

# Chapter 9

## EduLabs: Promoting a Smart and Personalized Learning

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### ABSTRACT

*In the last few years, several projects that promote the integration of digital technologies in educational contexts have been implemented. However, its benefits and contributions for the improvement of teaching and learning process are not consensual. This chapter aims to present some results about the learning impact of new technologies-integration project, recently implemented in the Portuguese educational context. The EduLabs project is a pilot project, purposing the construction of educational ecosystems through the integrated and pedagogical use of technologies and the implementation of innovative teaching strategies. This chapter also presents a framework to support the implementation of educational projects integrating digital technologies. This framework was defined according to the principles and results of the EduLabs project, aiming to promote a smart and personalized learning.*

### INTRODUCTION

The scientific and technological component of current society is moving at a rapid pace, being presented in many and different areas of daily life. Technological evolution is also felt in Education through the implementation of technological programs and projects to encourage the integration of digital technologies in the educational process. However, will the implementation of these projects bring benefits to teaching and learning? Which conditions must a technological project have in order to effectively improve the educational process?

Currently, in some Portuguese school groupings, a new project that aims to integrate digital technologies in Education is being implemented and tested: the EduLabs project. The EduLabs are experimental

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teaching and learning ecosystems, equipped with technological resources to be used in a pedagogical way, seeking to promote innovation in Education.

This chapter is part of an ongoing doctoral research in Multimedia in Education (University of Aveiro, Portugal) of the first author; the second author is her supervisor. This research aims to assess the impact of the use of digital technologies in teaching and learning process, in the specific context of an EduLab. In addition, this PhD research is integrated in the AGIRE project (*Apoio à Gestão Integrada da Rede Escolar* [Support for School Network Integrated Management]), a collaboration between the Consortium E-Xample (which gathers twenty-six companies in the areas of Education and/or technology), the Department of Education and Psychology at the University of Aveiro (Portugal) and the School Grouping of Gafanha da Nazaré (AEGN) (Aveiro, Portugal). AEGN is one of the ten school groupings where the EduLabs pilot project was implemented in the academic year of 2014/2015 and where this research was developed.

On the one hand, The EduLabs project was designed taking into account, knowledge acquired from the literature on the positive impact of the use of technologies in Education. On the other hand, the principles of the Edulabs project seek to reflect the positive and less positive aspects of technological projects previously implemented in the Portuguese educational context, such as “Minerva” project, “Nónio-Século XXI” program, “Equipa de Missão Computadores, Redes e Internet na Escola” (Team Computers, Networks and Internet at School Mission) and “Plano Tecnológico da Educação” (Technological Plan of Education).

The Edulabs project intends to assume itself as innovative and different from previous ones, once it is based on the following essential pillars: provision and use of educational technological resources (teachers, students and classrooms/schools); teachers’ training as a way to promote the implementation of innovative teaching strategies (and consequent follow-up and monitoring of the implementation of these strategies in the classroom); the involvement of all educational actors (Pombo, Carlos, & Loureiro, 2016).

The way the “EduLab model” is designed allows people to look at the EduLabs classrooms as “smart classrooms”, as these are equipped with smart software and hardware to achieve optimized teaching effects (Oliveira & Pombo, 2017a). Nonetheless, the EduLabs project aims at creating learning ecosystems (beyond the classroom) which promote more dynamic, motivating and effective teaching and learning process (Oliveira & Pombo, 2017a). Furthermore, one of the main goals of the EduLabs project is to promote innovation in Education, involving and developing (individually and collaboratively) the digital literacy of students, teachers, parents and other educational actors, also meeting future generations’ knowledge and skills needs (Pombo et al., 2016).

In this chapter, it will be presented some results about the learning impact of the EduLabs project and a framework which aims to support the implementation of educational projects integrating digital technologies. This framework was defined on the basis of the principles and results of the EduLab model, hence this is one of the most relevant products of the author’s PhD project.

This framework is structured in three main areas: “Institutional Policies”, “Teacher Professional Development” and “Teaching and Learning”. For each domain, the framework defines a set of subdomains that may contribute to the successful implementation of digital technologies integration projects in the educational process. This framework intends to be a useful tool for all those who wish to implement projects in this context, promoting a smart and a personalized learning and contributing for the students’ academic success.

The chapter begins with a brief theoretical contextualization focused on the principles of the EduLab model, as well as the characteristics of the EduLab that make it a smart and personalized learning

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