

# **Innovative Methodologies in Higher Education:**

# A Systematic Review of Literature

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**Abstract:** The present study covers two objectives. The first structure, clarify and carry out a Systematic Literature Review (SLR) so that it can be replicated by other researchers; and the second use this SLR to find the current stage of research on innovative methodologies in higher education, especially in courses for training administrators. The methodology used was based on the paths narrated by Creswell (2014) and Gonçalves (2015) and was expanded by the searches and practical findings of this author. Both objectives were achieved and added results on methodologies in addition to those traditionally described as active and confirmed the assumption that education goes through and needs changes. The importance and use of technologies in teaching methods, and the role of the teacher were also shown to be recurrent findings.

Key words: pedagogical innovation, literature review, education, university education, curriculum

# 1. Introduction

When defining a focus or topic of study, researchers are usually faced with an initial dilemma on how to know what has already been researched and discussed on the subject. It is possible to affirm that the majority yearns to be able to identify all the bibliography related to the theme. This objective arises as a "Herculean" activity, if not utopian.

In past decades, this mission proved even more arduous, since the research was exclusively in person. Researchers needed to go to libraries and invest hours of research to arrive at some result, which was nevertheless partial. With technological advances, this scenario has changed dramatically. Today anyone accesses the most diverse materials around the world. Added to this is the availability of software that handles metadata and produces a multitude of information. However, despite expanding the possibilities exponentially, it does not mean that research on any topic can reach the researcher's desire to exhaust everything that has been produced on the desired subject.

Researching large amounts of data and reducing them to themes and categories is an ambitious task, according to Creswell (2014), but it is what is sought in the sustainable construction of in-depth research.

This study aims, through the Systematic Literature Review (SLR), to identify what is new in teaching methods at the higher level of education, focusing on courses for training administrators, assuming that there is a need for changes to teaching connected to the demands of the 21st century.

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# 2. Objectives

Build a systematic review of the literature on the topic of Innovative Methodologies when searching, identifying, locating, selecting and critically analyzing the researched material. According to Ramos, Faria and Faria (2014), an SLR aims to gather and summarize the best research available on a specific topic. This study seeks to get as close as possible to the state of the art on Innovative Methodology(s) in higher education courses in Administration and to demonstrate the path to the realization of an SLR.

### 3. Methodology

A systematic review of the literature requires planning and building its steps to meet the requirements of meaningful, methodical, explicit research that can be replicated at any time.

This study begins with the appropriation and adaptation of the steps of Gonçalves (2015): the establishment of the protocol with the definition of search indexes, electronic databases and criteria to be adopted; location and selection of studies; pre-analysis of localized works, excluding those repeated on more than one basis; selective reading of the works, with the classification of the significant ones; organization and grouping of works, according to assumed research focuses; interpretation of selected studies and expansion of the review with the inclusion of new studies. Based on this script and other appropriations on SLR such as those found in Ramos, Faria and Faria (2014), the following methodology was established.

The first reflection is about the delimitation of the research object. A first step was taken to select the databases within the academic periodicals portal of the Coordination for the Improvement of Higher Education Personnel (CAPES): Search Base/Advanced Search/Search by area of knowledge.

When selecting the area of Human Sciences and then Education as a subarea, 110 national and international bases are available. This first route resulted in the selection of the Web of Science, Scopus, ERIC and Scielo Bases. The bases were included in a continuous act: Network of Scientific Journals of Latin America and the Caribbean, Spain and Portugal (REDALYC) and Scientific Repository of Open Access of Portugal (RCAAP) which, despite not being included in the education-related bases on the CAPES journals portal, are significant for the present research. Then there was a reflection for the construction of the research equation with the use of Booleans seeking to embrace the best possible result. After some simulations, it became evident that broad equations restrict the results. Finally, the time frame, inclusion and exclusion criteria were defined. Table 1 shows the reported planning.

With the execution of the steps described, a result of 189 articles was obtained in the Capes Portal through advanced search. With new filter by bases selecting Scopus/ERIC/Social Science/Citation Index (Web of Science)/Science Citation Index Expanded (Web of Science)/Science Direct Journals (Elsevier) and only online resources, the selection dropped to 164 articles in the areas of Arts and Humanities, Business and Economics and Education. The texts were exported to the Mendeley reference manager program.

In research at BDTD, using the term "innovative methodologies" with the time filter from 2014 to 2019, 60 papers were found, 38 of which were dissertations and 22 theses. When changing the search term to "innovative methodologies" and "higher education" for the same time frame, 7 papers were found, 4 of which were dissertations and 3 theses.

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Phases	Action	Description	
Planning	Theme/Objective	Innovative methodologies in higher education.	
	Bases chose	CAPES Portal and Brazilian Digital Library of Theses and Dissertations (BDTD).	
	Selected databases CAPES Periodicals Portal - Human Sciences - Education	Web of Science, Scopus, ERIC, Scielo, *REDALYC, *RCAAP.	
	Descriptive terms	Metodologia(s) Inovadora(s)/Innovative Methodology(ies)/Ensino Superior/Higher Education	
	Booleans (capital letters)	AND/OR/NOT/*/?/ ""/( )	
	Final Search Equations	"Innovative Methodolog*" and "Higher Education" "Metodologias Inovadoras" and "Ensino Superior"	
	Selected materials	Articles published under peer review, theses and dissertations.	
	discretions	Provision of preliminary data such as title, keywords and abstract.	
	Temporal Cutout	Last 5 years	
	Language (s)	English/Portuguese/Spanish	
	Exclusion Criteria	Duplication in the Bases, Texts not related to the theme and abstracts and non-complete texts.	

Table 1 Research Planning

## 3.1 First Analyzes

In the next stage, an exploratory reading of the themes and respective abstracts of the articles, theses and dissertations was carried out to certify the insertion in the defined criteria. In the theses and dissertations, 5 papers were excluded, leaving a thesis and a dissertation, according to the following criteria: non-availability of the abstract, outside the topic and/or the area of knowledge. The same criteria were used for the articles, with the result shown in Table 2.

Table 2	Evaluation	of Articles

Temporal cut	Located research	Excluded after exploratory reading	Critical reading articles			
2014	23	21	2			
2015	29	28	1			
2016	28	25	3			
2017	41	31	10			
2018	31	29	2			
2019 may	12	11	1			
TOTAL	164	145	19			

# 4. Results

After a critical reading of the 21 selected works, it was possible to extract the findings that indicate a concern with advancing the educational methodologies developed in higher education with a different scope of courses, methods and locations. It is worth mentioning that the largest concentration of works took place in Spain with 15 publications. The courses covered in the research were: Engineering (6), Teacher Education (5), Health (4), Administration (2), Science (2) and Psychopedagogy (1).

Thus, the development and use are predominant of new methodologies in engineering, teacher training and health-related courses.

The methodologies with the greatest presence are those related to games and simulations representing a total

of 6 surveys: Gamification (Sánchez-Mena & Martí-Parreño, 2017; Sánchez-Carmona; Robles & Pons, 2017), Room Escape (Borrego, Fernández, Blanes & Robles, 2017), Simulations (Searl, McAllister, Dwyer, Krebs, Anderson, Quinney & McLellan, 2014; Quintana & Fernández, 2015; Ferreira, 2016). In these practices, the benefits of interaction were highlighted through the union of construction of learning and fun, as well as the significance of the results obtained by combining theory with practice. In contrast, research has indicated that teacher training, physical and technological infrastructure and the mastery of these tools are barriers to overcome. These barriers were also highlighted in research with inverted classrooms.

After this, the methodology with the greatest findings was the inverted classroom with 3 publications (Flores, Del-Arco & Silva, 2016; Iborra Urios, Ramirez, Badía, Bringué & Tejero, 2017; Villalba De Benito, Castilla Cebrian & Redondo, 2018), in which the development of teamwork, the change in the teacher's role and the enhancement of students' autonomy were positively highlighted.

Regarding research that indicated the use of several platforms as an innovative methodology, 4 in total, such as YouTube (Orús, Barlés, Belanche, Casaló, Fraj & Gurrea, 2016), Wikipedia (Lladós-Masllorens, Aibar, Meseguer-Artola & Minguillón, 2017), WIRIS Quizzes (Calm, Masià, Olivé, Parés, Pozo, Ripoli & Sancho-Vinuesa, 2017), and WIKI (Guinau, Playà, Aulina, Rosell & Rivero, 2017); it is possible to identify that in reality there is a distortion between teaching methodologies and tools that provide new channels for classroom approaches. In the research that pointed out the use of youtube as a differential, the development of transversal skills was indicated, but it was restricted to the technological domain both by teachers and by the students themselves.

Administration courses were studied in 2 publications and indicated the gamification and use of youtube as methodologies, both of which are already mentioned here.

The other surveys Problem Based Learning (PBL) surveys (2) (Sáiz-Manzanares; Garcia Osorio; Diez-Pastor & Martin Antón, 2019; González-Marcos; Alba-Elias; Navaridas-Nalda & Ordieres-Meré, 2016), Eyetracking (Stickler & Shi, 2017), Makerspaces (Saorin, Melian-Diaz, Bonnet, Carrera, Meier & De La Torre, 2017), Mentoring (Garcia-Iglesias, Perez-Martinez, Gutierrez-Martin, Diez-Laiz & Sahagun-Prieto, 2018), Work Practice (Endedijk & Bronkhorst, 2014) and Combined Strategies (Fabregat Sanjuan, Pàmies-Vilà, Ferrando & De La Flor, 2017); presented findings such as improvement in learning, development of collaborative work, relevance to professional practices, generated meaning for learning and are enhanced by technology. They present as adversity, the realization in large groups of students.

### **5.** Conclusions

Performing a Systematic Literature Review (SLR) in depth is one of the challenging steps in a survey. There is no "straight", pre-defined and safe path. It requires dedication and resilience with trial, error and success. In this study, we sought to trace a route and achieve the best result. It remains to be learned that there is always room for improvement, mainly supported by a technological domain that can add even more subsidies, breadth and speed for research analysis.

Reflections were made on the common diagnosis of the need for change required by the 21st century and that new methodologies have emerged in an attempt to find motivating and effective ways of teaching.

In the course of this SLR, a common finding was the students' satisfaction with the proposed new models, through active and experiential learning, and how much it contributes to the development of their competences

and skills.

I highlight the contribution of one of the twenty-one related researches, which does not deal specifically with an innovative methodology, but rather with a fundamental input for it to occur: teaching creativity. Figuerêdo (2018) makes a careful distinction between creativity and innovation and describes the importance of methodologies in the search to motivate and interact with students so that they can lead their learning processes. The author points out that it is necessary to reflect on teaching methods and educational concepts, as well as the understanding of related contexts, and that adopting innovative and technological elements does not guarantee the transformation of practices.

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