Chapter 100
Do Open Educational Resources and Cloud Classroom Really Improve Students' Learning?

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ABSTRACT

More and more educational institutions are using educational technologies and online learning materials to help students achieve satisfactory learning effects. However, not all teachers are able to prepare and design digital learning materials for students. This research attempted to empirically demonstrate the effects of applying open educational resources (OERs) and a cloud classroom developed by Ming Chuan University, which comprises access to related software and online learning materials, to enhance students' computer skills and also improve their scores on certification examinations. The researchers conducted an experiment that included 114 undergraduates from two class sections – the first section received OERs in a cloud classroom in addition to their traditional classroom instruction (OER group, n=61), and the other learned in the traditional classroom without OERs (non-OER group, n=53). The results show that students who received OERs had significantly higher grades than those without in the PowerPoint module; however, the difference is not statistically significant in the Excel module. The authors further discuss the implications and unexpected results in this paper.

INTRODUCTION

E-learning applies electronic technologies in educational environments with a special emphasis on learning through the web (Guri-Rosenblit & Begoña, 2011), one aspect of which is the use of OpenCourseWare. OpenCourseWare is generally supplied by prestigious educational institutions allowing learners to use the same learning materials available to those institutions' students in a structured process without the demands of professors, institutions or financial obligations (Atkins, 2007; Lowman, 2009). The MIT Open Courseware (OCW) project aims to share knowledge through

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making educational materials available for learning via the Internet. The concept of OCW was born from discussions of a study group close to MIT's Council on Educational Technology and includes educational material such as lecture notes, course outlines, reading lists and assignments for virtually all MIT courses across the Institute's entire curriculum (Su & Yu, 2011).

In addition to OCW, there is increasing interest in various forms of school-based modes and in using the tools offered by new information and communication technologies (ICT), including open educational resources (OERs), for large-scale provision to potential learners (Moon, 2007). The recent advent of open content or OERs, a global intellectual resource of learning materials, offers a significant breakthrough for teachers and students (Thakrar, Zinn & Wolfenden, 2009). OERs may include text, images, audio, video, interactive simulations, problems and answers, and games that are free to use and re-use in innovative ways by anyone around the world (Baraniuk, 2007). OERs can provide the catalyst for different forms of learning, linking formal and informal aspects and splitting up the functions of content, evaluation, support, and accreditation (McAndrew, Scanlon, & Clow, 2010).

As for the practical applications and implementation, YouTube is a well-known website that is simultaneously 'a high-volume website, a broadcast platform, a media archive, and a social network' (Jarrett, 2010). Many academics and institutes are now using YouTube for recording and transferring course lectures. These videos on YouTube may be valuable when instructors are away or for students who miss the classes (Pasquali, 2007; Kousha, Thelwall & Abdoli, 2012). With regard to the overall influence of YouTube on academic publications, it seems that YouTube videos are being used by a small but increasing number of researchers to support discussions (Kousha, Thelwall & Abdoli, 2012). For example, when searching videos related to smoking on YouTube, one can find clear messages from those both for and against, but also a wide range of scenarios in which messages about smoking are delivered, which can enhance or disarm any argument (Freeman & Chapman, 2007). Learners could independently find many useful materials among the free videos and websites, and learn at their own pace and convenience.

Online learning covers a myriad set of applications and processes that may be helpful as long as teachers are able to make good use of them in the curriculum. What is most significant about the method and application is that it ensures faster learning at comparatively reduced cost and gives access to more learning resources (Sarma & Majumder, 2010). The relationship between educational ideas and technological capabilities may ensure the successful use of instructional technology in higher education (Garrison & Akyol, 2009). However, this challenges teachers who do not have the skills to adopt e-learning and educational technologies (e.g. building up a course website, recording digital learning material). In this regard, the authors adopted OERs and cloud classroom and explored whether they could improve students' learning in this study. The cloud classroom is a concept that has been developed by the authors' university, which comprises a virtual collection of necessary software and learning materials for students to review and practice what they have learned in regular classes. This could include access to both related OERs and materials specific to the course at hand.

LITERATURE ABOUT OPEN EDUCATIONAL RESOURCES

OCW is a revolutionary approach to sharing educational resources. It freely and openly presents the core academic content, including lecture notes, syllabi, assignments and exams, to support formal and informal learning around the world