>1.445</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>.674</td>
<td>.199</td>
<td>11.524</td>
<td>1</td>
<td>.001*</td>
<td>1.962</td>
<td>1.330</td>
<td>2.896</td>
<td></td>
</tr>
<tr>
<td>Age during 2012/2013 Academic Year</td>
<td>.014</td>
<td>.013</td>
<td>1.298</td>
<td>1</td>
<td>.255</td>
<td>1.014</td>
<td>.990</td>
<td>1.040</td>
<td></td>
</tr>
<tr>
<td>No. of Times Course Taken</td>
<td>-.335</td>
<td>.114</td>
<td>8.604</td>
<td>1</td>
<td>.003*</td>
<td>.715</td>
<td>.572</td>
<td>.895</td>
<td></td>
</tr>
<tr>
<td>No. of Times Students Logging onto Course Site</td>
<td>.002</td>
<td>.000</td>
<td>25.531</td>
<td>1</td>
<td>.000**</td>
<td>1.002</td>
<td>1.001</td>
<td>1.002</td>
<td></td>
</tr>
<tr>
<td>No. of Times Tutors Logging onto Course Site</td>
<td>.000</td>
<td>.000</td>
<td>1.346</td>
<td>1</td>
<td>.246</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-.304</td>
<td>.478</td>
<td>.405</td>
<td>1</td>
<td>.524</td>
<td>.738</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# The output for IBM SPSS v22 is given to 3 decimal places. Hence a result of .000 suggests an actual value of <.0005.

* Statistically significant predictor at p<0.05.
Predictors of Student Success in an Online Learning Environment in the English-Speaking Caribbean

Open Praxis, vol. 6 issue 4, October–December 2014, pp. 331–346

and under-privileged groups in the English-speaking Caribbean. In light of concerns highlighted in relevant literature, archival data for students who registered for bachelor’s degree programmes in the institution’s first year of operation, 2008, were used to explore factors such as completion of programmes and retention rates as measures of programme success. Possible predictors of successful completion of programmes were also explored. In addition, data for students who registered in Semester 1 of the 2012/2013 academic year for two Open Campus courses with histories of high failure rates, were also used to investigate factors that can predict success at the course level.

The findings from the analysis of the data suggest that, for an institution that is relatively new, the Open Campus appears to be performing as well as, and in some areas, better than some of its longer-established counterparts globally. For example, the completion rate of 24 percent after only five years of operation from its first cohort of undergraduate students is commendable, and compares favourably with the rates for other institutions that offer online programmes, as presented by Simpson (2012). Indeed, only one of the institutions in Simpson’s list had a higher completion rate. Related to completion is the retention rate of the institution. The finding of a retention rate close to 80 percent among the cohort of students is also highly commendable, when there is much concern about the high attrition rates among students in online programmes (Mon, 2010; Simpson, 2012). It should be noted that since the research relied on archival data, and no contact was made with the students who were not registered in 2013, it is possible that some of them were merely taking a break and fully intend to continue their programmes as soon as they resolve whatever prompted the need for a break. Thus, the retention rate may be higher than what is reported here.

This high retention rate may for the most part, be attributed to a feature that is very prominent in the Open Campus’s operation. The fact is that all students are assigned to online tutors for each course that they take. This teacher-led model has been cited as being most successful in encouraging students to persist to complete their studies (Michigan Department of Education, n.d.).

Table 6: Results of the Binary Logistic Regression Investigating Factors that Influence the Likelihood of Students Passing ECON1002

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I.for Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Lower)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex of Student</td>
<td>.517</td>
<td>.341</td>
<td>2.302</td>
<td>1</td>
<td>.129</td>
<td>1.677</td>
<td>.860</td>
</tr>
<tr>
<td>Location</td>
<td>1.185</td>
<td>.305</td>
<td>15.122</td>
<td>1</td>
<td>.000**</td>
<td>3.272</td>
<td>1.800</td>
</tr>
<tr>
<td>Age during 2012/2013 Academic Year</td>
<td>.022</td>
<td>.019</td>
<td>1.421</td>
<td>1</td>
<td>.233</td>
<td>1.022</td>
<td>.986</td>
</tr>
<tr>
<td>No. of Times Course Taken</td>
<td>-.123</td>
<td>.153</td>
<td>.643</td>
<td>1</td>
<td>.423</td>
<td>.884</td>
<td>.655</td>
</tr>
<tr>
<td>No. of Times Students Logging onto Course Site</td>
<td>.006</td>
<td>.001</td>
<td>55.985</td>
<td>1</td>
<td>.000**</td>
<td>1.006</td>
<td>1.004</td>
</tr>
<tr>
<td>No. of Times Tutors Logging onto Course Site</td>
<td>.000</td>
<td>.000</td>
<td>.260</td>
<td>1</td>
<td>.610</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.853</td>
<td>.701</td>
<td>16.582</td>
<td>1</td>
<td>.000**</td>
<td>.058</td>
<td></td>
</tr>
</tbody>
</table>

# The output for IBM SPSS v22 is given to 3 decimal places. Hence a result of .000 suggests an actual value of <.0005.

* Statistically significant predictor at p<0.05.
Also, as mentioned earlier, both students and tutors have the support of a team that includes experts with technical and pedagogical knowledge. This is especially important to the students, many of whom when they start are still working to develop competence with the technology. Apart from the online support, students have access to the country sites where they can also receive assistance. At these sites, they have access to library and computer lab facilities, as well as audio-/video-conferencing facilities, which provide them with direct contact with their tutors if the need arises. These are all services that are in place to help the students to persist and work towards their academic goals. The UWI Open Campus takes into consideration the fact that its students are primarily from under-served and sometimes under-privileged populations, many of whom have little access to the university's brick and mortar campuses and often, inadequate or no access to technological facilities (such as computer and Internet connectivity) at home. Consequently, the institution put measures in place to ensure that these students have access to the facilities that they need to encourage success.

The Open Campus also recognises that large proportions of its intake have been out of the classroom for quite a while and are not only returning to further their education, but also doing so in an unfamiliar online learning environment. Thus, the online programmes follow a structure of support that increases the chances of success. Online support teams provide assistance not only with academic pursuits, but in some cases with any personal challenges that may interfere with student progress. This is indeed in harmony with observations that student success in distance programmes (including those of an online nature) can be greatly enhanced if the institution provides academic, social and personal support for the students (Tinto, 2002; Subotzky & Prinsloo, 2011). Despite the fact that attrition appears to be relatively low then, it seems necessary that the Open Campus should have in place mechanisms for investigating reasons for students discontinuing their programmes, whether temporarily or permanently, and provide academic advice that can help them to make decisions about their pursuit of higher education.

Noteworthy among the findings is that students from non-campus countries, the 14 English-speaking countries that support the UWI but that do not have brick and mortar campuses, were significantly more likely to pass the courses explored and to complete their programmes of study expeditiously. This finding is not surprising in the context of the English-speaking Caribbean. The non-campus countries are primarily the under-served communities which the Open Campus was set up to facilitate (Simmons-McDonald, 2014). People in these countries often are restricted (usually by financial constraints) in their abilities to go abroad to pursue higher education. It is possible that once they gain the opportunity and make the decision to invest in education at this level, they work hard to complete their studies as quickly as possible. With access to the physical campuses at home (hence no great expense of living in a foreign country), individuals in campus countries tend to choose this brick and mortar option, and the students who may opt for the Open Campus may be the ones who find it challenging to obtain a place in the physical campuses, often because of their weak academic profiles.

In addition, male students were found to be significantly less likely to complete their programmes of study expeditiously. This is a cause for concern because the number of males across the region applying to pursue undergraduate studies is already quite low in comparison to females. Also worth attention is the indication that, as suggested by Colorado and Eberle (2010) and Wilson and Allen (2011), cumulative GPA at the end of the first year of study is a significant influence on likelihood of expeditious completion of studies. This awareness can help the Open Campus to put mechanisms in place to make an early identification of academically weak or struggling students who are at risk of not completing their degrees so that interventions can be made. This would require the establishing of clear guidelines for identifying and assisting these students, along with the vigilance of caring professionals within the campus.
Vigilance involves identifying factors that can influence student success and put measures in place to promote those that have positive effects and minimise the impact of those with negative effects. This can be accomplished by paying attention to achievement at the level of individual courses. Though this study looked at only two courses, the findings relating to factors that can influence success (passing the course) can provide some insights on this issue. For example, for both of the courses explored, the location of the student was a significant predictor of success (in favour of those from non-campus countries) as was the number of times the student logged onto the course site. If logging onto the course site can be taken as a sign of engagement, then this significant finding is indeed insightful and in harmony with literature (Swan, 2002; Deka & McMurry, 2006; Restauri, 2006; Grandzol & Grandzol, 2010; Zimmerman, 2012) that indicates its importance as a predictor of student success in online settings. Of note also is the finding which indicates that the number of times students repeat some courses can significantly lower their chances of success in subsequent attempts. This awareness should prompt the UWI Open Campus to strengthen the support systems that are in place to assist failing and struggling students. As mentioned above, vigilance can contribute to the early interventions to support such students, but in cases where they experience failure, appropriate help should be available to minimise the chances of further occurrence.

A point of particular interest is the lack of significant contribution of the engagement of the course tutors, as measured by the number of times each tutor logged onto the course site. This suggests that it did not matter how many times the tutors entered the course site to interact with the students. However, research (e.g. Swan, 2002) suggests interaction with course instructors is a significant predictor of student success. Indications are therefore that more in-depth investigation of this issue may be required in the UWI Open Campus context. It is possible that the approach used to measure tutor interaction for this study was not adequate and that a more reliable means should be applied in subsequent studies. The current finding may also be an indication that the UWI Open Campus needs to pay more attention to the professional development of its tutors to ensure that the quality of their online engagement contributes significantly to the success of the students. The nature of this development can certainly be the subject of further research to ensure that best practices in online learning become an integral part of the operations of this institution. Indeed, overall there is scope for further research in online learning in this context since there may be other factors not accounted for here that may significantly influence the provision of online learning in the English-speaking Caribbean, and elsewhere.

Conclusion

As mentioned earlier, there is some suggestion that not all students are suited to online learning (Carr, 2000; Haigh, 2007, Simpson, 2012). But whether suited or not, this may be the only option for some in under-served and under-privileged communities. The fact is that there are many in the English-speaking Caribbean for whom travelling to one of the countries with traditional brick and mortar campuses of the UWI or to any other institution of higher education is not feasible. What is needed is a means of identifying those students who may be most vulnerable in the online learning setting and providing early, intensive and continuous interventions (Seidman, 2012; Simpson, 2012), whether it be in the form of academic advice, access programmes or greater access to face-to-face support.

While the current study provides some insights into the issues of programme completion and retention among the UWI Open Campus students, it also raises questions about others. For example, since it relied solely on archival data, it was not possible to explore the contribution
of factors such as student motivation, academic self-efficacy, self-esteem and academic locus of control, highlighted as possible influential factors in other studies. The implication here is that there is a need for follow up research to be conducted among existing and/or incoming cohorts of students where data relating to such characteristics can be collected and included in the analyses.

The fact is that students who typically pursue studies online are those for whom there are factors that inhibit their enrolment in face-to-face institutions: personal and professional commitments, entry requirements, and financial constraints. Consequently, institutions that offer online programmes will always have to go the extra mile to ensure that these students have every opportunity to be successful. This calls for going beyond technology and technological infrastructure; it calls for a human touch. As Simpson (2012) observed in the final words of his book, the key to success in online learning may not lie with the technology that students need to have access, but in the people within the institution who care that the students succeed as best they can. As a relatively new institution, the UWI Open Campus appears to be heading on the right path. Investigations such as the one reported here go a long way to provide the evidence needed to make informed decisions designed to encourage student success, thus discharging its responsibility to provide access to higher education for under-served and under-privileged communities in the English-speaking Caribbean and beyond.

References


Simmons-McDonald, H. (2014, March 15). *A framework for open and distance learning at the University of the West Indies*. An unpublished concept paper written for the Executive Management Committee of the University of the West Indies.


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Setting the Stage for “Good, Better, or Just Right” in Online and Blended Graduate Courses

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Abstract
Increasingly, academics and scholarly practitioners are faced with addressing the expectations of and demands by a new wave of entrants to the online higher education marketplace: the multicultural, multilingual, techno-savvy (MMTS) student. The goal of this paper is to share real-world experiences captured in a global classroom (online and blended formats) and to discuss the findings of a survey conducted at an American university. The intent is to stimulate reflection among faculty, instructional designers, and students on what may be “good, better, or just right” for online and blended instruction. The authors explore in detail the perspectives and satisfaction rates of the MMTS student in relation to course design, course content, and course delivery and offer ways to foster a dynamic learning and teaching experience.

Keywords: blended course; multicultural students; multilingual students; online course

Introduction
Enrollments in online courses by graduate students at higher education institutions continue to outpace enrollments in traditional or blended models of learning (Allen & Seaman, 2011). The continuing and emerging transition of universities towards online and blended models of delivery are now the norm in higher education. Transnational online education is no longer a concept; it is adapting to a wave of new learners. But, are we prepared to teach, to engage, to welcome the multicultural, multilingual, techno-savvy (MMTS) students into the online arena? Worldwide distance learning offers an opportunity for broader and more open access to this new generation of online learners. Currently, there are more than 3.9 million students enrolled in fully online degree programs in the United States, totaling more than 20% of all students in higher education (Atchley & Wingenbach, 2011). Worldwide distance learning requires both professors and students to transform their historical roles (Yang & Cornelious, 2005). As worldwide access to online learning and teaching continues to increase, educators and administrators are grappling with developing new dynamic and interactive online classrooms while maintaining academic and accreditation standards. Online education, when well-done, is student-centered in contrast to traditional professor-centered education. Students enrolled in online classes now manifest greater technological-savvy capabilities and a broader insistence on making their own choices compared with their peers a mere decade ago. Increasingly, these MMTS students demand highly dynamic interactive online as well as and blended classrooms that link theory to application (Yang & Cornelious, 2005). The importance of developing success strategies for MMTS students should give administrators and educators a cause to reflect.

Practical steps are necessary to ensure learning and satisfaction for MMTS students and faculty. Considerations ranging from course readiness, to course design, and to course content are critical to successfully engaging a broad audience. Attention to MMTS students requires additional faculty time and presence in the online environment, not necessarily because of academic acuity, but because many MMTS students have never taken an online course or blended course. Faculty
members can harness social media to help innovate and modernize the online or blended classroom. On the other hand, while social media has changed the ways we communicate with one another, it has also presented challenges for some faculty as some students may comment in online discussion boards as if they were sending tweets, posting to Facebook, or sending texts. In communicating discussion board standards for student thread posts and replies, faculty should ideally provide a writing rubric (grammar, mechanics and usage) and a discussion board rubric (time, type and distinguishing elements of an outstanding, proficient, basic and below expectations response).

The authors pondered whether online and blended courses met and satisfied the needs of MMTS students in their graduate level courses. The usual exchange of teaching scenarios, experiential exercises, and “one size fits all” approaches began to emerge. In reflecting on course design, course content, and course delivery, the authors developed a survey using questions aimed at understanding and gaining a snapshot of student satisfaction relative to course design, visual appeal, technology interactivity, discussion board engagement, instructor engagement, feedback from instructor and peers, team success and the like. Findings led the authors to share lessons learned with others who seek to find the “just right” approach as in Goldilocks’s quest for the “perfect, individualized” object in that fairy tale \(^1\). We also considered and developed survey questions to aid in future exploration of what makes other approaches deficient by being “too big or too small.”

Survey Participants and Findings

Methodology

This quantitative survey study identified student’s perceptions in a six-week course entitled Creating High Performance Organizations delivered in both online and blended formats at Northeastern University, Boston. The authors designed their own survey for use in this study based on their collective experiences and voluntary feedback from students enrolled in other online graduate and blended courses. The Likert style survey instrument sought student responses regarding satisfaction in course design, course content, and course delivery.

Sample

The population consisted of 1,000 Master’s students with a resulting sample of 300 participants. When calculating the sample size the margin of error was 4.64% and the confidence level was 95%. The 300 participants were randomly selected from students taking a graduate (master degree) course titled Creating High Performance Organizations. Out of the 300 students selected a total of 132 students participated (51 online students and 81 blended students). Most of the students taking the survey were between the ages of 18 and 29 (75% online compared to 82% in the blended). Females were in the majority of respondents for both online and blended (72% female v. 28% male). Both survey respondents reflected a majority Asian (39%) student profile, followed by White/Caucasian (30%), unreported (23%), Hispanic (4%), and Black/African American (4%).

Data Collection

Surveys were developed and initially previewed by representative students after which a 40-question 2-page survey was made available online for anonymous response. Data was gathered during the final 2 weeks of courses (from February 12 to May 19, 2014) following pre-testing to assure full understanding of vocabulary including a pre-test and development of questions by
students themselves. The second version of this survey will be designed to support usage by students with some 15 home-languages other than English.

**Analysis**

The authors used the same questions in both the online and blended surveys with minor variations. The findings revealed that online students who had taken online courses (66% between 0 to 5 courses; 18% between 6 to 10 courses; and 16% in 11 or more courses) have a higher satisfaction rate for online courses when compared to blended students who were less satisfied with the online portions. Online students who had taken blended courses reported a higher satisfaction rate than their blended counterparts, presumably because of familiarity with the online portion of a blended class. In contrast, students who had taken blended courses (59% between 0 to 5 courses; 21% between 6 to 10 courses; and 20% in 11 or more courses) revealed a lower satisfaction rate for the online portion of a blended course with only 18% very satisfied compared to a satisfaction response from online students of 34% very satisfied. The survey queried the number of online and blended courses taken by the respondents.

Further, 80% of students taking an online course for the first time indicated yes to the question *were you prepared to take your first online course* and 85% of students taking a blended course answered yes to the question *were you prepared to take your first blended course.* This apparent level of confidence needs further study to explore the question, “is the MMTS student overly confident or sufficiently savvy to navigate a technological environment?” Next, we will explore in detail, and provide suggestions, for progressing on the scale of *good, better or just right* in course design, course content, and course delivery. Please see Appendix A for a more detailed outline of considerations.

**Framework and Discussion**

**Course Design**

The importance of course design cannot be over-estimated. Course design includes first impressions, instructional relationship, and community engagement. When students begin an online class, first impressions are critical not only for retention, but also for student perception. Students form their first impression of core instructional design features including, but not limited to, whether the instructor has followed a prescribed mode of organization, appearance, design, and usability within the first two to three minutes. During their initial introduction to the online course environment, students are assessing content, evaluating their academic expectations and needs, and considering competing factors such as workplace rules on accessibility of outside vendors, work and life balance, and other unforeseen conflicts.

The theme that emerged from the survey data is that MMTS students described their level of satisfaction in the appearance of online and blended courses favorably (online students reported a 33% very satisfied response while blended students reported a 34% response of very satisfied). Thus, first impressions are crucial to setting the stage for a successful start to learning, whether online or blended.

The instructional relationship is the connection between the student and the instructor. The survey revealed that students in fully online courses had a higher level of satisfaction with their instructors (42% very satisfied response) than did students in a blended course (26% very satisfied response). Ironically, students in the blended courses reported a higher level of satisfaction (35% very satisfied response) compared to online students who reported a lower level of satisfaction with their
instructor (30% very satisfied response). The authors broadly explored the level of satisfaction in the context of instructional relationship and the following themes emerged:

- The instructional relationship can be improved by greater instructor participation in online activities.
- The instructional relationship with students is dependent on instructors’ timely and individualized feedback on assignments.
- Value-added benefits such as getting to know individual students, getting to know the instructor, and creating a sense of community online benefit the instructional relationship.
- Cultural perceptions (or misconceptions) are an important aspect to creating community in an online environment. The instructor should take the lead in creating opportunities to support a multicultural learning environment.
- Electronic communications (whether email, audio, or voice) appear to contribute to a better instructional relationship.

Building community in an online environment is challenging when compared to a blended or traditional environment. Unlike the online environment, the instructor in the blended and traditional environment has the opportunity to connect in person with the MMTS student; however, this does not mean that online learning is automatically void of community. The instructor has plenty of options to "connect" with students, including voice, video, synchronous meetings, and other social media platforms.

The course design in the online environment allows for the use of technology to create opportunities beyond the discussion board. Online courses need to use a highly interactive format relying on students’ willingness and ability to participate in class discussions, as well as consideration of an adaptive release feature for assigned materials. Various teaching methods need to be implemented to achieve course objectives including course readings, class dialogue via the discussion board, team activities, simulations, videos and problem-based learning approaches. Some common themes that have emerged are:

- Students are encouraged to be more active and involved by opportunities to apply learned concepts to real life situations.
- Videos help students grasp material in a memorable, visual manner.
- Consistent and timely feedback from instructors help students remain motivated.
- Course discussion boards allow students to share viewpoints and understand information from different perspectives.
- Live sessions help students build community and eliminate the feeling of isolation.
- Students appear more comfortable in sharing and communicating when the faculty member is highly engaged.

Online courses, and the related blended portions of a course, need to provide materials to address all types of learning styles. With the Internet’s greater availability of broad-ranging information, faculty are able, and indeed, need to place a greater focus on connecting pedagogy to real-life scenarios. The role of faculty in online classes now demands transforming from one of teacher to one of facilitator. Faculty should consider asking students to upload a headshot or other photograph or video of themselves as part of their introduction to the class. Some students may feel hesitant to share, so it will be important for the faculty member to offer alternatives such as suggesting a photograph of their hometown, pet, or other image.

Community building begins with faculty insistent on facilitating a climate where students will determine ways to connect to the group as a whole and individually. In an effort to motivate
student interaction, particularly with MMTS students, faculty should communicate that the online environment, much like the face-to-face environment, be a safe zone for learning and sharing. And, yes, just like face-to-face classes, students may inadvertently or purposely offend the sensitivities of others. Thus, it is important for faculty to clearly state communication standards and ensure that all students understand their importance.

**Course Content**

For purposes of this article, course content is concerned with organization, activities, technology, adaptive release, and content population by instructor and student. We also queried the level of satisfaction for the duration of the course and noted that traditionally delivered face-to-face courses with blended formats reduced the number of weeks, whether delivered in blended or online formats. The authors felt course content should be considered in the context of how it appears in the course rather than the quality of what is there. It is presumed that content is faculty driven—meaning that a substantial amount of preparation is begun by the instructor. In some settings, the instructor is required to meet a 2 x 2 standard where a checklist of items must adhere to a two-week course content and design at least two weeks prior to the start of a course.

Our survey revealed that students' perspectives for the level of satisfaction for content in both online and blended courses were similar (38% of online and 33% of blended each reported they were very satisfied). Further, the somewhat satisfied and satisfied also shared a similar response with fewer than 3% being not satisfied in regards to content. The authors explored discussion posts, arguably a major ingredient in content, and learned that the level of satisfaction among students for discussion boards among students in blended courses mirrored a very satisfied response of 37% for online students and 40% for blended students.

However, when the survey asked students to rate their level of satisfaction with mandatory posting on the discussion board, results revealed that students in online courses were less satisfied than students in blended courses (30% posted very satisfied in online vs. 40% very satisfied in blended). Although this paper does not address this specific finding, it suggests that an opportunity for future research exists, particularly regarding discussion board burnout, apathy, and/or cultural biases. Over all, discussion boards contributed to learning regardless of mandatory requirements (42% online very satisfied compared to 30% very satisfied in blended). Thus, even though there appeared to be a general dislike of mandatory discussion posting, the survey revealed that students, particularly students taking online courses, nevertheless valued the discussion posting's contribution to learning. Where English was not the first language, discussion board satisfaction dropped (21% very satisfied in online vs. 16% very satisfied in blended).

**Course Delivery**

Understanding the transformed role of faculty is essential to engaging students in an online or blended environment. The faculty member is a cheerleader, a champion, and a facilitator. Online faculty often recognize online learning as an opportunity to reach new and more diverse audiences. In addition, MMTS students may often seek greater contact with faculty outside the online or blended structure (often involving cultural guidelines on connecting or showing respect to teachers). Faculty may find their response requires caution and diplomacy in instances where MMTS students wish to friend faculty on Facebook, connect on LinkedIn, or even present token gifts.

Understanding the motivation of faculty aspiring to teach online is key to assessing the likelihood of success. While most faculty would agree that online or blended education is a part of the future, not all faculty are eager to launch even a partial transition to online or blended courses. In the case
of faculty who exhibit interest in online education, it is important to inquire about both their extrinsic motivators (convenience, flexibility, personal reputation, etc.) and intrinsic motivators (communicate knowledge to a new and wider audience, learning a new way of course delivery, gaining personal satisfaction, etc.). It also remains important for faculty to try new things and keep current with the ever-evolving technology in a spirit of adventure rather than tedium. Faculty members that have access to an instructional design staff should take advantage of this enviable resource for continuous professional development.

MMTS students, like many other students and faculty, approach online and blended learning with both extrinsic motivators referred to as choice drivers (convenience, flexibility, institutional reputation, cost savings, etc.) and intrinsic motivators referred to as self-drivers (opportunity to interact with cultures, applying course work to new situations, enhancing techniques for accountability and discipline, maturity, etc.). Faculty members should recognize and understand that many MMTS students studying online do so in isolation. And, this may also occur in the blended environment. Understanding what motivates MMTS students is critical because online learning to date continues to carry a high dropout rate ranging from 20–50%. Lack of motivation is one of the top three reasons for high dropout rates (Frankola, 2001). However, if we have a better understanding of what motivates students, then faculty and others can design courses to keep their students motivated.

Instructor engagement in course delivery is essential to student satisfaction. Instructors not only serve as facilitators, but they also assume responsibility for creating and designing, crafting and remolding, and encouraging engagement of strategies among and between students, referred to as community. Replication of core concepts and delivery going forward in a business or community organization setting is essential to yielding success. However daunting the task of “getting it right” may be, instructors must learn and adapt to ever-changing technologies, often already available to, and in use, by students. Being consistent in online and blended environments is paramount to capturing student interest, increasing participation and improving critical thinking and decision-making skills. In our view, a partnership among faculty, instructional designers, and students must continue to follow traditional methods of building trust, credibility and accountability.

Since critical thinking is pertinent in all fields, school systems need to teach critical thinking skills to students. Discussion boards are a good medium for helping students to develop their critical thinking skills through academic problem solving (Bagayoko, Kelley & Hasan, 2000). According to Greenlaw and DeLoach (2003), electronic tools can be used to teach students critical thinking skills. Discussions boards, however, should not be limited to textual exchanges; rather, instructors should familiarize themselves with tools in their content management server such as Blackboard Collaborate, Wimba, Adobe, Wikis, and other outside vendors specializing in audio and video technology.

It is much more difficult for instructors teaching online classes than traditional classes to form pedagogical relationships with their students and gain their trust. One way to forge relationships with students is by engaging students in synchronous seminars. This enables instructors to develop face-to-face time with students in the virtual arena. During these sessions instructors can lecture on the weekly topic, provide guidance on assignments, answer student questions, and much more. Students can be involved by asking questions, answering polls, providing examples, and sharing stories about their experiences. Attendance rates, known as active versus inactive in the online environment, are much higher when these sessions are mandatory and graded. While some students may argue that any form of mandates constrict their flexibility, it has been shown that students who were involved in such sessions perform at a higher level than those students who did not attend the sessions.
Conclusion and Future Direction

This paper highlighted the dramatic increase of new entrants to online learning from diverse cultural backgrounds. In addition, global students often bring a range of learning styles and apprehensions as well as social impediments to engagement. In this paper, we explored a practical framework for course design, course content, and course delivery. We made recommendations for retaining, engaging, and motivating the multicultural, multilingual techno-savvy student (MMTS) in the online and blended environments. Institutional interests in assessing online and blended courses are intensified as shown in emerging studies (e.g. Reich, 2014; Harvard Magazine, 2014; Griffiths, Chingos, Mulhern & Spies, 2014). The Chronicle of Higher Education (2014) has conducted a survey of 350 4-year college presidents’, finding that 81% expect “hybrid courses that contain both face-to-face and online components” (p. 5) to have a positive effect on higher education—by far the largest positive score among seven, mostly technological innovations.

While the methods presented herein are nowhere complete, understanding the needs and expectations of the MMTS student demonstrates the importance of carefully aligning course design and pedagogy with the expectation of student satisfaction, particularly in a course dominated by the new generation of learners, the MMTS generation. Faculty should expect to spend more time in their online and blended course design and delivery (as well as one-on-one interaction with the MMTS student). Having noted this, the authors wish to emphasize that MMTS students may require additional time and resources to ensure success in the world of online and distance education. Through a gathering of anecdotal information, current research, and discussion of the findings, the authors conclude that faculty play an ever-important and ever-evolving role in engaging and encouraging MMTS students. Satisfaction is the key to a successful outcome. By using the methods presented and supporting materials within this paper, faculty are in a better position to deliver dynamic and interactive online courses while maintaining academic standards and ensuring an efficient and complementary delivery of their pedagogy. With continued dialogue, opportunities for engaging students, and an honest look at how we respect, engage and satisfy MMTS students, there is no doubt that eventually “good, better, or just right” explorations will lead to those that are “just right”.

Note

1 Derived from the 19th Century published work of Robert Southey (The Story of the Three Bears, 1837), Goldilocks and the Three Bears is a fairytale where Goldilocks the central character journeys through the forest, enters a home, and discovers the complexities of finding the “just right” porridge, chair, and bed. The fairytale demonstrates how Goldilocks encounters challenges when selecting porridge that was neither too hot nor too cold; chairs that were neither too big nor too small; and beds that were neither too hard nor too soft. After identifying the “just right” porridge, the “just right” chair, and the “just right” bed, Goldilocks falls asleep. Unexpectedly, Papa Bear, Mama Bear, and Baby Bear, the home’s inhabitants return from a walk in the forest. Upon entering, the bears quickly discover someone has eaten their porridge, sat in their chairs, and tried out their beds. Awakened and startled by the bear’s arrival, Goldilocks flees into the forest, never to return to the three bears home.

References


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## Appendix A
### Course Design Good, Better or Just Right

<table>
<thead>
<tr>
<th>Good</th>
<th>Better</th>
<th>Just Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be organized</td>
<td>Be Proactive</td>
<td>Design the course room in a logical flow and anticipate any and all questions from students. Place yourself in their shoes by asking yourself if I was an online student for the first time would I understand this?</td>
</tr>
<tr>
<td>Provide clear student expectations for the course</td>
<td>Provide examples of assignments with instructions</td>
<td>Create a video walking students through the course and how to navigate the materials. Provide written instructions and examples of each assignment. Create additional videos explaining how to submit assignments, how students can review feedback and any other course specific instructions. The initial set up time will pay off in the long-run when dealing with students who have never navigated the online environment.</td>
</tr>
<tr>
<td>Use friendly language (particularly for online communications)</td>
<td>Provide examples of exemplary Discussion Board posts as guides for online students</td>
<td>Develop a guideline for netiquette in your classroom so students understand your expectations before the class begins. Provide examples of exemplary discussion posts as a guide and practice what you preach. Demonstrate your expectations through your own communications with students.</td>
</tr>
<tr>
<td>Introduce Yourself</td>
<td>Add a personal touch to your introduction</td>
<td>Provide both a formal and informal introduction. The formal introduction should briefly introduce you and the course to the students. This should be posted with a written welcome message in the announcements section of your course. In addition, this should be emailed out with a copy of the syllabus on the first day of class. The informal introduction should be about who you are in a welcoming manner. This should provide information that students can relate to without getting too personal. This video should be shared in the icebreaker discussion thread. This will allow students to see you as an individual not “a computer”!</td>
</tr>
<tr>
<td>Provide an outline of a typical week</td>
<td>Create a checklist for each week</td>
<td>On the first day of each new week a course schedule should be posted. It should welcome students to the week, encourage and motivate them, and provide them with a suggested timeline for completing their work. In addition, a weekly task list should be supplied which students can print out and place in front of them. The list should not only include the weekly assignments but also remind students to review feedback from their previous week’s assignments.</td>
</tr>
<tr>
<td>Communicate Frequently with Students</td>
<td>Communicate with students through the Discussion Board, Announcements and emails</td>
<td>Engagement is a big part of the online environment and a tough balance to strike. You need to be engaged without micromanaging the students. A daily announcement is a great way to communicate with students. This can be a reminder about the work, sharing something you found which ties to the course material, or additional content you want to ensure they review. A professor should be in the weekly discussions at least five days a week at different times and responding to approximately 20–25% of the new discussion threads.</td>
</tr>
</tbody>
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Using digital technologies to implement distance education for incarcerated students: a case study from an Australian regional university

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Abstract
As universities become increasingly reliant on the online delivery of courses for distance education, those students without access to the Internet are increasingly marginalised. Among those most marginalised are incarcerated students who are often from low socio-economic status backgrounds and have limited access to resources. This article reports on four projects that incrementally build on each other, three of which are completed, at the University of Southern Queensland that seek to provide access to higher education for incarcerated students. These projects developed a modified version of Moodle, called Stand Alone Moodle (SAM), which doesn’t require Internet access, but provides the same level of access and interactivity as regular Moodle. EBook readers were also used in two of the projects. A description of the projects, a summary of the results and issues is provided. The projects will be extended to deploy Stand Alone Moodle and tablet computers to correctional centres across Australia with a focus on Aboriginal and Torres Strait Islander students.

Keywords: access to education; digital divide; distance education; higher education; incarcerated students

Introduction
Incarcerated students have traditionally accessed higher education through distance education (Justice Action, 2012). This was feasible when universities printed and dispatched printed materials (Dorman & Bull, 2003), but is becoming increasingly difficult as universities move online. Most Australian universities, in line with those in the rest of the world, are increasingly reliant on the online delivery of courses and programs. Most are making an increasing use of web 2.0 tools such as blogs, discussion boards and social media. Almost all undergraduate courses compel students to complete assignments requiring Internet research. In addition, the days of paper-based journals and books in libraries are rapidly disappearing. The University of Southern Queensland (USQ) likewise is moving towards the exclusive online delivery of courses and programs. All USQ courses have a StudyDesk presence (a version of the Moodle learning management system), which contains the course materials, lecture recordings, activities and assessments that students need to complete their courses. Some 80 per cent of USQ’s students are studying at a distance and those students rarely, if ever, come to campus. The university library, though it does have a physical presence, has a collection featuring large numbers of electronic journals, databases and electronic books. To retrieve these resources, students must have access to the Internet and download them through the library website (http://library.usq.edu.au/). This reliance on the online delivery of courses, programs and research resources poses significant challenges for incarcerated students, who in all jurisdictions within Australia, are not allowed direct access to the Internet (Hancock, 2010).

This article reports on four projects undertaken by the Australian Digital Futures Institute (ADFI) and the Open Access College (OAC), both at USQ, in collaboration with Serco Asia Pacific and Queensland Corrective Services (QCS). These projects ultimately aim to provide electronic access to higher education, including preparatory programs, for incarcerated students.
**Methodology**

All of the projects were undertaken using a design-based research methodology, which is a blend of empirical research with the theory-based design of learning environments (Design-based Research Collective, 2003, p. 5). The method centres on the systematic investigation of innovations designed to improve educational practice through an iterative process of design, development, implementation and analysis in real-world settings (Wang & Hannafin, 2005). A major strength of design research lies in its adaptability to adjust the intervention based on ongoing findings from participants.

**Managing resource development**

USQ is planning to become paper-free by semester I 2015 and will not supply printed materials to students. It is primarily up to individual course lecturers to accommodate incarcerated students on an ad hoc basis. This often requires the printing of web-based assessment items and copying recorded lectures onto CD by academic or administrative staff for viewing in the correctional centre computer labs or on in-cell laptops provided by Queensland Corrective Services. A limited number of in-cell laptops, unable to connect to the Internet, are available to incarcerated students studying undergraduate programs in Queensland. Currently, USQ caters for about 200 Tertiary Preparation Program students and some 100 undergraduate incarcerated students across a range of programs.

**The PLEIADeS pilot project**

Portable Learning Environments for Incarcerated Adult Distance Education Students (PLEIADeS) was a project that ran in semester 2 and 3 2012 (figure 1). It made use of a version of USQ’s StudyDesk which was installed directly onto the correctional centre’s education server and didn’t require access to the Internet. This instance of Moodle was named Stand Alone Moodle (SAM). To enable SAM to work, course materials had to be packaged with the course, instead of being accessed from the Equella repository housed at USQ. SAM could be accessed by incarcerated students from the correctional centre computer lab. The lab contained ten blade PCs which operated from the server. The materials on SAM were supplemented by reading materials provided on eBook readers. The eBook readers had to meet certain requirements for security compliance for QCS. They could not have any capacity to connect to the Internet; had to have integrated batteries that could not be removed; and could not have SD card slots. The project team sourced Sony PRS350s which complied with these requirements. Even at the time of purchase, these eBook readers were considered to be obsolete. The PLEIADeS pilot project was conducted at the Southern Queensland Correctional Centre (SQCC), an all-male, high security correctional centre operated by Serco Asia Pacific. SQCC is near the small township of Gatton, and about 45 minutes’ drive from USQ’s Toowoomba campus.

The Tertiary Preparation Program is offered by the Open Access College to those students unable to enter university through traditional means. Upon completion, students are guaranteed entry into a range of USQ undergraduate programs. One course from the OAC’s Tertiary Preparation Program, **TPP7120 Studying to Succeed**, was selected for this pilot project. TPP7120 is normally offered online or in face-to-face mode. It is one of four core courses that make up the Tertiary Preparation Program. In order to prepare this course for deployment using SAM, all the web links had to be removed. Files had to be resaved in file formats compatible with the correctional centre computers. Finally, all files had to be copied from USQ’s Equella repository and packaged with the courses for deployment. Once the course had been modified, it was tested by project personnel to ensure that it was fully functional.
The course readings for the eBook readers were converted to ePub format by a technical officer, in many cases converting them from MS Word or PDF format using Apple Pages. Permissions were sought from academic publishers for the conversion and vetted by a copyright officer at USQ. The ePub format enabled text to reflow on the small screens when the font size was changed. This was preferable to using PDFs as these would not resize and required endless scrolling across each line to view (Murphy, Martin & Farley, 2012).

**Grant funded project: Improving Learning Experiences for Students without Internet Access with SAM**

At the end of 2012, the project team was awarded an Australian government Office for Learning and Teaching Innovation and Development grant to the value of $AUD 217,000 to further develop Stand Alone Moodle. In the PLEIADES pilot project, the installation of SAM onto the correctional centre education server took two USQ ICT Services staff a day to install the server software, the latest instance of Moodle and the TPP7120 course. This was seen as unsustainable if SAM was to be rolled out to further correctional centres in the future. The aim of “From Access to Success” was to automate much of the installation of the server software, instance of Moodle and courses. In addition, the project team also aimed to automate the harvesting of student assessment including assignments and quiz results, and usage data. Again, this project used TPP7120. The course contained readings, self-marking quizzes, lecture recordings, other multi-media material, and assessment. Discussion boards were provided but only enabled students studying TPP7120 within SQCC to communicate with each other. There was no additional input from the lecturer in the discussion boards. This project has one year to run and is expected to finish in March 2015, after the end of semester 3.
The project team have already achieved some level of automation of Stand Alone Moodle. SAM can be deployed from a DVD and the instance of the course can be loaded from another DVD. With a few simple instructions, correctional centre education staff are able to readily remove the previous semester’s course, update SAM and upload the new course from the DVDs. This process takes about thirty minutes; a significant improvement on the amount of time taken for USQ ICT staff to complete the tasks in situ.

Extending the scope

Though the original scope of the project was to deliver only one course, TPP7120, the project team decided to offer a second course, *TPP7181 Mathematics Tertiary Preparation*. The added objective was to see how well the systems and processes worked for multiple courses delivered in a state administered facility. The consultations with the Queensland Corrective Services led to the project team decision to expand the project to include Woodford Correctional Centre (WCC). WCC is a dual facility with a high security section and a low security residential section. This correctional centre is about two hours’ drive from USQ’s Toowoomba campus and is administered by QCS. The expected deployment in WCC is in semester 2 of 2014. There were insufficient funds within the “From Access to Success” project budget to further the trials of eBook readers.

The Triple “E” Project

A separate project was initiated by the OAC called the Triple “E” Project (for Empowerment, E-Learning and E-Readers) to further the research focus in prisons. The Sony PRS350 eBook readers were no longer available as they were superseded by Internet-enabled newer models. A substitute model had to be found which had no capacity to connect to the Internet. In consultation with QCS to ensure security was maintained, the project team decided to use BeBook Pures.

Access criteria

Again the criteria for the use of a device was kept. This model had no capacity to connect to the Internet, had an integrated battery but did have an SD card slot. After some experimentation with ways of disabling the SD card slot, the project team found that filling them with “builder’s bog” was the most effective way of disabling them. The SD card slot remained dysfunctional even after the “bog” had been dug out with a sharp object.

Again, course readings, module guides and the course introduction book were converted into ePub format, vetted for copyright compliance and loaded onto the eBook readers.

Implementation of project

This project was deployed to an additional four correctional centres beyond SQCC. These were Brisbane Women’s Correctional Centre, Wolston Correctional Centre, Maryborough Correctional Centre and WCC. The additional centres are directly administered by QCS. This project ran in semester I 2013 and it was decided not to continue past this semester due to a number of issues which will be elaborated later.

Results

Only small numbers of students enrolled in TPP7120 and TPP7181 at SQCC in any semester. There were a maximum of 17 enrolled and a minimum of 1 enrolled in either course at any one time. This was because it is very common for prisoners to be moved to another correctional centre at short
Using digital technologies to implement distance education for incarcerated students

As SAM has only been deployed at SQCC to date, if a student enrolled in either of those courses is moved, he necessarily had to leave the project. Focus groups were conducted with students before they used SAM and/or the eBook readers and at again at the end of the semester. Responses were coded according to emerging themes. A complication arising during the focus groups was the failure of the students to separate issues relating to the courses from those relating to the technologies or the correctional centre environment.

Students reported they had limited access to the computer labs due to unexpected lockdowns, competition with “industries” (work within correctional centres which prisoners are required to do), and access restrictions due to poor behaviour. In addition, it was found that students wrote their assessments by hand in their cells and often spent their time in the computer lab typing their assignments. At first we thought this was because the students wished to appear to be professional and submit typed assessment pieces; handwritten assessment tasks are acceptable in the TPP. However, the education officer revealed it was because the students wanted access to the spell checker in the word-processing program.

When students did use SAM they were largely positive, especially about the instant feedback afforded by the self-marking quizzes. Students for the most part didn’t access the lecture recordings because they were too long to view in the available time. They reported that they would use SAM more if there was a way they could type up assignments in their cells; if they could access SAM on laptops or tablets in their cells; and if more courses were offered using SAM.

The responses to the eBook readers were varied with students using the Sony PRS350s being more positive because of the extra functionality of those devices as compared to the BeBook Pures. The Sony eBook reader allowed students to highlight text and to make notes. They also had an on-board dictionary which the students used extensively, mostly for playing Scrabble. Even so, students complained about the size of the screens, size of the font and the difficulty in switching between course readings (having to close one before opening another). Education officers were trained in the use of the eBook readers in order to instruct students and instructional videos were placed on the SAM Study Desk but were rarely accessed.

The BeBook Pures used in the Triple “E” Project didn’t have the capacity to allow students to make notes or highlight text. Also, they didn’t have an on-board dictionary. These devices also have only very limited processors and would take a long time to load materials and freeze up when students tried to move between readings. The students using the BeBook Pures almost without exception handed them back to education officers in exchange for the hard copy materials. In addition, the BeBook Pures failed to hold charge requiring them to be handed back to education officers frequently for charging (education officers retained possession of cords and chargers).

It is thought that one of the reasons the BeBook Pures were so difficult to use is because of the large file sizes of the materials. The project team considered taking the course materials and combining them into one large file which could be subsequently divided up into modules that could be accessed sequentially, removing the need to switch between books. This idea was abandoned as the structure of the course did not lend itself to this restructuring of the course materials without considerable adjustment. The Triple “E” project was abandoned after one semester with the project team deciding that tablet computers would be more suitable for use in correctional centres.

Looking to the Future: Making the Connection

In August 2013, the project team were awarded $AUD4.39 million through the Australian government’s Higher Education Participation and Partnerships Program for their project Making the Connection: Improving Access to Higher Education for Low Socio-Economic Status Students with
ICT Limitations. The USQ in collaboration with Bendigo TAFE, OERu (Open Educational Resources University), QCS, Serco Asia Pacific, the Careers Employment Australia (CEA) Group and Salvation Army Employment Plus, will develop a complete higher education pathway aimed at widening access for Indigenous and non-Indigenous incarcerated students. USQ’s Indigenous Higher Education Pathways Program (IHEPP), Tertiary Preparation Program (TPP), a Diploma of Arts and a Bachelor of General Studies will be adapted so that students do not require access to the Internet to undertake the studies. In addition, these programs will be populated with Open Educational Resources. The Mumgu-dhal tyama-tiyt Certificates I, II and II for Indigenous students who have not completed secondary school will be similarly adapted by Bendigo TAFE. This project will also facilitate continued participation in education or transition into the workplace after release from custody through programs developed by the CEA Group and the Salvation Army.

This combination of programs provides multiple entry points into the pathway for Indigenous and non-Indigenous incarcerated students (Pechenkina & Anderson, 2011). It facilitates participation for students with varying degrees of experience, education and digital literacy. This is significant given that Indigenous students are half as likely as non-Indigenous students to complete year 12 (Wong, 2008). Low levels of education remain a key part of the ongoing cycle that leads to the over-representation of Indigenous people in Australian prisons. The programs will be delivered using SAM providing incarcerated students with similar course materials and activities to those available to traditional students. In addition, Android tablet computers will be supplied preloaded with course materials that will enable incarcerated students to study even without access to computer labs.

The project will be developed and implemented in a staged manner over a three-year period in correctional centres across Australia. It will first be deployed at SQCC in Queensland, and the Acacia and Wandoo Reintegration Centre both located in Western Australia. These correctional centres are administered by Serco Asia Pacific. Subsequent stages will see the project expanded to incorporate an additional 10 correctional centres across Australia.

**Conclusion**

The provision of distance education to incarcerated students in Australia is becoming increasingly difficult given that these students are unable to access the Internet. This article reports on four projects that are either completed or underway to provide incarcerated students access to digital technologies, without access to the Internet. The aim of these projects was to enable students without Internet access to have comparable study experiences to those students studying at a distance outside of correctional centres. In addition, they aimed to foster the digital literacy skills needed for further study or the workplace upon release (Pellegrino & Hilton, 2012).

The projects to date have focused only on maintaining security of the devices and of ensuring that the technology, namely SAM and the eBook readers, worked in such a restricted environment. There were no security breaches associated with the use of the technologies and all eBook readers were returned unharmed at the end of the PLEIADES and Triple “E” projects. While it was evident the Stand Alone Moodle could provide a rich, virtual learning environment for incarcerated students, the eBook readers only engendered frustration because of their limited capabilities. In response to this, the project team, in consultation with Serco Asia Pacific and Queensland Corrective Services, have decided to trial the use of tablet computers in the Making the Connection project. These tablets will not be able to connect to the Internet, not have SD card slots and must have integrated batteries (so that they can’t be removed and used for other purposes by the students).

The Making the Connection project, has just been initiated and will provide Stand Alone Moodle and tablet computers to Indigenous and non-Indigenous incarcerated students in 13 correctional
centres across Australia. For the first time, this project will specifically tailor courses for delivery on these platforms using Open Educational Resources, including open textbooks. This project, which will end in September 2016, has the potential to alter the way higher education institutions deliver programs to all students without Internet access, but particularly incarcerated students.

The project team recognises that getting students to engage with the technologies and available courses will require more than just access. It will also require the employment of appropriate pedagogies and fostering of cultural capital (Sims, Vidgen & Powell, 2008). Engagement staff employed as part of the Making the Connection project will engage community organisations to assist with supporting students. These organisations will also work with students around the selection of courses and also transition into further study or into the workplace upon release from custody.

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Abstract
Over the past decade great progress has been made in improving the availability of Open Educational Resources (OER). However, one area in which OER has been deficient is in its ability to lead to college or university credit, something that many users of OER may desire. This article describes the work done by the Saylor Academy in amalgamating OER in such a format that college credit is more easily attainable. We describe not only the theory behind what Saylor has done, but also provide details about the initial stages of their program implementation within specific accredited institutions.

Key words: accreditation; open access; open educational resources; open textbooks; recognition; sustainability

Introduction
Open Educational Resources (OER) has been a burgeoning field of study since 2002. Wiley, Bliss and McEwen (2013) provide a comprehensive review of the history, opportunities and challenges associated with OER. One of the overarching goals of OER was succinctly stated by Mike Smith, Director of the Hewlett Foundation Education Program, which provided much of the initial funding for work surrounding OER:

At the heart of the open educational resources movement is the simple and powerful idea that the world’s knowledge is a public good and that technology in general and the World Wide Web in particular provide an extraordinary opportunity for everyone to share, use, and reuse that knowledge (Smith & Casserly, 2006, p. 10).

D’Antoni, (2009) outlines many of the challenges and opportunities of OER, including achieving Smith’s stated goal of utilizing technology in order to grant learners greater access to educational materials. Much has been done to help bring this idea to pass. Carson, Kanchanaraksa, Gooding, Mulder and Schuwer (2012) illustrated how some of the benefits and opportunities that have accrued as a result of initiatives such as MIT’s OpenCourseWare. Bliss, Robinson, Hilton and Wiley (2013) and Lindshield and Adhikari (2013) have shown that both students and teachers perceive OER to be comparable, and in some instances preferable to traditional texts. Some studies (e.g., Hilton, Gaudet, Clark, Robinson & Wiley, 2013) have shown that, when schools adopt OER, costs borne by the students decrease, and there simultaneously appears to be no negative impact on student learning.

Yet for learners seeking to study on their own, some of the hoped-for possibilities of OER may not have yet been realized. While OER are plentifully available on the Internet, they can often be difficult to locate (Brent, Gibbs & Gruszczynska, 2012). Moreover, even if discrete pieces of OER can be found, students seeking a comprehensive understanding of a specific topic may find it
difficult to collate different OER in order to learn the subject matter that they desire to master. In some instances, comprehensive resources that were once openly available (e.g., Flat World Knowledge textbooks) have been taken down from the company website and are more difficult to find online than they once were.

Perhaps a more significant challenge is that even if individuals are able to learn the content of a specific course, they have no way of proving to a potential employer or educational institution that they have obtained the necessary knowledge or skill. Thus one missing piece of the OER puzzle concerns accreditation. While various possibilities have been suggested, practical realities of providing credit for prior learning gained by utilizing OER has proven challenging (Conrad & McGreal, 2012).

Historically credit-by-exam is one manner in which individuals have been able to gain academic credit for prior work or studies. This is a topic that is not new and has been studied and discussed extensively (e.g., Kreplin, 1971; Post & Killian, 1993; Ebersole, 2010). Conrad, Mackintosh, McGreal, Murphy and Witthaus (2013) and Friesen and Wihak (2013) discuss the concept that students could utilize OER, including those available in Massively Open Online Courses (MOOCs), and receive various types of credentials (including, for example, badges). There are many opportunities for learning through MOOCs, such as Coursera, Udacity, and ivyversity; however, student course completions are relatively low (Heutte, Kaplan, Fenouillet, Caron & Rosselle, 2014). There are also challenges with OER to receive credit for prior learning. For example, McGreal, Conrad, Murphy, Witthaus and Mackintosh (2014) point out that “current course articulation processes are not well suited to the recognition and credentialing of OER learning” (p. 130). The premise of this paper is that OER can be combined with credit-by-exam in such a manner that students can learn material for free online (by utilizing OER) and then obtain credit for their learning by taking an exam.

Specifically, in the United States, Excelsior and Thomas Edison are both accredited colleges that offer a variety of courses in which a student can take a fee-based challenge exam for college credit linked to specific courses (such credits are also typically transferrable to universities.) The concept of specifically tying OER to credit-by-exam, proffered to students by Excelsior, is still in its infancy (Center for Educational Measurement, 2012). However, in some cases it is even possible for students to earn a degree entirely through this type of credit-by-exam process. For instance, Excelsior College offers enough general education and business credit-by-exam options that students can earn Associates (2 year) or Bachelors (4 year) degrees in General Business or Liberal Studies. Because Excelsior’s exams can be taken at testing centers around the world, this degree option is also available to international students. Thus a student, anywhere in the world, could earn an Associates or Bachelors degree at a U.S. accredited university at a relatively low cost. Our purpose in this paper is to describe how Saylor Academy has aggregated discrete pieces of OER into courses and aligned those courses with various opportunities for students to receive credit. We will discuss both the conceptual ideas of how obtaining college credit in this manner occurs and also examine the early results stemming from this process.

The Saylor Academy and its Courses

The Saylor Academy, established through a trust funded by Michael Saylor, has been focused on its open education initiative since 2008. The original goal of the Saylor Academy was to harness the capabilities of technology to drive the cost of a college education to zero. The primary mechanism for accomplishing this objective was to develop openly licensed, learning outcome-driven courses comprised of open access and other OER content. In this regard, Saylor acted as an aggregator and distributor of discrete open resources that it curated into full OER courses.

One of the challenges that students face when using OER is that while many OER exist, locating high-quality resources that connect with specific learning outcomes in a particular course is not easy. While efforts have been made to assess the quality of OER (e.g., Bethard, Wetzer, Butcher, Martin & Sumner, 2009; Custard & Sumner, 2005), such efforts often center on individual resources, rather than a holistic review of materials broad enough such that they could be employed to represent an entire course. Learners seeking to use OER for formal learning face the double challenge of needing to both assemble resources and assess their quality, while learning unfamiliar, college level material. Saylor addressed this issue by reviewing and gathering existing OER in order to supply meaningful learning opportunities at a course level. Thus a student seeking to learn the material generally taught in Psychology 101 could take Saylor’s Psychology 101 course and find comprehensive OER that teach all of the relevant material rather than having to search for individual pieces of OER throughout the Internet.

Initially Saylor identified and developed 241 courses that would fulfill program requirements for the ten highest enrolling majors in the United States (Saylor’s course offerings were eventually expanded to include additional higher education areas of study, as well as K-12 and professional development). The first Saylor course, College Composition I (ENGL001), went live on Saylor.org in September of 2010. In order to build its courses, Saylor developed a rigorous course development and review process, based on the ADDIE model (Molenda, 2003). The primary course developers are credentialed faculty with subject-area teaching experience; they work alongside Saylor editors, instructional designers, and OER experts. As part of the development process, the courses were compared with existing syllabi and resources to create Saylor courses that match established teaching approaches.

Once a general framework had been established, faculty members working on the course developed learning outcomes and identified OER that could be used to effectively help students achieve these outcomes. In general, Saylor was able to utilize existing open content; however they occasionally commissioned creation of additional OER content when suitable materials were not already available. For example, in some instances faculty would create short essays, lectures, or other learning objects. Once a course had been developed in its first iteration, it was peer-reviewed by additional faculty members with content expertise. Feedback received through the peer-review process was then integrated into the course, and the resulting courses are the collaborative effort of several consulting faculty.

In addition to the incidental Saylor-commissioned OER learning objects, faculty created OER assessments, including final exams, for all courses. Upon passing the course final exam, students earn a Saylor Certificate of Completion, which students can use to demonstrate competency to employers or outside institutions. However, as Saylor is not an accredited or degree-granting institution, the certificate is not generally accepted for transfer credit. Saylor students have occasionally self-reported that they were able to bypass course or program prerequisites by presenting their Saylor Certificate of Completion, but absent partnerships between Saylor and the accepting schools, it is difficult to accurately gauge the frequency of such acceptance. Additionally, although the exam is completely free, there is no identity verification component; students login to their Saylor accounts to take the exam directly. Thus, while the certificate does provide students with an artifact of their learning, it has not yet had widespread or sustainable impact on leveraging OER into credit.

**Opportunities to Test for Credit**

As stated previously, the goal of the Saylor Academy is to increase access to and ultimately lower the cost of education. While providing free online content is indeed a necessary condition, it is
likely not sufficient, as students often seek validated, institutionally backed credentials, which are often necessary to enter or advance in traditional institutions of postsecondary education and find employment. Indeed, an analysis of Saylor Academy’s existing user base suggests that students are interested in having their Saylor coursework recognized by other higher education institutions. From the voluntary self-reporting provided by approximately 26,000 Saylor users, 14% reported that interest in earning college credit contributed to their decision to take a course with Saylor Academy. Focusing on self-reporting done by approximately 1,800 students who have earned at least one Saylor Certificate of Completion, interest increases, with 23% of U.S. based students and 16% of international students indicating an interest in earning credit for their Saylor coursework. Of the U.S. based students who have passed a Saylor course, 58% have otherwise earned, at most, a college certificate or Associates degree, and 42% have not yet earned any post-secondary degree. For international students, these numbers are 37% and 26%, respectively. Thus, while most students did not join Saylor specifically to earn credit, many students could benefit if more credit earning options did exist. In order for students to utilize OER and receive credit-by-exam, Saylor pursued three variations on the challenge exam model.

**Model I: Credit Recommendation for Saylor Direct Assessment**

The first variation Saylor employed to align credit with Saylor’s OER courses was an independent course and exam review and subsequent credit recommendation. Saylor identified selected courses and submitted them for review by the National College Credit Recommendation Service (NCCRS). The function of NCCRS is “evaluating training and education programs offered outside of the traditional college classroom setting and translating them into college credit equivalencies” (NCCRS, 2013, n.p.). Over 1,500 colleges and universities recognize evaluations and credit recommendations made by NCCRS.

In order to be approved by NCCRS, a rigorous review of course materials and assessments is required. NCCRS-partner faculty with college-level teaching experience in the specified course complete the NCCRS course reviews. These faculty members reviewed Saylor courses’ learning outcomes, resources, assessments, and final exams, considering whether the constituent pieces and the courses holistically were commensurate with comparable courses taught at traditional colleges and universities. In order to maintain course integrity, NCCRS required that Saylor create new final exams for each course, which, in contrast to the finals that are a part of the Saylor course, would not be available for students to independently access online. Rather, students may only take the password protected NCCRS-reviewed exams through a proctor. Typically the cost of taking a proctored NCCRS examination is twenty-five United States dollars.

To date, Saylor has completed two rounds of NCCRS review. In November 2012, Business Law and Ethics (BUS205), Corporate Communication (BUS210), and Introduction to Western Political Thought (POLSC201) were each recommended for 3 credit hours (note that in the United States, an Associates Degree typically requires approximately 60 credit hours, and a Bachelors degree requires 120 credit hours). In November 2013, Principles of Marketing (BUS203), Business Statistics (BUS204), Principles of Management (BUS208), Introduction to Computer Science (CS101), and Beginning Algebra (MA001) were each recommended for 3 credit hours. Additionally in 2013, Saylor’s Calculus I (MA005) was recommended for 4 credit hours. Following the first round of NCCRS review in 2012, Saylor began pursuing credit transfer partnerships and has formal agreements with eleven accredited institutions to guarantee credit transfer.

**Model II: Align Saylor Courses to Non-Saylor Credit-by-Exam Options**

The second version of Saylor’s OER-to-credit model is to fully align courses to existing credit-by-exam opportunities. Traditionally, students who earn credit-by-exam have enough prior subject
knowledge through informal or non-transferrable learning that enrolling in and paying for the equivalent full-length college course is unnecessary. In contrast to requiring prior knowledge, Saylor courses allow students to engage in formal learning, but still achieve the cost and time savings of the credit-by-exam opportunities.

Saylor has partnered with Thomas Edison State College and Excelsior College by aligning courses to existing challenge exams offered through Thomas Edison State College Examination Program (TECEP), and UExcel, each college’s respective credit-by-exam program. Students who pass challenge exams through these credit-by-exam programs receive credit for the associated course directly from the college, which can then be used towards earning a degree.

Similar to the process undertaken for NCCRS course review, Saylor begins with an existing Saylor course and completes necessary updates to align the course to the corresponding credit-bearing exam. The primary focus of these updates is ensuring that the course adequately covers exam materials by conducting a comparative analysis of the learning outcomes in the Saylor course and the exam. Where gaps are found, OER are employed to align the course more completely to the external exam. For example, in the case of Single-Variable Calculus I (MA101), a comparative learning outcome analysis revealed that the UExcel exam covered a few objectives that were not included in the original Saylor course. In order to fill these gaps, OER were added to the course to ensure adequate coverage of the tested objectives.

The first Saylor Academy course to be aligned to an Excelsior College UExcel exam was launched in January 2013. To date, Saylor has developed courses to match three Excelsior College Exams: Principles of Macroeconomics (ECON102-EXC), Single Variable Calculus I (MA101-EXC), and Introduction to Psychology (PSYCH101-EXC). Additionally, Saylor also has two courses that were realigned to meet the specifications of Thomas Edison State College TECEP Exams. These courses, Computer Communications and Networks (CS402), and Introduction to Statistics (MA121), were launched in June 2013 and February 2014, respectively. The result of these exam alignments is that students who learn all of the material in the Saylor course are prepared to successfully pass the UExcel or TECEP exam. Thus students can learn for free, take a test for approximately $100, and receive three units of course credit that might have cost $1,000 at another institution.

**Model III: New Non-Saylor Credit-by-Exam Aligned to Saylor Course**

In the case just described, Saylor worked to align its course offerings to existing challenge exams. However, under the third variation of the Saylor credit-by-OER model, an institution can develop an exam that aligns to an existing Saylor course. Following such a model, Thomas Edison State College has now developed four exams based on Saylor courses. Working together, Saylor and Thomas Edison identified Saylor courses in subjects that did not yet have existing opportunities for credit-by-exam.

Once the courses were selected, Thomas Edison created brand new TECEP exams based on the learning outcomes in the existing free Saylor Academy course, rather than matching them to one of the College’s tuition based courses. When the exams were complete, Saylor’s Introduction to Comparative Politics (POLSC221), World History in Modern and Early Modern Eras (HIST103), Negotiations and Conflict Management (BUS403), and Environmental Ethics, Justice, and World Views (ENVS203) courses were immediately linked to new and affordable college credit opportunities. This variation of OER to credit is a significant milestone because through this model, the existing Saylor OER courses served as the impetus for the development of a new challenge exam.
Thus far we have discussed the content (the Saylor course) and method of assessment (a challenge exam) that are used to award college level credit for OER. An important aspect of assessment for credit pertains to identity verification. Each of the methods described previously have different methods of ensuring identity verification. As mentioned previously, the Saylor Certificate of Achievement is not proctored and therefore is a less-secure method of verifiable assessment.

For Saylor’s NCCRS exams, students may have their exam attempts facilitated by ProctorU (an online proctoring service) or by a Saylor Academy vetted in-person proctor. In the case of ProctorU, students may sit for an exam in their own homes, using their own computers and webcams. Webcams are used to monitor student activities during exam attempts and to match a student’s physical appearance to an official form of ID. Additionally, students are asked to answer a series of personal questions generated from publicly available data. The requirement for a proctored exam plays a key role in helping to protect the integrity of the exam and the resulting credentials being issued. Remote proctoring options such as ProctorU closely align to the values of OER and asynchronous learning by allowing the flexibility for individual students to be tested at times that work for them—an important consideration for the types of learners currently prone to seeking out non-traditional educational opportunities such as Saylor Academy.

In the case of Excelsior, exams are administered through a partnership with Pearson VUE, a network of testing centers in 175 countries that provides identity verification and exam proctoring services. For Thomas Edison’s TECEP exams, students may take the exams on their own computers through ProctorU. In both instances the price of taking the exam (approximately $100) includes the cost of proctoring services.

Results

The results of this OER-to-credit model, although still in their early stages, are promising. As of September 2014, 4,320 students have passed a total of 8,332 Saylor Academy final exams and earned certificates of completion. Within the group of nearly 1,800 of these students who have self-reported demographic information, 25.5% are between the ages of 19–24; 32% are between 25–34; and 18.5% are between 35–44. Students are based in 123 different countries, but nearly 50% of users are from the U.S. India has the next highest percentage of users at 8% (these data are for students who have completed any Saylor exams, not just for specifically credit-aligned exams; Saylor Academy does not yet have detailed demographic information for students earning credit through Saylor courses.

To date, the Saylor Academy has created 22 courses aligned to credit-by-exam options. Of these 22, nine have associated Saylor-developed NCCRS exams administered through a proctor. Thus far, students have made 118 attempts at NCCRS credit recommended exams, with 69 passing scores (58% pass rate). The most popular of these courses has been Principles of Marketing (BUS203). Of the students who took and passed an NCCRS recommended exam, 24 have already had official transcripts sent to one of Saylor’s partner schools, totaling 115 hours of recognized transfer credit, at a cost to students of approximately $900 (all costs being for the exam proctoring). This amounts to $7.82 per credit hour; in contrast, the cost per credit hour at most public two-year colleges is approximately $100.00 (Baum, Little & Payea, 2011).

For the remaining thirteen courses, getting accurate data is not as simple. Four of these courses are aligned to third-party assessments administered by organizations with which Saylor does not yet have formal working partnerships (e.g., The College Board’s AP tests). Because of this, Saylor Academy does not receive data about how many times the aligned assessments are taken and
passed, and can only rely on student-reported feedback to learn whether they perceive Saylor courses were helpful preparation for earning credit via these exams. When students do self-report, their anecdotal evidence suggests that Saylor OER courses provide appropriate preparation to pass these third-party exams. For example, a student wrote to Saylor explaining,

“I earned 9 credits by using Saylor courses (Macro/Microeconomics & Financial Accounting) to prep for the CLEP/DSST test ["CLEP" is an acronym for “College Level Examination Program” and “DSST” refers to tests offered by the United States Department of Defense.] I’m currently in the process right now of using Saylor courses (Principles of Finance & Business Ethics) to prep for my last 2 DSST tests.”

It is interesting to note that of the three courses employed to help this student earn credit, only one had been redesigned by Saylor to be specifically aligned to a credit-by-exam option. For the other two, the student simply used the existing version of the Saylor course, which had not yet been mapped to the exam, and was still able to pass. Such an anecdote suggests that the initial course design process appropriately targets standard college level learning in foundational courses.

For the Saylor courses aligned to UExcel or TECEP exams, the partner institutions collect data on whether students arrived at their websites via Saylor.org. These data, however, likely underrepresent the number of students who took a UExcel or TECEP exam after preparing with Saylor courses. This is because students are not required to disclose their manner of preparing for the exam and it remains unclear what percentage of students who take UExcel or TECEP exams utilized Saylor resources. To date however, there have been 31 instances in which students have taken a UExcel exam after specifically using one of the tracking links from a Saylor course. Twenty-six of these attempts resulted in a passed exam, and significant student savings in the costs associated with earning the credits.

Discussion

The results thus far have been limited, partly due to the fact that this proof-of-concept has only been a reality for about 18 months. While that has been enough time to increase student interest in affordable credit opportunities, more widespread acceptance of OER and credit-by-exam needs to take place before it can have a large-scale impact. Nevertheless, the fact that some students have successfully taken Saylor Academy courses and then passed examinations that provide them with college credit indicate that this method of utilizing OER to receive transfer credit is feasible. Each time a student uses a free OER-based course to prepare for a cost effective credit-by-exam, that student reaps meaningful financial benefit. One student wrote to Saylor that

“The fact that the courses are free and online was a huge draw for me. One of the biggest reasons that I’m pursuing distance learning is because the costs of attending a brick-and-mortar school are just too much for me. Since these courses are offered at no charge, that was a huge savings for me. The only costs that I incurred with these [NCCRS approved] courses was paying the proctor fee at my testing center which was only $20 each time.”

Saylor’s experience with OER-to-Credit suggests that while college-level OER is plentiful, aggregating OER into meaningful test prep materials is a significant undertaking. However, when sequenced into full-length courses and aligned to credit-bearing exams, OER can be used to successfully earn credit recognition. OER-committed organizations can continue to explore what Anderson and McGreal (2012) have called the “Unbundling of educational services” (p. 391) by establishing a system whereby responsibility for the assessment rests with the credit-granting institution, but creation and maintenance of the courses occurs elsewhere. While Saylor has demonstrated that it can provide students with a very low-cost route to college credit, to have the broadest effect, the OER-community will have to make meaningful inroads in the existing system.
of higher education. More schools will need to embrace competency-based education, and develop (and then publicize and encourage use of) testing-for credit opportunities.

**Conclusion**

Christensen (1997) outlines the concept of disruptive innovation. A disruptive innovation is a product or technology that enters a given market and serves an audience that is different than the established market. These products generally are not used by the established market for various reasons, but they are appealing to emerging markets because they offer a different set of values, such as price or convenience. These emerging products will eventually increase in their quality and their values will begin to appeal to a larger audience. It is at this point that the original technology is disrupted and often becomes obsolete.

Christensen, Horn and Johnson (2008) outline a variety of disruptive possibilities with respect to education. We believe that route we have discussed in this paper with studying materials on Saylor.org leading to students passing assessments and receiving course credit potentially represents a disruptive innovation in education. While some students will continue to prefer more traditional routes to credit, the potential costs and inconveniences may lead an increasing number of students to attempt to self-study OER and receive credit by examination. However, there may be limitations to the extent to which the opportunities described in this paper could be considered disruptive innovations. As stated previously, Saylor Academy is run through a private trust, and as such does not need to maintain profitability in the way that businesses traditionally must. Nevertheless, as the available OER continue to improve, and processes for examinations for credit are streamlined, there is significant potential for an increasing number of students to take advantage of this option. If the numbers become sufficiently large, opportunities may arise for alternative methods of funding, allowing this to become a sustaining innovation.

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**Notes**

1. There is a necessary distinction here between Saylor courses, which are OER, and the resources of those courses, which are always open access, but not always openly licensed. Saylor courses are comprised of the course learning outcomes, instructional prose, and overall course structure and approach, and the resulting course itself is OER. However, the distinct resources used to achieve those outcomes and populate the course structure are not always OER.

2. These institutions are as follows: Bellevue University; Bethel University, College of Adult & Professional Studies; Charter Oak State College; Colorado Technical University; CUNY Baccalaureate for Unique and Interdisciplinary Studies; Excelsior College; Granite State College, Great Bay Community College; Paul Smith’s College; Thomas Edison State College; and University of Maryland University College.

3. In addition, Saylor offers courses aligned to Advanced Placement (AP), College Board’s College-Level Examination Program (CLEP), and StraighterLine credit recommended exams. However, Saylor developed the AP and CLEP aligned courses without a formal working relationship with the College Board, and thus the aligned courses have not been vetted by the respective exam providers. Saylor does have a formal partnership with StraighterLine; however, StraighterLine itself cannot issue degrees or credit directly. Rather, its exams carry credit recommendations similar to Saylor’s NCCRS exams.

4. The four major credit by exam options considered were Excelsior’s UExcel, Thomas Edison’s own TECEP program, the College Board’s CLEP exams, and the United States Department of Defense’s Defense Activity for Non-Traditional Education Support (DANTES) DSST exams.

References


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Online training of teachers using OER: Promises and potential strategies

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Abstract
Teacher education nowadays needs a change in vision and action to cater to the demands of changing societies. Reforms, improvements, and new approaches in teacher education are an immediate need. Online training of teachers using OER has emerged as a new approach in this direction. This approach is based on the assumption that online training will facilitate mass training of teachers as per their convenience and ease and will be helpful in filling the huge gap in demand for skilled teachers. The other assumption is that being OER-based training, it will be easy to adapt it to different cultures and languages. Considering these assumptions, the present paper discusses about on-going initiatives of online training of teachers in different parts of the world; focuses on promises of using OER to make online training of teachers more relevant and up-to-date; and suggests potential strategies for effectively using OER for initial training and continuing professional learning of teachers in online settings.

Keywords: OER; Online Teacher Training; Open Educational Resources; Teacher Education

Background
Teacher education has gained special importance these days as teachers’ abilities and qualities are more and more being identified as decisive to students’ learning. The 11th Education for All Global Monitoring Report (UNESCO, 2014) makes it clear that good teachers are essential to enhance the quality of learning, and teacher education is important because of its impact upon teacher quality. Teaching is a complex and demanding intellectual work, one that cannot be accomplished without the adequate preparation (Eurydice, 2004). Adding to this, Menon, Rama, Lakshmi and Bhat (2007) suggest:

The demand for qualified and quality teachers has been continuously on the increase the world over. There has been an unprecedented expansion of school education especially in the developing countries, which has accentuated such a demand. Quite naturally, the teacher education programmes have acquired renewed significance (p. 1).

Echoing the same sentiments, a report from OECD (2005, p. 96) underlines, “teacher education is high on the policy agenda in many countries. Countries are seeking to ensure that teacher education is attractive to high-quality entrants, and that it adequately prepares teachers for the demands of modern schooling”. Beside these expectations, teacher education systems have to also take into account the ever emerging changes and challenges emancipating from society, economy and technology.

First and foremost among these challenges is the global shortage of teachers at the primary and lower secondary levels of education. The UNESCO Institute for Statistics projects that 1.6 million new teaching posts will need to be created to achieve universal primary education by 2015. This number will rise to 3.3 million by 2030. At the lower secondary level, which is compulsory in a growing number of countries, 3.5 million new posts will be needed by 2015, and 5.1 million by 2030. The problem is more severe in some areas than others, especially Sub-Saharan Africa. One-third
of countries in the region are suffering from teacher shortages. The need to recruit more primary teachers will intensify in coming days as the region’s school-age population grows (UNESCO Institute for Statistics, 2013). The UIS places about 902,000 of estimated 1.6 million positions (about 56%) in Sub-Saharan Africa. The lack of qualified teachers in these developing countries prevents children from receiving an adequate education, and therefore hinders the entire nation from developing culturally, scientifically, and economically (UTHSMUN, 2013). Besides, there are different patterns of teacher shortage in different countries like shortage of teacher in general (all type of schools, all types of teachers), or focused on certain subjects (mathematics, languages, etc.); locations (rural areas, impoverished neighbourhoods) or special kind of schools (special needs) (Musset, 2010).

The second challenge is that demands on teachers are becoming more and more complex. Talking about broader expectations and increasing demands from teachers across the globe, a document of European Commission (2007) illustrates,

As well as imparting basic knowledge, teachers are also increasingly called upon to help young people become fully autonomous learners by acquiring key skills, rather than memorising information; they are asked to develop more collaborative and constructive approaches to learning and expected to be facilitators and classroom managers rather than ex-cathedra trainers (p. 4).

Similarly, Darling-Hammond (2006) observes,

Teachers need not only to be able to keep order and provide useful information to students but also to be increasingly effective in enabling a diverse group of students to learn ever more complex material. In previous decades, they were expected to prepare only a small minority for ambitious intellectual work, whereas they are now expected to prepare virtually all students for higher order thinking and performance skills once reserved to only a few (p. 1).

In addition, teachers are also supposed to perform at many fronts like multicultural classrooms, students with special needs, use of information and communication technologies, evaluation, and interactions with the community and the parents (Eurydice, 2004).

Finally, the third major challenge is quality of training provided by traditional teacher preparation programmes, located within schools of education in colleges and universities. A report from the UK Department for Education and Skills (DFES, 2004, p. 4) points-out, “the quality of training a teacher receives affects their teaching throughout their career”. A study by Arthur Levine (2006) expresses a number of concerns about traditional teacher education programmes. Central conclusion of the study is that graduates of teacher preparation programmes are poorly prepared for teaching. Concerns also include low admission standards, fewer high-powered professors, and a disorganized teacher education curriculum. The study further asserts that as education schools sought to gain respect in the world of higher education, they focused on academic research instead of classroom practice and became isolated from K-12 schools where students are taught. As a result, prospective teachers are not given the tools needed to succeed in an environment where student achievement is the fundamental goal (Levine, 2006). Although these assertions have been controversial and are not universally accepted, widespread concern over flaws in teacher preparation has contributed to more discussion of the need to hold teacher preparation programmes accountable for the subsequent classroom performance of their graduates (Hightower, Delgado, Lloyd, Wittenstein, Sellers & Swanson, 2011).

Teacher education systems across the globe are expected to deliver in backdrop of all these expectations, changes and challenges (Misra, 2014). In other words, reforms, improvements, and new approaches in teacher education become imperative. Basically teacher education of today needs new approaches in terms of content delivery and mode of training. The reason is that the present generation of would-be teachers come from different social backgrounds, having different
learning experiences and they should be prepared to work in different educational settings. Online training of teachers emerged as a fit approach to support these new generations of teachers. Unlike a residential face-to-face course, learning online gives them flexibility to choose different learning styles, set own study hours and save money on travel and accommodation. Talking about online teacher training, Butrymowicz (2012) suggests,

At a time when brick-and-mortar teacher training programs are under fire, the burgeoning world of online teacher training has the potential to help or hamper efforts to improve public education. Internet classes could widen access to the profession and be a solution to teacher shortages.

Some online teacher training initiatives across the globe

Considering the potentials and benefits of online training of teachers, a number of initiatives have been taken across the globe in this direction. Georgia Department of Education offers a badge-based course named, Effective Online Teaching for instructors to master online teaching skills essential for educators to teach 21st century students. This course can be accessed by anyone anywhere and participants may earn a set of self-awarded badges for free or choose to have their work verified. Michigan State University’s Virtual University Design and Technology website offers text-based lessons for teachers in topics including pedagogy and best practices, online course content, enlivening techniques, course structure and design, and hybrid courses. The Learning to Teach Online project of College of Fine Arts from University of New South Wales is designed to support time-poor teachers in a practical and easy to access format. This project offers video and PDF-based episodes to examine specific successful online teaching strategies from many different disciplines, offering tips, guidance and pointing out the potential pitfalls to both novice and experienced online teachers. As another initiative, University of Pittsburgh discusses online course planning and design, interaction, giving students’ feedback, assessment, getting feedback from students, and new technologies.

Online instructors from Seven Pace University give their advice about being an effective online educator. To get this advice, one has to visit iTunes U’s Pace University page and select “Faculty Contributions” to access different useful videos. MERLOT (Multimedia Educational Resource for Learning and Online Teaching) provides a large, peer-reviewed collection of online curricula and other resources, as well as forums and publications aimed at online educators. One can search the MERLOT database for “distance learning” to find links to material to plan and design effective online classes. The Sloan consortium’s effective practices site acts as a useful source for educators to share techniques, strategies, and practices in online education that have worked for them. IH Online Teacher Training (OTTI) learning platform provides teachers with online teacher development courses. This platform has courses for every stage of a teacher’s career, from an initial pre-service qualification to DELTA level and beyond. A recent initiative in India, “Euro Varsity”, a virtual university aims at providing programmes to develop teaching skill sets. It uses the mode of e-learning, so that the teacher trainee can learn from home or any other place at their convenience.

In New York, NYU STARTALK program offers an intensive teacher training programme in Hindi and Urdu. This intensive, three-week blended programme is designed to enhance the knowledge and the skills of current and prospective school, community, and college teachers of Hindi and Urdu. The programme is taught partly online and partly on-site. Participants learn the most up-to-date, standards-based teaching methodologies and are required to develop, observe, and critique classroom procedures, strategies, and teaching techniques. While the ConnectED initiative in America, invests in improving the skills of teachers, ensuring that every educator in America receives support and training in using education technology tools that can improve student learning. Launched
in 2013, ConnectED initiative also aims to provide new resources for teachers from any school to open their classrooms to interactive demonstrations and lessons from world-renowned experts, and to collaborate with other educators worldwide.

Most of these online teacher training programmes, initiated in different parts of the world, work on the assumption that teachers need better tools and training to succeed in their profession and technology can play a central role. These programmes benefit teachers mainly in four ways. First, teachers who have work or family constraints can benefit from online learning. Second, online programmes are convenient for those teachers who live in crowded cities since travel back and forth to campus is no longer necessary. Third, teachers can choose different institutions that offer online programmes since physical distance is not an issue in the virtual environment. Fourth, teachers can obtain a broader perspective on various topics since they are able to interact with other teachers from same region, country or around the globe (Karber, 2001). In addition, An and Kim (2007) report that collaborative practices, recognition of the value of a supportive learning community, and new understanding of how to use online communication technology tools are three other most prominent benefits which teachers perceive about online teacher education programmes. In a nutshell, it can be argued that online teacher education programmes offer a number of opportunities to produce qualified and skilled teachers and above all help them to engage in career long professional learning.

On the other side, online training also faces a number of challenges. First among them is offering online initial teacher training to large number of teachers particularly in developing countries. The second challenge is to keep them professionally update by providing suitable learning opportunities for continuing professional development. And the third challenge is the comparability of the learning materials (text books, courseware, tools, etc) as online training providers have to make sure that the materials being used in the online course equals in quality the traditional one and that it has been well adapted to the online course (Li & Irby, 2008). Agencies promoting Open Educational Resources (OER) are of the view that online teacher training using OER can do well on all these fronts, as underlined in a call from the International Council for Open and Distance Education- ICDE (2013), Open, distance and online learning is rapidly expanding in universities and colleges in Africa and Asia, but faculty training has not caught up with the speed of development. Online training of teachers using OERs will facilitate mass training of teacher trainers, which again will facilitate trained teachers in filling the huge gap in demand for teachers in Africa.

This call further highlights, “by using OERs, courseware can be adapted to different cultures and languages”. In fact, using and adopting OER seems a fit approach to further boost the existing online teacher training initiatives in terms of training quality and content delivery.

**Promises of online teacher training using OER**

The Open Educational Resources (OER for both singular and plural use of the phrase) movement has gone from a small, grass-roots effort to a global mission supported by powerful educational, non-profit, and non-governmental organizations around the world (Wiley & Gurrell, 2009). Nowadays, organizations (UNESCO, OECD, European Union, COL, etc.), institutions (Universities, Colleges, etc.), and individuals are engaged in promotion, dissemination, and use of OER (Misra, 2013). In fact, OER has emerged as one of the most innovative teaching and learning practices as well as a cost-effective mechanism to improve the quality of educational offerings by optimizing the use of available resources (ROER4D, 2014). The vision behind the OER movement is that making
educational resources freely available to all is a fundamental right (Conole, 2012). Philosophically, OER are an extension of the open access initiative, as explained by Andersen and Ponti (2014),

Open access often refers to research articles that are freely accessible online, available for reuse as long as the source is accredited. OER, on the other hand, are teaching and learning materials, such as curriculum and course materials, released under open access license (p. 235).

According to Geser (2007, p. 12), “OER are understood to comprise content for teaching and learning, software-based tools and services, and licenses that allow for open development and re-use of content, tools and services”. Whereas, 2012 Paris OER declaration defines OER as,

Teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions (UNESCO, 2012, p. 1).

Clements and Pawlowski (2012) see OER as resources for the purpose of learning, education and training that are freely accessible. This includes literature and scientific resources (open access for education), technologies, and systems (open source for education), and open content (actual learning materials/contents) as well as related artifacts (such as didactical materials or lesson plans). However, definitions differ as to whether OER consists only of digital resources, whether it constitutes resources produced specifically for educational purposes and whether these resources should be in the public domain. Therefore, conceptually we can say that the distinguishing feature of OER when compared to other resources is the freedom with which it may be used, reused and repurposed thanks to its open license (Camilleri, Ehlers & Pawlowski, 2014).

The argument to promote OER supported online teacher training is based on the assumption that this type of training will facilitate mass training of teachers and will be helpful in filling the huge gap in demand for skilled teachers, particularly in developing countries. The other assumption is that being OER-based training, it will be easy for teachers across the globe to adapt these resources to different cultures and languages. Talking about the benefits of using OER for teacher training, Misra (2012, p. 3) argues, “use of OER for various teaching learning purposes can support teachers in many ways like making their teaching meaningful; accelerating changes in the traditional teaching learning process; and developing a culture of independent study among their students”. In a different note, the use of OER for online training of teachers will be a right approach to fulfill the vision of the OER movement where it is highlighted that the purpose of using OER in education is to enhance learning, notably a kind of learning that enables the development of both individual and social capabilities for understanding and acting (OECD, 2007).

Advocating for the use of OER in online teacher training and perceived benefits, Park (2009) suggests that OER training will help teachers to learn how to use OER according to its license status, and realize that the commons of open educational resources is vast and global, open to be adapted, derived, and remixed with other OER on the Internet. This training would enable teachers to see open courseware as part of a larger world of open materials and communities, rather than as an institutional initiative. While Misra (2012), suggests that OER can play a very significant role to prepare teachers to excel in their teaching profession and develop among them a number of competencies and practices for the benefit of teaching learning processes. Considering these promises, some institutions have already started to offer OER based online training for teachers. For example, The Community College Consortium for Open Educational Resources (OER) assists faculty who are developing online courses for community or junior colleges in finding and utilizing free online textbooks, learning modules, and creative commons resources for distance learning courses. Institute for the Study of Knowledge Management in Education (ISKME) offers teachers a collaborative professional development model centred on engagement with Open Educational Resources (OER).
Since 2009, ISKME has trained over 1,500 teachers from 25 countries in its programme focused on collaborative innovation and social learning using open curriculum and open teacher-led approaches. This programme focuses on developing and iterating on a model for professional learning for teachers that positions ISKME-facilitated peer-led engagement with OER as an innovative strategy for supporting creative collaborative practices for teaching and learning. Whereas Faculty of Education of University of Cambridge provides a register of OER providers in the teacher education area, links to OER search engines, and other aggregate sites. This initiative allows people to find a good number of OER related to teacher education resources. Similarly, The African Teacher Education OER Network is encouraging understanding, use, and sharing of Open Educational Resources (OER) to support teacher education and development in Africa.

Down south, the Teacher Education in Sub-Saharan Africa (TESSA) research and development network that was initiated in 2005 attempts to bring together teachers and teacher educators from across sub-Saharan Africa. The key objectives of TESSA are: to create a network of African universities working alongside The Open University, UK and other international organizations to focus on the education and training needs of teachers in Sub-Saharan Africa; to support the exploration and development of school based modes of teacher education in which teachers develop their competencies and skills to meet the need of pupils in their own classrooms; and to design and build a multilingual Open Educational Resource (OER) bank, modular and flexible in format, that is freely available to all teacher educators and teachers in the region. The unique feature of this initiative is that all TESSA materials are “Open Educational Resources” (OER) and available in digital format from the TESSA website and also on CD-ROM. This means these materials can be freely downloaded, adapted, translated and integrated with other materials in courses and programmes for teachers and teacher educators at no cost.

As another notable initiative, The TESS-India project is working towards improving the quality and quantity of teacher education in India. Initiated in November 2012, the project focuses on the professional development of teacher educators and teachers in the states of Bihar, Madhya Pradesh, Uttar Pradesh, Odisha, Karnataka, Assam and West Bengal. Considering that participatory teaching and learning practices are crucial to an enhanced classroom experience, this project mainly aims to encourage student-centered, active teaching and learning pedagogies at both elementary and secondary school levels across India. This programme also provides opportunities for continuous improvement of teacher professionalism, as well as improving the quality, relevance, and accessibility of resources. All these different initiatives establish two things: first, online training of teachers using OER offers various possibilities, and second, such types of programmes need to be advocated more to make higher impact on teacher education. The reason is that OER is a people driven initiative and has limited institutional support or backup. Whereas the established culture of academic and higher education institutions does not particularly foster the creation, sharing and re-use of OER (Geser, 2007).

**Potential strategies for online teacher training using OER**

A Report of the Working Group on Open Access and Open Educational Resources in India observes that “faculty development and teacher training is widely seen as the primary area that needs to be addressed in order to attain the benefits of extended access and quality through OER” (NKC, 2007, p. 5). Considering the benefits attached to online training of teachers using OER, it becomes imperative that main stakeholders and policy providers of teacher training, namely International organizations/institutions (UNESCO, COL, WORLD Bank, ICDE, European Union, etc.), governments, teacher education institutions, and teachers themselves must come together to offer and
promote online training of teachers using OER. This will certainly be a mammoth task requiring specific policies and interventions at different levels. In this backdrop, following specific strategies may be of some help to policy planners, organizers of existing OER based online teacher training initiatives, and all those who would like to use the potential of OER for improvement of teacher education:

(i) Making OER a part of initial teacher training curriculum

Initial training of teachers is instrumental for effective utilization of OER for teaching learning tasks, as suggested by Daanen and Facer (2007),

> If educators are to shape the future of education (and not have it shaped for them by external technical developments) it is crucial that we engage with developments in digital technologies at the earliest stages. We need to understand what may be emerging, explore its implications for education, and understand how best we might harness these changes (p. 4).

But studies show that OER are not yet known to all educators, and teachers lack awareness of how to best use OER for various educational purposes (Hoosen & Butcher, 2012; Arendt & Shelton, 2009). Chances for this lack of knowledge about OER and its application for various educational purposes are more for teachers taking initial teacher training from face to face mode teacher training institutions. Considering this scenario, the international agencies and governments are required to make efforts to introduce OER as part of existing teacher training curricula, particularly in developing countries. It can be assumed that understanding and knowledge about OER at an initial stage of their professional training will help teachers to use it throughout their careers for personal and professional development.

(ii) Establishing repositories of OER teacher training materials

In present circumstances, teachers are required to find and adapt efficient measures for learning about and using OER, which are bound to grow well beyond what they may envision today (Misra, 2012). But it is not always easy for teachers to search and find useful OER related to various aspects of teacher teaching. There are many reasons behind it, as observed by a research from JISC (2013) that main difficulties in finding open educational resources are lack of consistent metadata, use of differing APIs by repositories, lack of clear licensing information (so it is difficult to distinguish open educational resources from other digital content) and broken links. To overcome these problems, agencies and institutions at national and international levels are supposed to make efforts to develop local, regional and global repositories of OER teacher training material for teachers who are at different stages of their careers. These repositories will help teachers to search useful teacher training OER at one place and use them for their personal and professional development at different stages of their academic journey. Beside teachers, these repositories will also help teacher educators and teacher training institutions to identify useful OER and employ them for training of teachers in online settings.

(iii) Using OER based courseware for teacher training purposes

Like any traditional courseware, OER-based courseware also includes different types of contents and activities as part of larger learning modules or complete courses, depending on different educational needs. Traditional and OER-based courseware are both copyrighted unless someone decides to, in the context of OER, waive all their rights in which case it would fall into public domain. The main difference is that traditional courseware works on all rights reserved license terms, whereas, OER based courseware, uses a set of open licenses with creative commons licenses being
the ones most frequently used. Therefore, use of OER-based courseware presents a number of professional learning opportunities for teachers, like resources for classes/ self-directed learning/ training, web sites that offer interactive tutorials, material such as live classes conducted over the Internet, and videos for individual use or as part of classes (Jing, 2005). Keeping these benefits in view, different governments and organizations (UNESCO, OECD, European Union, COL, etc.), may suggest teacher training universities/colleges/ institutions to identify suitable OER-based courseware and deploy them as an integral part of the theoretical and practical tasks of teacher training.

(iv) Producing OER for teacher training in different local languages

The majority of producers of resources and OER projects are located in English-speaking countries in the developed world (OECD, 2007). The production of OER in English, therefore, creates a barrier to guaranteeing the universal use or understanding of content (Cobo, 2013). Rossini (2010) adds,

The language barrier should be added as an enormous socio-cultural barrier, since the vast majority of OER is in English and based on Western culture, limiting relevance outside Western culture. This further carries the risk of consigning developing countries to be placed in the role of consumers (p. 21).

This clearly indicates that OER in regional and local languages will be more useful to fulfill teaching learning needs of teachers. Initiatives like TESSA and TESS-India (Buckler, Perryman, Seal & Musafir, 2014) have some teacher training materials available as OER in various languages but much more is needed on this front. In addition to these regional initiatives, stakeholders must come forward to motivate and pursue experienced teachers and researchers, particularly from developing countries, to adapt and develop useful OER for teacher training based on local content, culture and language. These locally and indigenously adapted and produced OER will certainly help a large number of teachers to participate and get benefit of online teacher training activities.

(v) Initiating OER based continuing professional learning among teaching community

Continuing Professional Development (CPD) of teachers has become a major policy priority within education systems worldwide. Highlighting the importance of CPD, a report from OECD (2009) observes,

No matter how good pre-service training for teachers is, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers. Education systems therefore seek to provide teachers with opportunities for in-service professional development in order to maintain a high standard of teaching and to retain a high-quality teacher workforce (p. 49).

Echoing the same sentiments, Donaldson (2011) Review of Teacher Education in Scotland suggests “teachers should have access to relevant high quality CPD for their subject and other specialist responsibilities” (p. 75). OER based online training can help teachers a lot in this respect. For this purpose, stakeholders are required to come forward to undertake initiatives to train and motivate teachers to use a variety of quality approaches, tools and procedures which may be applied to OER (Camilleri, Ehlers & Pawlowski, 2014) for their continuing professional learning purposes. These OER driven initiatives will help teachers to learn on a continuing basis and keep them update as per social and professional requirements of the teaching profession.

(vi) Promoting OER supported online learning communities for teachers

All over the world, different communities, associations and organizations are working to improve teacher training practices. Parallel to these, OER supported online learning communities have also
been established for teachers under different initiatives like TESSA, TESS-India and The African Teacher Education OER Network. These establishments are supposed to act as a connecting link for teachers to fulfill their teaching learning needs by using online OER materials. It is supposed that these OER learning communities will act as a forum and open platform for teachers to learn, collaborate and promote their profession. Considering these benefits, it is essential and urgently needed that different national and international organizations and educational establishments come forward to promote these online OER learning communities among teachers. Besides, OER experts and organizations will also support teachers at different schooling levels to join, contribute and promote these communities. Concerned teacher education agencies must also run campaigns, advocating for and advising teachers that association with these online learning communities will help them to showcase their expertise and experiences for the development of new OER for teacher training and sharing many useful professional practices on a collaborative basis.

**Conclusion**

OER are seen as a means to help people across the globe to acquire the competences, knowledge and skills needed to participate successfully within the political, economic, social and cultural realms of society (Geser, 2007). Regarding the possibility of using OER at various levels of education, Perraton (2010) observes,

> As one of the constraints on the development of open and distance learning is the need to invest in the development of teaching materials, there is a case for the sharing, or cooperative development, of materials. They can be used both for open and distance learning and as resources within conventional teaching institutions (p. 8).

Online training of teachers using OER is an extension of these viewpoints in particular for promoting innovation and bringing qualitative and quantitative improvements in existing teacher training practices and approaches. We can hope that implementation of proposed strategies for OER supported online teacher training will help teacher education providers in different countries to produce proficient, competent and skilled teachers, and these teachers will ultimately ensure the maximum benefit of open educational resources to improve teaching-learning processes and above all to help learners to reach their fullest potentials.

**References**


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