Chapter 11
Modern Technologies Used in Education

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ABSTRACT

This chapter gives an insight into technologies that can improve the learning experience of the students in higher education and increase their academic results. The authors look at online learning technologies like the massive open online course and how they can be used to flip the classroom in order to get higher student engagement and satisfaction. Methods like problem-based learning and active learning are also addressed together with ways of increasing student motivation like gamification. The use of social media in education is also addressed. In the second part, the authors share their experience with using some of these technologies. Although these technologies have become widely available, each teacher needs to find the right tools and methods specific to his/her own class and use them accordingly.

INTRODUCTION

The current educational system hasn’t changed much in the last century. The traditional education required students to recite lessons from books or take turns solving problems at the blackboard. Then, the students would get assignments and homework that they would have to work through themselves and periodically they would get tested (Beck, 1956). This was an excellent way of disseminating knowledge when only few people had access to it. The main purpose was the memorization of facts. Later, when computers became more widespread, books were replaced by PowerPoint slides and blackboards with whiteboards but nothing else changed significantly from the point of view of the teaching methods. On the other hand, as knowledge became more and more accessible, the skills needed by learners began to change. With the advent of the internet, the access to information was less of an issue as people started connecting to the internet and creating and sharing content.
According to (Sanou, 2017), as of 2017, more than 70% of the world’s youth are online. In developed countries this percentage can go up to 94% (Sanou, 2017). The same report outlines that mobile broadband is growing faster and it is cheaper than fixed broadband. This, coupled with the fact that there are now more mobile subscriptions than people on Earth (Sanou, 2018), shows how easy it is for people to access information in today’s connected world. Information is available in a wide variety of formats and people can tailor their knowledge gathering to their own way of learning. The mono-media world of the book is fading away as new multi-media content starts to take over. Many young people do not relate to the old way of learning from books and consistently devour multi-media content such as audio and video, animations and simulations. Today, students need to find and process information on their own, adapt and learn to work both alone and in a team, think critically and solve problems (Newman, Deyoe, Connor, & Lamendola, 2015).

In the author’s opinion, technology has the means to mediate the student’s learning process and help teachers adapt their methods to the learning habits of their students. The students have already changed compared with students from a few decades ago. They are born in a digital age, smartphone in hand, and already have a different view of the world through the perspective of technology.

The first part of this chapter focuses on some of these tools and techniques that are being used in educational environments while in the second part consists of a case study that contains the experience of the authors with some of the tools and techniques present herein.

**TECHNOLOGIES AND METHODS USED IN EDUCATION**

There are many technologies that have been tried and tested in educational environments, some with greater success than others. This chapter is not meant to be an exhaustive enumeration of said technologies but focus on some of the most common ones. In the author’s view, these are the technologies and methods that hold the most promise. The internet is the single most disruptive technology in modern education. It has opened a new world of opportunities for sharing content and connecting people. By structuring resources, online learning became available. Experiments with this new type of learning has led to other concepts like blended learning and flipped classroom. This way the student could benefit from both the offline and online worlds. Student engagement and satisfaction became a main issue and new models have been developed to motivate and engage the student. Problem-based education and the use of social media yielded results and let the way to active learning. Game elements can help improve the student learning experience and student data analytics can give the instructor an additional insight into which methods works and which don’t. Finally, the perspective of the teacher and the challenges that he/she might be facing while using these technologies is discussed.

**Online Learning**

Online resources have been available since the dawn of the internet. Still, online education took a while to develop and grow. Many attempts have been made to find a suitable method of teaching online, but there were always technical difficulties that prevented their success. One breakthrough was done when the Massive Open Online Course, or MOOCs as they are more popularly known, appeared. Massive Open Online Courses are “open access web-based online courses allowing unlimited participation” (Mesquita & Peres, 2015). The development of the online course, as we know it today, started when