Final Report: Ref: CEMCA/Higher Education/06-01-023/Budget Code: 18-ED1-262

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Submitted to: Dr. Manas Ranjan Panigrahi (Program Officer, CEMCA), (mpanigrahi@col.org);
R. Thyagarajan (Head, Administration. & Finance, CEMCA) (rthyagarajan@col.org).

Re: Expert Support on Design, Development of a Massive Open Online Course for Continuous Professional Development (CPD MOOC) for educators on "Adoption of Open Educational Resources (OER) and Open Educational Practices (OEP)".

Phase I (September 2017 – July 2018) - Design and Development of the CPD MOOC (4 Mini MOOCs).

1.0 Statement of Work

1.1. The Consultant shall be responsible to:

- 1.1.1. Provide expert guidance in re-designing the existing five (5) Modules of the OEReL course into 4 mini MOOCs of the CPD MOOC – OER-OEP
- 1.1.2. Online/Virtual facilitation of the design and development of 4 mini MOOCS on CPD MOOC (Engage in 1 virtual meeting per month)
- 1.1.3. Support training of resource persons of the 4 mini MOOC Teams
- 1.1.4. Provide timely and regular feedback to the mini MOOC teams, research team and the program coordinator on all aspects of the design and development process.
- 1.1.5. Prepare and conduct a 4-day workshop for mini MOOC teams to revise and finalize 4 mini MOOCS of the CPD MOOC OER-OEP
- 1.1.6. Review the designed 4 mini MOOCs of the CPD MOOC OER-OEP
- 1.1.7. Provide expert guidance in the conduct of related research activities
- 1.1.8. Submit a comprehensive report covering the outcomes of the consultations and workshops

2.0 Deliverables and Timeframe

2.1. The Consultant shall begin the consultancy by 01/10/2017 and complete the work by 31/05/2018, including 20 full time equivalent (FTE) days (14 days virtually, 4 days' workshop and 2 days' workshop preparation), with the following specific deliverable and timeline:

- 2.1.1. Online/Virtual facilitation of the design and development of 4 mini MOOCS on CPD MOOC (Engage in 1 virtual meeting per month) and submit a report on the progress of the MOOC development before finalization workshop by **1st week of January 2018.**
- 2.1.2. Prepare and conduct a 4-day workshop for mini MOOC teams to revise and finalize 4 mini MOOCS of the CPD MOOC OER-OEP in the month of **January 2018** and submit a workshop report within a week of completion of the workshop**.**
- 2.1.3. Submit a comprehensive report covering the outcomes of the all activities of the design and development of 4 mini MOOCS on CPD MOOC along with research outputs by **2nd week of the May 2018.**

Introduction

This report supplements the final project report that is being submitted by Professor Shironica Karunanayaka who is the project leader based at OUSL. That final report contains complete details including the products of the work carried out under my guidance. It includes programs and schedules of all the workshops, timelines of various activities, people involved in those activities and evidence of the work done. This report contains my unique contributions to the project which have included the conceptual design of the MOOCs, the design of its research, assistance with publications based on the work and my impressions of the work that was carried out.

Design of this project

Two Identifying features of this project have been the following:

1. *Use Scenario-Based Learning for the design of the four MOOCs; and*
2. *Use of Design-Based Research in the conduct of the research associated with this project.*

What is scenario-based learning?

(**Adopted from:** Naidu, S. (2010). Using scenario-based learning to promote situated learning and develop professional knowledge. In E. P. Errington (Ed.), *Preparing graduates for the professions using scenario-based learning*, (39-49), Brisbane: Post Pressed.)

Scenario-based learning is about using a scenario to situate all learning and teaching activities. A scenario encapsulates one or more events and the context within which these occur. Scenarios can be real or contrived. Their value lies in their affordances – that is, the opportunity they present for situating and contextualizing all learning and teaching activities. In doing so, scenarios provide a context to anchor and ground the facts, principles and procedures that need to be learned and taught. Carefully articulated scenarios also provide a scaffold for all learning and teaching activities.

Another way of articulating scenario-based learning is to see it along problem-based learning. Scenario-based learning is similar to problem-based learning in many ways (see also Errington, 2003; 2005). Both models offer learning and teaching the same sorts of affordances. The one small difference between them is that, unlike scenario-based learning, problem-based learning needs to have at its core a problem which the learner needs to resolve. In scenario-based learning, a scenario captures a context with all its richness and complexity and the learner is prescribed a goal to accomplish. In this manner, scenario-based learning is *goal-based* rather than *problem-based*.

Developing scenario-based learning

The design and development of scenario-based learning for learning and teaching follows the following steps (see also Naidu, 2004).

1. *Identification of the key competencies for practitioners.* This first step in the process involves identifying the key competencies that a practitioner in the profession needs to possess. If, for instance, tertiary teaching is the targeted area of professional practice, then we need to identify what are those things that tertiary teachers should be good at. What are their core competencies? What should they be able to do with ease, almost automatically?
2. *Articulation of the learning outcomes for the learners.* These clusters of key competencies once they have been identified will need to be validated in order to ensure that there is agreement on them as a true representation of the skills set of the practitioners in the profession.

These validated competencies will form the basis for the development of the *learning outcomes* for your learners. Let us assume, for instance, that a cluster of key competencies for tertiary teachers is about being a reflective practitioner. What would be the appropriate learning outcomes for your students for this set of competencies, given that learning outcomes for your students are desirable activities and demonstrable behaviors in the context of their training to be an effective reflective practitioner in tertiary teaching? An appropriate learning outcome would be something like this, "demonstrate ability to integrate continuous quality improvement strategies in your teaching".

3. *Identification of key events in the life of a person who has accomplished these outcomes.* The next step in the process is to identify events in the life of the practitioner who demonstrates competency in these skills. What are those things that this professional can easily do?

   Knowing what such professionals can do in relation to these competencies is critical, as these are the events that will help you develop a suitable scenario. The scenarios that you choose or develop need to comprise many of these sorts of events in order to make the learning and teaching process relevant, authentic and meaningful. The scenario is the training ground for your learners and they need to reflect professional practice as adequately as possible.

   As an example, in this instance, a tertiary teacher will be involved in events which are aimed at getting them to reflect on their teaching. These events may include developing a survey tool to gather feedback, or keeping a portfolio of their reflections on their teaching. The scenario you develop or use for your teaching will need to comprise these events.

4. *Identification of the main steps or processes that practitioners take to work through these events.* The aim here is to break down the events in the life of an accomplished or expert practitioner, in the form of the processes that they would adopt. This is critical because your goal is to emulate best practice. You want to teach your students how to do something most efficiently and effectively. This is why you need to get a very clear idea of what expert practitioners do.

   So how does an expert reflective practitioner go about building a portfolio? What comprises that process and what are the steps in that process?

5. *Development of a scenario with the variety that will offer scope for learners to learn the steps and/or processes outlined in Steps 3 and 4.* Now you are ready to develop a scenario that you know will afford the best opportunity for your learners to acquire those same sorts of competencies that you identified for your expert practitioner.

   The development of a suitable scenario is still not going to be entirely plain sailing even after you have followed the above steps precisely. The development of a great scenario is a creative process and it will only come about with hard work and a great deal of perseverance.

   Still, do not aim to develop a masterpiece every time you sit down to develop a scenario for your teaching. Once developed, a scenario is open to review and revision based on how you and your students thought about it during your teaching.

6. *Development of the learning tasks and assessment activities that learners will be required to complete within the context of this scenario.* Your learning scenario is not complete until it has embedded in it a clear role or goal for your students. What are your learners required to do in this scenario?

   Depending on how you may have developed your scenario, you might have prescribed a mentoring role for your students which require them to scaffold the learning experiences of others in the scenario in

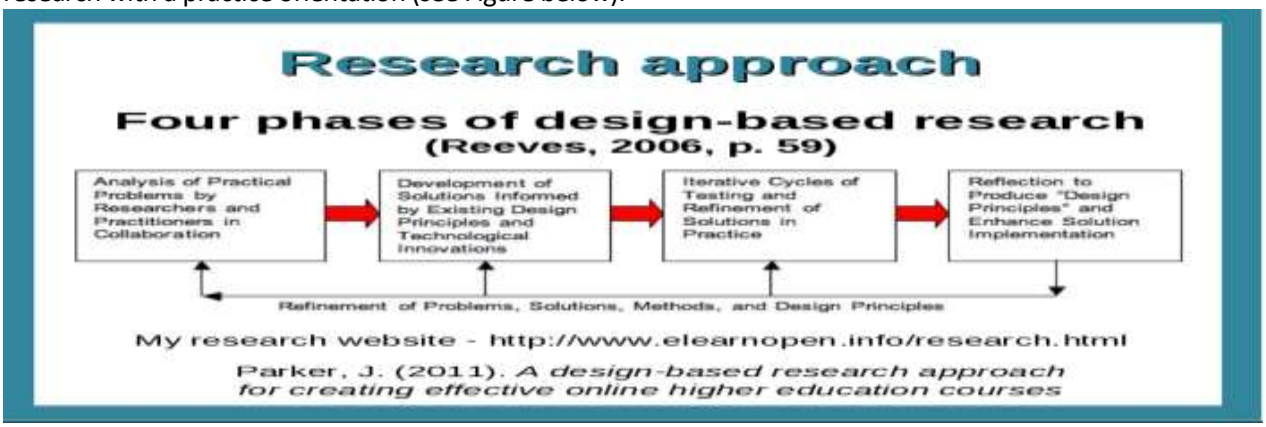
order to demonstrate to you their competency in reflective practice. So what does that mentoring role include? It may include developing a framework for a portfolio.

Some of these activities could be considered as part of the formal assessment requirements for your students, and which would attract marks like that which an assignment would attract. Except that, in this case, notice how relevant and meaningful this assessment task can be for the students. It is not something rather meaningless that they are required to do in order to fulfil the assessment requirements in their course. It is actually something that they would be able to use themselves, when they enter the teaching profession. And not all of these learning activities need to be formally assessed. Some of them may be designed to only attract feedback from teachers, tutors and student peers.

Design Based Research

(Adopted from: Collins, A., Joseph, D., & Bielaczyc, K. (2004). Design research: Theoretical and methodological issues. *The Journal of the Learning Sciences, 1*3(1), 15-42.
Bell, P. (2004). On the theoretical breadth of design-based research in education. *Educational Psychologist, 39*(4), 243-253.)

Design Based Research is a methodological approach that allows for both the evaluation of an educational design in an authentic context, as well as the collection of data which may inform the validity of the theoretical underpinnings of the design, and consequently it can be an attractive approach for educational technology research with a practice orientation (see Figure below).



http://dbr.coe.uga.edu/tutorial.htm

The term "design experiments" was introduced in 1992, in articles by Ann Brown (1992) and Allan Collins (1992). In the 1990s there was a movement to develop a new methodology for carrying out studies of educational interventions under the labels "design experiments" or "design research". Design based research as a methodology was developed to address several issues central to the study of learning and teaching, including the following:

- The need to address theoretical questions about the nature of learning in context.
- The need for approaches to the study of learning phenomena in the real world rather than the laboratory.
- The need to go beyond narrow measures of learning.
- The need to derive research findings from formative evaluation.

Scenario-based learning was used in the design of the 4 MOOCs on OER-OEP and DBR (design-based Research) was used to collect data on the process.

The Development of CPD MOOCs on OER and OEP

(**Adopted from:** Naidu, S. (2016). The case for open educational practice, *Distance Education, 37:1,* 1-3, http://dx.doi.org/10.1080/01587919.2016.1157010).

Open educational practice comprises a lot more than *free* and *open access* to educational resources, although that is most certainly an important part of it. Open education is best seen as an omnibus term that has many dimensions including the following critical attributes:

1. *Open access:* Inclusive and equal access to educational opportunities without barriers such as entry qualifications and ability to pay. *Value principle:* All lives have equal value.
2. *Open learning*: Ability to study and learn at anytime, anywhere and at any pace. *Value principle:* Freedom and the flexibility to choose the mode, medium, time, place and pace of study.
3. *Open scholarship*: Releasing educational resources under an open license that permits no-cost access, use, adaptation and redistribution by others. *Value principle:* Education is a basic need that should be accessible to all, if we were to achieve education for all towards a path to real freedom, justice and equality (Sen, 1999).

It is this third aspect of openness that was part of this project. The goal of this project was to develop a professional development program for practitioners in the field of open learning and who might be grappling with issues surrounding open educational resources (OER) and open educational practice (OEP) more broadly. And to do this with the help of a MOOC on OER and OEP

Massive Open Online Courses (MOOCs) are a notable development in the open education space. However, most contemporary MOOCs are very content centric and focused on the "delivery" of a body of subject matter content to learners. We believe this is not very different from a straight-forward lecture.

In this project we sought to develop a different kind of a MOOC—one that is scenario-based and which uses videos to situate the learner in authentic learning situations for meaningful learning to take place. The subject matter content in these MOOCs is presented as open educational resources (OER) to support the learning opportunities presented in the videos.

Research and Scholarly Outputs from the Project

The design of these scenarios in line with the scenario-based learning framework has been a challenging process. And these have been developed under my guidance and reported in several articles and presented in various fora. Brief snips of these are captured below.

Conference paper and journal article

1. A conference paper based on this work was developed and presented at the *OEGlobal 2018 Conf*erence in Delft, Amsterdam (https://conference.oeconsortium.org/2018/)

2. That same paper was selected and subsequently published in the journal *Open Praxis* (https://openpraxis.org/index.php/OpenPraxis/article/view/826

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Designing Continuing Professional Development MOOCs to promote the adoption of OER and OEP

Shironica Priyanthi Karunanayaka, Som Naidu, J.C.N. Rajendra, S.A. Ariadurai

Abstract

There is growing interest in the adoption of open educational resources (OER) and open educational practices (OEP) in a variety of contexts. Continuing professional development (CPD) among practitioners in the effective adoption of OER and OEP is critical in this scenario. Massive open online courses (MOOCs), which also grew as part of the open education movement, provide a feasible means for this purpose. MOOCs are considered a 'disruptive innovation' in making free and open learning opportunities accessible to large numbers. Yet, the design of an effective massive online course that is as robust as a great online course with smaller student numbers where good principles of teaching and learning are maintained, is very challenging. Most contemporary MOOCs tend to have a content-driven focus of knowledge transmission, deviating from its original focus of knowledge generation. With the intention of providing learning experiences to promote learner engagement with OER, rather than presenting content about OER, we designed four CPD MOOCs to support the integration of OER and adoption OEP by practitioners based on a scenario-based learning (SBL) approach. This paper presents the analysis and design phases of this process, discussing the challenges faced and innovative strategies adopted in our pursuit to answer the question, "How best to design effective MOOCs on OER and OEP for continuing

3. A book chapter is currently being developed for publication by Springer.

Book Chapter: Orchestrating Shifts in Perspectives and Practices about MOOC Design

MOOCs and Open Education across Emerging Economies: Challenges, Successes, and Opportunities
Book Project for Routledge by Ke Zhang, Curtis J. Bonk, Thomas C. Reeves, and Thomas H. Reynolds
Part 4 - Paradigm Shifts in Teaching and Learning.

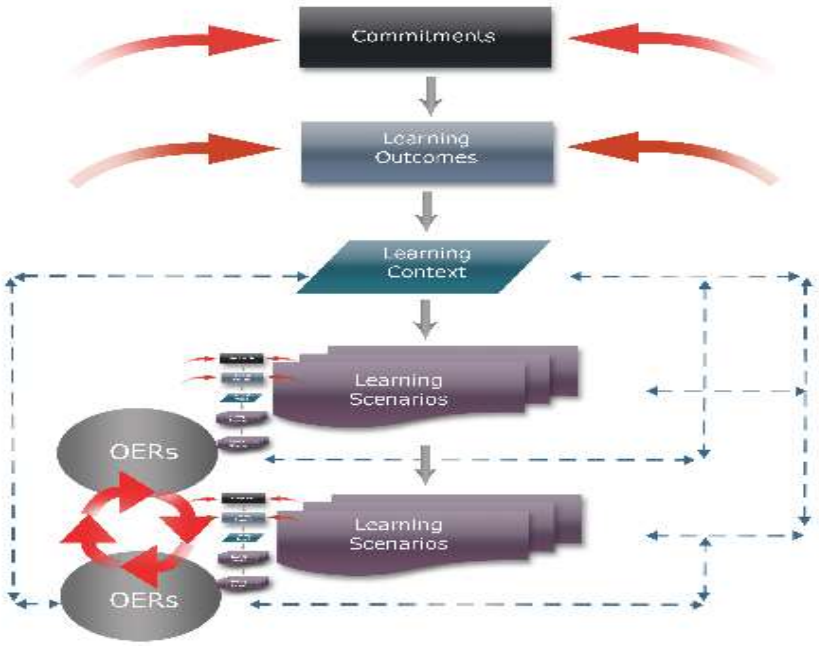
Authors: Som Naidu & Shironica Karunanayaka

The challenge. Paradigm shifts in teaching and learning require a fundamental rethink of our approach to the design of learning and teaching experiences. Generally when asked to teach something we begin by asking what is it that needs to be taught. And start to research what the topic is about, how others have approached it and start teaching it from simple to complex principles. The problem with this approach is that it is a *content centric* approach designed to teach learners the subject matter content. And when that is done, students know it all, they are often left answering the question – So now what? Now that I know all of these facts, principles and procedures, I am not sure if I can apply this content knowledge in any setting, because I have not learned how to do so. Many are then left to muddle through work by direct experience only after we have entered the work force. It is not surprising then, why at interviews we often get asked, what work experience we possess because it is assumed that all we will have been doing at school is learning the subject matter content.

The first generation of MOOCs have replicated this approach to learning and teaching. Despite their grounding in constructivist principles, and their promises for democratizing learning, MOOCs, so far, have generally failed to live up to their expectations. In fact most of them fail to meet the minimalist expectations of good teaching and learning practices. Most of them demonstrate models of conventional lecture-based practices, with limited or no interactions with students, and disregarding the existing good principles of online learning. They are being developed with a highly content centric focus, mostly using video-based lectures, promoting an outdated model of teacher-centered learning.

The promise. There is an alternative and a better way to design MOOCs. It promises to teach the learner the subject matter, but also how to apply that subject matter in typical settings, such that at the end of this learning experience, the student has both, subject matter knowledge and how to apply that knowledge in real world settings. This is not the same as workplace-based learning or work-integrated learning which requires learners to be placed in the workplace for periods of internship. This alternative approach is about not starting with the content but the *context*, and asking what is that we want the students to be able to do, what are our commitments to them, and what are their learning outcomes. And from there designing a learning experience that will be able to offer that internship in solving real world problems as part of their learning process, and not after it.

The Learning Engine. This is a radical paradigm shift. But this kind of shift in perceptions and perspectives about teaching and learning does not and will not happen easily without careful rethinking. It requires a great deal of structure and guidance and orchestration of that process. This chapter will describe the development of such a process that is based on thinking around general systems theory. It draws on thinking around how systems function to propose an engine for the design of the learning and teaching experience, which forces teachers and designers to start where the learner is at and not the content is at. We have called this a "Learning Engine", the back bone of which is the design of the learning experience and where the subject matter content serves as fuel for the designed learning experience (see figure below).



The "Learning Engine" framework (Naidu & Karunanayaka, 2014)

In this chapter, we will briefly describe this framework, its development and how it has been used to shift perceptions and practices of developers of MOOCs. We will do this with reference to the design and development of a MOOC on the continuing professional development of teachers on open educational resources and adoption of open educational practices by educators and students in the South Asian region, foremost, but internationally as well. This MOOC is being developed at the Open University of Sri Lanka with the sponsorship of the Commonwealth of Learning via the Commonwealth Educational Media Center for Asia in Delhi.

The orchestration of such significant shifts in mindsets is a creative process. And it requires the development of learning scenarios and learning and assessment tasks constructively aligned with the learning outcomes as well as integration of appropriate learning resources. Especially important is the careful selection of learning resources to support learners, depending on the learning scenario, and requirements in the tasks necessitates integration of a variety of OER, at various levels, in diverse ways, ensuring coherence and integrity. We discuss how we approached this process and its challenges.

Reflections and Concluding Remarks

- It has been a great pleasure working on this project with the team at OUSL.
- The four CPD MOOCs that we have developed are a significant departure from, and an improvement on contemporary approaches to MOOC design.
- We are eagerly looking forward to its implementation and evaluation.

Som Naidu
'CONSULTANT' and Research Team Member.