Chapter 5

Massive Open Online Course Management:
Learning Science and Engineering through Peer–Reviewed Projects

Ana M. Pessoa
Polytechnic Institute of Porto, Portugal

Luis Coelho
Polytechnic Institute of Porto, Portugal

Ruben Fernandes
Polytechnic Institute of Porto, Portugal

ABSTRACT

Massive Open Online Courses (MOOC) are gaining prominence in transversal teaching-learning strategies. However, there are many issues still debated, namely assessment, recognized largely as a cornerstone in Education. The large number of students involved requires a redefinition of strategies that often use approaches based on tasks or challenging projects. In these conditions and due to this approach, assessment is made through peer-reviewed assignments and quizzes online. The peer-reviewed assignments are often based upon sample answers or topics, which guide the student in the task of evaluating peers. This chapter analyzes the grading and evaluation in MOOCs, especially in science and engineering courses, within the context of education and grading methodologies and discusses possible perspectives to pursue grading quality in massive e-learning courses.

1 INTRODUCTION

Education, if taken as the 'training' or 'upbringing' of offspring, is transversal in many animal species. Wolf packs involve all their members in the care of pups, including in playing with them. These playing habits include chases and 'toys' such as bones or the skins of dead animal. The pups 'kill' the toys and carry them around, raising the possibility of the play being a practice of future adult actions. However, Humanity has

integrated education in a formal manner that is unique. From an early beginning of preservation of knowledge and skills in Pre-History (Akinnaso, 1992), to a formal declaration in the Human Rights, Education (article 26, Human Rights Declaration, United Nations, 2009) evolved as society itself changed, adjusting not only to the needs but also to the values (ethical, economical or even artistic) of the people that commanded decisions on the affairs of everyday living.

Though educational methods have been subject of evaluation and critique from the moment that writing become available, the massification of public educational systems, in the 19th Century, made it an academic subject and both a governmental and private concern (Stray, 2001). From the Industrial Revolution to present day, few controversies have stood as perennial as the 'proper educational system' to be officially adopted, including age limit and if school attendance should be mandatory. In recent years, the explosion of new multimedia platforms offering a plethora of Massive Open On-line Courses (MOOC) added new questions to an already mined subject: are these new options as qualified as the more orthodox courses in developing competences? And if so, how can we determine the extent of their quality?

In this chapter, these and other questions are addressed, through analysis of the available data and review of published studies of the subject. The importance of MOOC is increasing by the second, literally, and, according to its more fervent defenders, it may become a substitute for formal higher education in the long run. Therefore, reflexion on its organic is significant for all areas that intertwine human society, since education is pervasive to culture, customs and living, the basis of what give us identity.

1.1 Education and Mass Education

Pedagogy became a social controversy with the advent of mass education, especially with the massification of higher education. The educa-tional methods had been focused in preparing ruling elites and soon it became clear that there was a socio-economic context that voided much of former assumptions. Thus, systematization of teaching/learning techniques became slowly a mark in most countries, and the compulsory nature of school became practically universal. Exception has been made, until now, to higher education. Though one of the purposes of universal education is the maintenance of civilization, nowadays of present technological substance, the respect for adult human autonomy forbade higher education from becoming compulsory. As consequence, adult autonomy prevents higher education from being provided in free manner by governments in general. Most countries assume that the students should pay for higher education and a small amount of scholarships, usually offered by benefactors or institutions, permit exceptional individuals to attend universities, otherwise economically out of their reach.

This poses a question, not easily answered: if the significance of higher education is undisputed in national economies and social stability, why is it so largely left to the whims of familiar and individual economies?

The point of MOOC is that such question is outdated in many ways. Higher education is now available for free, without boundaries of age, money, status or nationality. The effects of such paradigmatic change might have in social and economic areas are yet to be seen, as these new learning platforms are still starting to impact individuals. However, it is clear that a new revolution of educational systems and, therefore, a revolution in social values is starting in the coziness of homes around the globe.

It should be noted that MOOCs are not the first attempt of massive tertiary education but they have several differences, one of them with particular social appeal, namely that the most reputed universities of the world have provided for free many of their courses in MOOC form. To have you name in a certificate associated to a

15 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/massive-open-online-course-management/122198

Related Content

Reality-Based Learning: Preparing Students for Life – The Experience of Implementing the Model of Swedish Enterprise Education in Russia (SEED Russia)
Lyudmila Murguletsand Mats Johansson (2019). *Business Community Engagement for Educational Initiatives (pp. 248-270).*
www.irma-international.org/chapter/reality-based-learning/212899

Using Virtual Worlds for Learning
Lea Kuznik (2010). *Virtual Environments for Corporate Education: Employee Learning and Solutions (pp. 1-13).*
www.irma-international.org/chapter/using-virtual-worlds-learning/42227

Integrity as a Core Value in Organizations
Gillian Griffin (2012). *Handbook of Research on Teaching Ethics in Business and Management Education (pp. 327-340).*
www.irma-international.org/chapter/integrity-core-value-organizations/61816

Critical Success Factors for implementing ERP Systems as a Vehicle for Business Curriculum Integration at a Large State University
Kenneth E. Murphy (2007). *Enterprise Systems Education in the 21st Century (pp. 1-26).*
www.irma-international.org/chapter/critical-success-factors-implementing-erp/18491

Three Theoretical Perspectives on Informal Learning at Work
Mary F. Ziegler (2009). *Handbook of Research on E-Learning Applications for Career and Technical Education: Technologies for Vocational Training (pp. 695-706).*
www.irma-international.org/chapter/three-theoretical-perspectives-informal-learning/20010