Chapter 10
Analysis of Efficiency and Effectiveness in the Implementation of the Flipped Classroom in the Context of Higher Education:
Experimental Results

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ABSTRACT

The study and investigation around educational models and teaching and learning methodologies is a theme that has long aroused the interest of the academic environment in higher education, both in the period before the advent of digital technology, as in current times in which technology is strongly embedded in the various teaching and learning processes, which involve classroom and distance-learning classes and courses, both in the context of e-learning and b-learning. Understanding how people learn and understand the themes presented in the classroom in face-to-face and e-learning is fundamental for planning and implementing processes that allow teachers to apply teaching and learning methodologies that can be efficient and effective. The main objective is to carry out a critical reflection on b-learning teaching, about the implementation of the teaching and learning methodology of the flipped classroom, one of the variants of b-learning teaching, supported by the results of a field investigation carried out with 152 students (n=152) of higher education.

INTRODUCTION

Initially and before we discuss the teaching methodology of the Flipped Classroom, it is necessary to observe that the scientific literature presents many definitions and conceptualizations about the term b-learning, a teaching methodology that arises around e-learning, being the last one greater representation in Distance Learning. The b-learning method focuses on its educational processes, in classes with face-to-face moments and also at a distance, in e-learning mode, which can be synchronous or asynchronous, that is, concerning real-time interaction, or not, between teachers and students (Graham, 2013).

Higher education institutions (HEI) have been conducting research on b-learning for almost twenty years, and within this temporal context, Smith & Hill (2019) reviewed ninety-seven articles related to b-learning in Higher Education between 2012 and 2017, having noticed a growing and continuous trend in scientific production around the theme, with most of the articles on the empirical implementation of b-learning in HEI, as can see in Table 1.

Table 1. Research approach in b-learning

Research Approach in b-learning	Percentage
Empirical	65,9% (N = 64)
Non-empirical	9,3% (N = 9)
Combined	24,7% (N = 24)

Source: (Smith e Hill, 2019, p. 388)

Salinas Ibáñez *et al.* (2018) refer that the students of Higher Education when they reach educational institutions, seek to obtain "immediate solutions" to their learning problems in line with the ease they have in their daily life, in which they live connected in a network (Internet) to receive information and feedback continuously. Therefore, it presents itself as an opportunity for higher education institutions to develop online courses, as an alternative to face-to-face courses, without giving them up, to provide another option for students, not necessarily meaning an improvement in the teaching process and learning that involves other factors but as an improvement of efficiency and effectiveness in the process of formation of Higher Education.

Johnson *et al.* (2016) reinforce the argument that students have expectations that higher education institutions provide accessibility to networked technological resources, which is demonstrated by a study carried out by JISC[1] with five hundred students, which indicated that the choice of higher education institutions to attending 32% of the students surveyed, occurred due to the availability of technological resources on the network. The teaching and learning process in b-learning can be implemented and categorized in different educational aspects, with different approaches and structures, which according to Graham et al. (2014) converges in a specific predominance of b-learning models, which are applied to the levels of Higher Education, K12 Education, and Corporate Training, according to the practical investigation carried out by other authors, as shown in Table 2.

What is observed in courses involving online components is the need for greater maturity and autonomy on the part of the students, availability of the teacher to be able to provide part of their time in the development of content for the digital platform and to provide synchronous and asynchronous support

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