An Authentic Online Community of Learning Framework for Higher Education: Development Process

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Abstract: A key challenge for higher education practitioners is to identify how to construct more engaging online environments that promote key learning skills and encourage self-directed learning. This paper discusses a study that investigated how online university courses could be designed to be more engaging. The study employed a design-based research approach in the form of an interpretive, qualitative study. A draft framework was developed to guide the design of the course and three iterations of the course were implemented and evaluated. Findings suggest that the framework was a successful alternative to models frequently used to develop online courses and provided learners with greater flexibility and control over their learning. The final model and the accompanying guidelines may provide both practical and scientific contributions to existing knowledge for designing and implementing sustainable online learning within a learning management system.

Keywords: authentic learning, online learning, higher education, community of inquiry, design principles

Introduction

A current trend within higher education is to deliver online courses via learning management systems (LMS) (Pugliese, 2012). Many presumed the LMS would act as an agent of pedagogical change to transform passive teacher-centred information delivery models into “broadly accessible student-centered, interactive learning model[s] based around learning networks, interactive and collaborative technologies and communities of practice” (Wise & Quealy, 2006, p. 899). However, this potential has largely not been fulfilled and there is still a significant gap between the constructivist philosophy of online teaching and its translation into practice (Koh, Chai, Wong, & Hong, 2015; Lambert & Cuper, 2008; Maor, 2003; Oliver, 2005).

Lack of online pedagogical and technological skills and knowledge has caused many teachers to simply dump large tracts of information into online courses (Lambert & Cuper, 2008; Maor, 2003; Rotherham & Willingham, 2010; Weigel, 2005). This has led to student boredom and isolation (McCombs & Vakili, 2005), resulting in high dropout rates and pleas for richer and more engaging learning experiences (Kim & Bonk, 2006; Maor & Volet, 2007). Online teaching is not a simple task for most educators and many faculty members earned their degrees in an era that used more traditional technologies such as projectors, chalkboards and emails (Bonk, Krickley, Hara, & Dennen, 2001; Omar, Kalulu, & Aljani, 2011). Therefore, it is not surprising that educators lack the knowledge, skills and confidence to integrate technology effectively into their online courses (Koehler & Mishra, 2009).

To create quality online learning experiences, educators need to have good technological, pedagogical and content knowledge—known as TPACK (Mishra & Koehler, 2006) as well as good planning, management and moderating skills (Bonk et al., 2001; Kim & Bonk, 2006; Maor, 2003).

Social interaction, communication and collaboration are also critical factors for effective online learning within a social constructivist, learner-centered environment (Muirhead, 2004; Stewart, Bachman, & Babb, 2009). Therefore, online educators also require the skills and knowledge to manage the social, cognitive and teaching processes (Garrison, Anderson, & Archer, 2000; Gregory & Salmon, 2013) and to develop strategies to monitor, guide and nurture the online community (Maor, 2007).
The purpose of this paper is to describe how a design-based research study (Parker, 2015) was employed to develop and refine a framework for designing and implementing more interactive and engaging online courses. A design-based research (DBR) approach was selected to guide the study because of the alignment of this approach with the overall aim of the study to improve existing online learning practices. The aim of the research study was to determine the effectiveness of a purposely-designed online professional development course based on *Principles of Authentic Learning* (Herrington, Reeves, & Oliver, 2010) and *Community of Inquiry* (Garrison et al., 2000) components.

**Methodology**

Design-based research is a fairly new research methodology that has the potential to, “bridge the chasm between research and practice in formal education” (Anderson & Shattuck, 2012, p. 16). Design-based research is also commonly referred to as design research, development research and design experiments (van den Akker, Gravemeijer, McKenney, & Nieveen, 2006).

Several models of design-based research exist; however, Reeves (Reeves, 2006) four-phase design-based research model (Figure 1) was selected to guide the conduct of the study, as it is the only model specifically designed to accommodate technological affordances.

![Design-Based Research](image)

**Figure 1**: Four phases of design-based research

An overview of how the four phase design-based model was applied to this study is shown below in Figure 2.

![An overview of how the four phases of design-based research were applied to this study (Parker, 2015)](image)

**Figure 2**: An overview of how the four phases of design-based research were applied to this study (Parker, 2015)
Qualitative data collection and analysis methods were used to allow detailed information to be collected from participants (with ethical approval) about their experience with the authentic learning environment and tasks. Data was coded and analysed using Glaser and Strauss’s (Glaser & Strauss, 1967) constant comparative method of qualitative analysis (Figure 4). This joint coding and analysis method enabled data to be systematically categorised and analysed so that participant responses could be grouped into relevant themes to facilitate comparison and analysis. Data for each participant was coded separately using a pseudonym.

Analysis of the problem

During Phase 1 of the study informal consultations with practitioners involved in designing and implementing online higher education courses and an extensive literature review were conducted. The objective was to explore the current online learning landscape and to identify reasons for the slow uptake of constructivist approaches in higher education.

The discussions revealed practitioners wanted to create more interactive and engaging online courses. However, they faced a range of issues that hindered their adoption of constructivist learning approaches. For example: lack of professional development opportunities to learn about online pedagogies and instructional design strategies, learning management system constrictions, students lack of self-directed learning skills, lack of time to explore new technologies, lack of student interaction with content, peers and tutor, better access to more flexible learning options and resources, lack of recognition and time for designing and delivering quality online courses and limited opportunities to network and exchange ideas with their peers.

The literature indicates the above issues were also of concern to the wider educational community. Research suggested providing educators with a range of flexible learning options that focus on pedagogy as well as technology use could help them understand how real-life learning approaches can be implemented effectively within rigid learning management systems (Oliver, 2005). Keppell (2006), McLoughlin and Maor (2005) believe immersing educators in the desired learning environment has the potential to change their existing teaching practices.

A possible solution for improving the quality of online learning in higher education—that was tested in this research project—was to create an online professional development course. The aim of the course was to immerse practitioners in an authentic online community of learning environment so they could experience online learning from a student perspective, learn how to implement the authentic online learning framework, explore and use new technologies and network with other practitioners.

At the end of phase 1 an overall research question and two secondary questions were identified to guide the study.

Research question: Can immersing higher education practitioners in an authentic learning environment assist them to create more interactive and engaging online learning experiences within a learning management system?

Secondary research questions:

1. In what ways do the components of social, cognitive and teaching presence facilitate the design and delivery of authentic online courses within higher education?

2. How effective is an authentic online learning framework in encouraging practitioners to implement new pedagogies and technologies within their own online courses?

Design and development of the solution

During Phase 2, the proposed solution—a 5-week online professional development course for higher education practitioners—was designed and developed. An in-depth review of the literature was conducted to identify potential design principles to inform the draft framework (Figure 3) used to guide the design and development of the course.
**Learner needs:** The overall objective of the course was to assist participants to plan and design more engaging online learning experiences for their field of study. The target participants were higher education practitioners either already involved in designing and delivering online courses within higher education or educators that would like to learn how to redesign an existing face-to-face course for an online environment.

**Authentic task:** Participants were required to develop or revise a course outline based on the authentic online learning framework to demonstrate achievement of the course learning objectives. To scaffold the learning, the overall task was divided into sub-tasks (see Figure 4).

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**Figure 3:** Draft framework - Authentic online learning (AOL)

**Figure 4:** Iteration 3 - Mapping of learning objectives with tasks
Learning resources and supports: The core elements of the CoI model (Garrison et al., 2000)—social, cognitive, and teaching presence—were used to assist the selection of resources and supports for the course. The learning resources were primarily a combination of links to existing open educational resources (OERs) created by experienced educators (e.g., links to suggested articles & tutorials) and contextualised materials created by the facilitator (e.g. task instructions, timelines, sample completed tasks & videos) that were licensed for reuse. A key reason for using OERs was to provide participants with ongoing access to valuable resources that they could use in their own teaching beyond the course itself. Online social spaces to support student learning included a Skype chat group, a Diigo social bookmarking group, student created blogs and a Google Drive folder.

Authentic learning environment: The online course was delivered using a Moodle learning management system (LMS), known as the Authentic eDesign course, and an open Google Sites companion website, called the Technology Toolbox for Educators. Figure 5 illustrates the key features of the learning environment. Participants first logged into the LMS using a participant ID and password. From the LMS they were then able to access the companion website and a range of online social spaces on the World Wide Web, as indicated by the large block arrows. By the end of this phase the course was ready for implementation and testing.

![Course 3 Structure](image)

Figure 5: Iteration 3 - Course structure

Iterative cycles of testing and refinement

One of the major features of a design-based research approach is implementing iterative cycles and gathering data to improve the intervention. The course was implemented three times over a two-year period. Data was collected using multiple methods: participant background questionnaire, prospective teaching questionnaire, anonymous course evaluation questionnaire, facilitator reflections, participant interviews and participant artifacts and comments made during the normal progression of each course (e.g., LMS forum posts, blog posts, Skype chat messages, Diigo comments, email correspondence).

Data collected from each iteration was analysed and modifications were made to the course before subsequent iterations were implemented. The data collected from all iterations provided feedback on not only the design of the environment itself, but also the principles that informed the design.
Findings & design principles

The final stages of the design research project is where researchers report the findings of the study and reflect on the entire process to produce design principles for enhancing future implementations. Resulting design principles and guidelines are significant for teachers and instructional designers as they can be used to inform the design of educational learning environments that, in turn, can facilitate student learning.

The findings related to the social, cognitive and teaching presence aspects of the study, assisted the researcher to answer sub-research question 1: In what ways do the components of social, cognitive, and teaching presence facilitate the design and delivery of authentic online courses within higher education

The findings indicate that all three presences are essential for creating an effective authentic online community of learning experience (cf. Parker, 2015). Following is a summary of how these elements can contribute to the design and delivery of an authentic online course:

- Selecting activities and technologies that help to support social communication and collaboration can assist in the development of a community of learning
- Selecting a meaningful real-life task that challenges and engages learners is critical for developing cognitive engagement
- Including opportunities for learners to collaboratively construct knowledge, use technologies as cognitive tools, access a variety of open educational resources and share their thoughts and ideas about the course content can assist them to assimilate new information and construct personal meaning and mutual understanding
- Teaching presence aspects such as: the design of the learning environment, course management, facilitator support, coaching/scaffolding, and the selection of learning materials, resources and supports, all contributed to participant success in the online environment

The impact analysis provided evidence to enable the researcher to answer sub-research question 2: How effective is an authentic online learning framework in encouraging practitioners to implement new pedagogies and technologies within their own online courses?

The educators interviewed after the course confirmed that they effectively implement new pedagogies and technologies within their own online courses as a direct result of participating in this study (cf. Parker, 2015). Thus, it appears the authentic online learning framework used to design the course, was an effective model for encouraging practitioners to consider new ways of teaching and learning in their online courses.

The culmination of the findings assisted the researcher to answer the overarching research question: Can immersing higher education practitioners in an authentic learning environment assist them to create more interactive and engaging online learning experiences within a learning management system?

The study found that immersing educators in the authentic learning environment they were learning about provided crucial links between theory and practice that has the potential to change their existing teaching practices. The following comment is just one example of how this authentic learning approach has changed an educator’s view of online learning and teaching:

I have won a teaching excellence award and a citation and so I think I can say that I am a good teacher. However, this course has revolutionised the way I think about teaching and learning. I will never approach teaching and the online environment in the way that I did prior to the course. I am equipped with new questions to ask, criteria against which to measure my units, technologies to use and explore and a model of what can be possible in the online environment. My horizon has been widened and I feel that I have made a paradigm shift as an educator (Respondent 1-3, #40).
The draft framework provided a solid foundation for designing and implementing the online course. However, during the study it became apparent that minor modifications could be incorporated to improve the participants’ understanding of how to apply the framework. The final model, shown below in Figure 6, was named the authentic online community of learning (AoCoL) model to highlight the importance of student interaction in an authentic online learning environment.

Figure 6: Authentic online community of learning (AoCoL) model

The six principles for designing an authentic online community of learning that emerged from the study and are evident in the model include:

- **Learner needs**: Provide opportunities for students to develop and demonstrate higher-level learning outcomes
- **Authentic tasks**: Create authentic tasks and assessments that reflect real-work/life situations
- **Community of Inquiry (CoI)**: Select social, cognitive and teaching pedagogies, technologies and other resources to support student learning
- **Authentic learning environment**: Develop an environment that embraces the principles of authentic learning
- **Meaningful learning with technology**: Incorporate technologies that can assist learners with meaningful cognitive engagement and social interaction
- **Open educational resources**: Provide access to a variety of open educational resources to extend learners existing knowledge and skills.
The above design principles are not intended to be a recipe for success but rather, a guide to assist others to select and apply the most relevant insights to their own contexts.

Conclusions

A lack of engaging online learning is particularly evident within the higher education sector where learning management systems (LMS) are often used as information delivery vehicles rather than as environments that facilitate constructivist learning (Hodges & Repman, 2011; Lane, 2008; Weigel, 2005). Using a bottom up approach to encourage practitioners to employ more authentic, interactive and engaging learning strategies in their own courses was identified as a potential solution for changing existing online teaching practices (Maor, 2003; Oliver, 2005).

The study revealed that the Authentic eDesign course had a positive impact in encouraging educators to use more interactive and authentic strategies in their online courses. In addition, a range of open educational learning materials and resources were developed to support the study and licensed under Creative Common licenses so that they may also be of benefit to the wider educational community. For example, since its inception, the Technology Toolbox for Educators website has been used by other educators and hundreds of university students studying to be primary or secondary school teachers (cf. Herrington, Parker, & Boase-Jelinek, 2013).

The culmination of this work produced a practical model (AoCoL) and identified six learning design principles that may assist practitioner to design and implement more interactive and engaging learning experiences using a learning management system. However, no one size fits all, and so instructional designers, lecturers and students must judge the applicability of the findings and recommendations to suit their own learning situations. It is expected that the model will continue to evolve as more practitioners implement it within their teaching areas.

References


