Chapter 6
Technology-Enhanced Learning: Good Educational Practices

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ABSTRACT

There are numerous examples from recent years of the incorporation of all types of applications and technological systems into the classroom at all educational levels, with the aim to improve both student motivation and academic performance; we can group these initiatives under the term technology-enhanced learning, TEL. The TEL research field has been profoundly involved with the development and application of collaboration apps. Computers, mobile devices, and applications play diverse roles at different times along the project lifecycle. The most common lifecycle comprises four distinct phases: design, implementation, approval, and final assessment. In this chapter, the authors discuss key concepts of these TEL phases as well as some different approaches that can be defined as “good technological practices” and their main results in order to implement technologies in the formative process.

INTRODUCTION

One of the key issues in all formative levels is the management of student motivation and the best way to acquire the competences and skills defined in the academic plans (Fonseca, Redondo & Villagrasa, 2015). The change in the educational systems of the past decade (which involved a reduction in the number of hours of teaching classes), along with a reduction in the number of university students, has caused a
shift in the teaching paradigm, which is currently focused on how to improve student ability and skills. As previously proposed by Biggs (1999), the evaluation and control of the quality of student education and development is a key concept in the implementation of technologies utilized in the classroom (Fonseca, Martí, Redondo, Navarro & Sánchez, 2014). The interest, need, and urgency of implementing new technologies in education and universities in particular is a relatively new situation (Rogers, 2000). However, technological innovation, which is intended to improve the student learning process, must be capable of providing support to address difficulties that could arise with the student in the use of and interaction with technological elements. These elements must not obstruct the auto-learning process, which is altered by this technology, and the students must be motivated with the new educational methodology.

Hence, the use of Personal Learning Environments (PLE), Augmented and Virtual Environments and devices (AR/VR), gamification of educational activities, or Robotics appear to have the potential to increase student motivation, while also motivating them to attain better scores in practical assignments (as well as higher overall score). It also has the capability to generate new virtual and embedded methods for assessing student learning. In contrast to traditional programs (passive and focused on subject matter), the new methods based on Project Based Learning (PBL) offer an experience equivalent to learning a trade, as learners must face a well-planned series of real situations (scenarios) in a significant and motivating role, something known as Scenario Centered Curriculum, SCC.

To incorporate a new IT-based methodology into a specific teaching environment, some recommendations for avoiding student rejection must be considered. The literature defines so-called “good educational practices” that are primarily focused on virtual rooms, distance education (or e-learning), and semi-present teaching (Area, San Nicolás & Fariña, 2010). These studies have focused on maximizing profit from web service content, alternative methods using the intranets of each university, and auto-evaluation systems of information (Chickering & Gamson, 1987; Epper & Bates, 2004; González & Rodriguez, 2010).

In our chapter, we will discuss about what we can understand under the definition of “Good Practices”, and some interesting possibilities that new technologies can add to the educative framework. After that, we will present three educational cases using different technologies and different assessment approaches that we can be defined as a set of proposed “Good Practices”, an easily adapted in other academic fields (Navarro & Fonseca, 2017):

- The first one is part of a project based on the application of gamification techniques in a first-year course of the Degree in Multimedia Engineering at La Salle-Universitat Ramon Llull. The work discusses the advantages of applying immersive gamification techniques in the acquisition of role-based learning. This project aims to improve teaching quality and student learning experience. Our objective was two-fold: firstly, to meet the expectations of users, and second to guarantee that the user experience is memorable and satisfactory (Villagrasa, Fonseca, Redondo & Duran, 2014).
- The second experience started with a pilot study based on a framework for designing PLEs using Web 2.0 services, which was proposed by Torres, Ediriingha and Mobbs (Torres et al, 2009). The framework outlined four types of Web 2.0 services and how they could serve as “hubs” for the construction of PLEs. Two projects emerged based on this framework, in two different settings: secondary education and higher education. Their goal was to explore and understand how high school and university students used Web 2.0 services in their learning, thus helping in the devel-
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