# New Teaching and Learning Methodologies in the Smart Higher Education Era, A Study Case, Wikipedia

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## ABSTRACT

Smart education systems and methodologies are based on the deep integration of information technologies in the educational process. Among all the tools belonging to the environment of teaching technologies, wikis have been reported as ideally suited for collaborative learning. Several Universities around the world are running Projects and events about the use of wikis in higher education. Therefore, in this paper the authors explore the use of wikis in the higher educational institutions, being focused on a special case: Wikipedia. Wikipedia presents special characteristics which make it perfect to not only reach the specific learning objectives of a certain particular subject, but also the transversal abilities so demanded today (such as teamwork or social responsibility). Finally, the authors analyze more deeply the experiences about the use of Wikipedia conducted in the Universidad Politécnica de Madrid and the obtained results are presented.

## KEYWORDS

Collaborative Learning, Editing Wikipedia in Higher Education, Informal Education, Innovation in Education, Smart University Teaching, University Educational Projects, Wikipedia, Wikis in Education

## INTRODUCTION

Although some authors date the beginnings of educational innovation in the second half of $XX^{th}$ century (Bartolomé et al., 2008), it is no sooner than the late nineties (especially from 1998 on, thanks to Wenger's works (Wenger, 1998)) that the former becomes the subject of global interest (outside of the pedagogy world)

The telecommunication revolution of the new millennium first years, with the massive increase in the number of Internet connections, the appearance of the 2.0 Web as we know it today (Fumero et al., 1997) and the birth of world-changing digital agents (like Google or Facebook) are all factors that created an appropriate climate for the deep social changes that continue to the present day. Governmental institutions (both national and supranational) developed digital agendas (Universidad Europea, 2017) with the aim of incorporating (one way or another) New Technologies to every society aspect. Industry pioneered this transformation but health institutions, supermarkets, means

of transportation followed shortly afterwards with the same or even higher intensity. The education sector, naturally, also followed this trend.

The appearance of innovative technologies, such as 2.0 webs and all their associated environment (including Social Networks, blogs and wikis), pushed educational agents towards a new scene where two schools of thought rose and were developed in parallel (and coexist to the present day) (Bartolomé et al., 2008). On the one hand, some authors proposed the introduction of visual learning environments, with an education based solely on technology and virtual participation. This approach is generally known as e-learning (Piña, 2004). On the other hand, some authors tried to complement more traditional face-to-face learning environments with these new technologies in a way that virtual and face-to-face would coexist. This method is generally known as "Blended Learning" (Piña, 2004 and Bartolomé et al., 2006).

College programs, due to both their face-to-face nature and their occasional need to use specific facilities only available at campuses, have opted mainly for Blended Learning.

The key to success of these experiences resides chiefly in selecting the most appropriate technology for the intended goals (Bartolomé et al., 2008). Massive online courses and flipped classroom techniques (Wilson, 2013) facilitate students' participation; forums promote a more dynamic communication; blogs make it possible for students to direct their study to those fields where they struggle; and wikis ease the creation of a cooperative learning environment. As a general feature, the use of these methods and strategies implies moving the center of attention from teaching (relevance given to what the teacher conveys) to learning (more value given to the acquisition of knowledge by the student).

In an ever increasingly cooperative society, transversal competences such as teamwork and cooperative skills in general are highly valued and have made it to the competence tables of a high number of nowadays college titles (García San Pedro et al., 2009). As a result, wikis have entered college education vigorously, with the goal of promoting cooperative learning.

Various universities from very diverse countries have developed Projects and events related to the use of wikis in Higher Education (Bordel et al., 2017). Even though some of them use Proprietary platforms, such as Stanford University's Protégé Wiki (Protégé, 2017), a majority of them adhere to the par excellence wiki: Wikipedia. This latter is considered to be the largest global knowledge repository, with studies showing that the accuracy of its entries converges quickly to a value at par with that once reached by the Encyclopedia Britannica (Giles, 2005).

Editing content in this platform poses a challenge to students, due to the impact of the generated content. Besides, Wikipedia entries must include citations, footnotes and hypertext links with other entries, which promotes students' autonomous learning by means of the search for this information. In a word, Wikipedia presents some special features (within the wikis world) that make it a powerful tool for learning.

There are, however, works that show some bad habits and abuses in the use that university institutions make of Wikipedia. A couple of examples of such misuses are: forcing undergraduates to make contributions (which end up decreasing the contributions' quality) or establishing goals related to the "amount of contributions" (number of written words or entries, etc.) In conclusion, the use of Wikipedia has generated a high number of experiences in the last years that are worth reviewing and analyzing in order to have a general reflection on its usage (highly advisable and successful when properly used.)

Therefore, the purpose of this article will be reviewing the main and most outstanding Projects and educational events based on the use of Wikipedia (in Spanish) in university environments. An emphasis will be put on existing contexts and methodologies, and also on results. In section III, finally, we will focus on a particular case study: the existing cooperation between the Universidad Politécnica de Madrid (UPM) and Wikipedia.

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