Experience Gained From Applying a Team-Based Approach for MOOC Development

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ABSTRACT

Massive open online courses (MOOC) constitute an emerging technology for distance and open education while interest in incorporating them in higher education is constantly growing. Due to the free and open access learning opportunities that they offer, they attract an immense number of learners from all over the world. Additionally, because of their openness, they present major challenges, including network co-creation within communities and new forms of communication and collaboration for both students and educators. In this article, the authors present a methodology for a team-based development of MOOCs with the use of a recognized design model that they applied in Hellenic Open University. The main objective is to illustrate the lessons learnt during this MOOC development.

KEYWORDS

Distance Education, MOOCs, Open Learning, Team-Based Development

INTRODUCTION

In order to meet the increasing demand for updated knowledge and skills placed on people by the society of knowledge that we are now living in, more and more people use information and communication technologies (ICT) in order to participate in distance educational courses. Massive Open Online Courses (MOOCs) have been one of the most innovative movements within distance and open education and there is a great interest in incorporating them in higher education. According to the commonwealth of learning web site (2014), MOOCs have been the most reported technology development in education over the past year (Blake & Scanlon, 2014).

This emergent technology enables both open access and the participation of large numbers of students in online courses, creating new high-quality learning opportunities at no cost. Because of its openness, it can bring a diverse group of learners together regardless of their social and cultural background, while it enables geographically dispersed groups to collaborate and to create new forms of communication and collaboration for both students and educators (Gütl, Rizzardini, Chang & Morales, 2014; Kop, Fournier & Mak, 2011).

The effectiveness of MOOCs worldwide has been well documented by quantifying learning opportunities (Kauffman & Kauffman, 2015). As MOOCs gained momentum the past years and critical debate was brewing on their pedagogical effectiveness, many researchers have been discussing the development of MOOCs and their potential effect in higher education (Mackness, Waite, Roberts & Lovegrove, 2013; Sonwalkar, 2013; Fyle, 2013). The high attrition rate of students who register at the beginning of a MOOC is a major cause of concern regarding the long-term success, impact,

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and sustainability of MOOCs (Sonwalkar, 2013), as studies have found that completion rates are low with some reported to be significantly lower than 10% (Jordan, 2015).

The motivation of learners to participate in MOOCs has been presented as an important factor in the large number of the dropout rates in MOOC. Related studies showed that the learning design can change learners’ patterns of engagement with a MOOC (Ferguson et al., 2015). In addition, effective use of technology in education and the development of effective educational learning environment require comprehensive expertise in technology, pedagogy and content knowledge (Kohler & Mishra, 2005).

Therefore, one can conclude that, in order to design and develop attractive and effective courses, this modern educational framework requires, the combination of knowledge and expertise from different disciplines, such as learning technology, interaction design, media, pedagogy and andragogy, sociology, ethnography and even marketing. Additionally, the integration in one learning space of various online technologies, tools and services, including among others online and peer learning platforms, multimedia, open educational resources, interactive and immersive technologies, social computing tools can lead students to remain long-term engaged and active.

In this context, a methodology is proposed that realizes a team-based approach and illustrates lessons learned during MOOC development for the needs of two teaching modules of the Hellenic Open University, in the knowledge domains of “Compilers” of the module entitled “PLI24 – Software Design” and “Programming Languages (C Programming Language)” of the module entitled “PLI10 – Introduction to Informatics” of the undergraduate study program “PLI - Informatics” (www.eap.gr/pli_en.php). The implementation of these pilot courses provided practical evidence that a collaborative approach is required for the MOOC development process. However, the approach requires efficient organization and coordination of the teams involved.

The rest of the paper is organized as described subsequently: Initially one can find the Background section which includes the literature review and then the Related Work section that follows. The Conceptual Framework of the proposed team-based approach is explained in the next Methodology section. In the Applying the Conceptual Framework section the proposed methodology implementation is described. Validation and Evaluation are the subjects discussed in the next section followed by Discussion, Conclusion, Acknowledgements and References.

BACKGROUND

It can be observed that there exists no consolidated approach for the design of Massive Open Online Courses (Glance, Forsey & Riley, 2013; Guardia, Maina & Sangra, 2013). Nevertheless, a number of attempts have been recorded by the research and education community, in order to propose educational principles that are considered suitable for MOOCs. One of the first creators of Massive Open Online Courses (MOOCs), George Siemens (2012a, 2012b), provided an instructional design approach based on referring to a collaborative development of MOOC, the cMOOCs, which are largely based on the principle of Connectivism using the peer learning model, usually developed and managed by academic staff through an open source web platform (Grainger, 2013). On the other hand, the category xMOOC that has been adopted by most widespread MOOCs is based on a simple format that supports asynchronous training methods. These methods include recorded educational material by experts and assessment (i.e. multiple-choice quizzes, programming assignments or peer-review exercises), which are chosen by students based on their own preference. The purpose of this design approach is to repeatedly offer the courses during the academic year while older students take the role of community teaching assistants and provide forum administration, technical support and limited academic guidance to new students (Grainger, 2013).

Generally, it is accepted that online education requires new skills and techniques, due to its differences from traditional face-to-face education (Ally, 2004). As a result, more and more educational institutions in higher education utilize a collaborative team-based approach in order to
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