

B-LEARNING AND MOODLE AS A STRATEGY IN UNIVERSITY EDUCATION: LATIN AMERICA CASE BY 2017-2022

Jesús Ronald Iparraguirre Contreras¹, Mauricio Jaimes Roa², Castellanos Mariel³, López
González Wilmer Orlando⁴, Lugo Manuel Barbosa Guerrero⁵

¹*Universidad César Vallejo-Trujillo-Perú.*

ORCID: 0000-0001-7298-3040

ronaldthipc@gmail.com

²*Escuela Superior de Administración Pública -ESAP, Colombia*

ORCID: 0000-0002-1876-3116

mauricio.jaimes@esap.edu.co

³*Corporación Universitaria del Caribe CECAR, Colombia*

ORCID: 0000-0001-8662-6415

mariel.castellanos@cecar.edu.co

⁴*Ciencias Experimentales, Universidad Nacional de Educación (UNAE), Ecuador*

ORCID: 0000-0002-6197-8665

wilmerlopez@unae.edu.ec

⁵*Universidad Colegio Mayor de Cundinamarca, Colombia*

ORCID: 0000-0002-0871-8637

lmbarbosa@unicolmayor.edu.co

Abstract

A documentary review was carried out on the production and publication of research papers concerning studying B-learning, Higher Education, and Moodle as a strategy in university education. The purpose of the bibliometric analysis proposed in this paper was to know the main characteristics of the volume of publications registered in the Scopus database during the period 2017-2022 and to identify the current situation in Ecuadorian institutions regarding the study of the variables mentioned above, achieving the identification of 78 publications in total. The information provided by the said platform was organized employing graphs and figures categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics were described, a qualitative analysis was used to refer to the position of different authors on the proposed topic. Among the main findings of this research, it is found that Spain, with 28 publications, was the country with the highest scientific production registered in the name of authors affiliated with institutions of that nation. The area of knowledge that made the greatest contribution to the construction of bibliographic material referring to the study of B-learning, Higher Education, Moodle as a strategy in university education was Social Sciences with 41 published documents, and the type of publication that was most used during the period mentioned above was the journal article, representing 56% of the total scientific production.

Keywords: B-Learning, Higher Education, Moodle.

I. Introduction

Information and communication technologies have arrived to change the perspective in which knowledge has been imparted. As a result, new

methodological models and training systems have been acquired. B-Learning arises from the need to use the potentialities efficiently linked to face-to-face educational systems, attending to the new ways of learning.

Blended learning, commonly known as blended learning, is a flexible and adaptable model to the needs of students, integrating educational processes and technological innovation. Similarly, implementing blended learning allows undergraduate students to include other digital tools in the teaching process based on the adaptability and proper application of technological models. This modality is currently considered an effective model, but it has meant a challenge for education, mainly for higher education. From this perspective, significant efforts have been made to introduce technologies to support the teaching-learning processes. The first bet to integrate ICT in learning models is reflected in distance education using digital media, thus eliminating traditional learning models such as space and time, allowing students to set the proper guidelines for their study.

Blended learning is a combination of both face-to-face and blended models supported by new information systems and the implementation of ICT, which has led millions of universities around the world to introduce new paradigms in their educational management, achieving the optimization of resources and time availability in the learning processes for students. For this reason, this paper seeks to describe the main characteristics of the compendium of publications

indexed in the Scopus database related to the variables B-learning, Higher Education, and Moodle as a strategy in university education, as well as the description of the position of specific authors affiliated to institutions, during the period between 2017 and 2022.

2. General Objective

To analyze from a bibliometric and bibliographic perspective, the production of research papers on the variables B-Learning, Higher Education, and Moodle registered in Scopus during the period 2017-2022.

3. Methodology

Quantitative analysis of the information provided by Scopus is performed under a bibliometric approach on the scientific production related to studying the variables B-Learning, Higher Education, Moodle. Also, from a qualitative perspective, examples of some research papers published in the area of the study mentioned above are analyzed from a bibliographic approach to describe the position of different authors on the proposed topic.

The search is performed through the tool provided by Scopus, and the parameters referenced in Figure 1 are established.

3.1 Methodological design

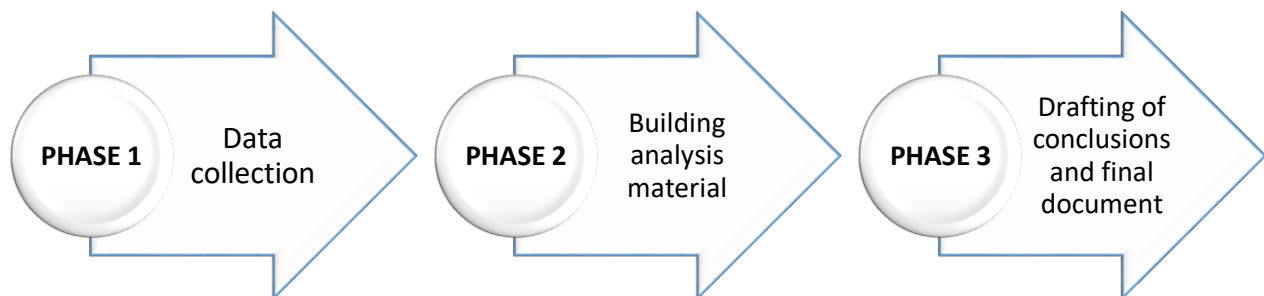


Figure 1. Methodological design

Source: Own elaboration

3.1.1 Phase 1: Data Collection

The data collection was carried out through the Scopus web page search tool, through which a total of 78 publications were identified. For this purpose, search filters were established consisting of:

TITLE-ABS-KEY (b-learning, AND higher AND education) AND (LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017)))

- ✓ Published papers whose study variables are related to the study of the variables B-Learning, Higher Education, Moodle.
- ✓ Without distinction of country of origin.
- ✓ Without distinction of area of knowledge.
- ✓ Without distinction of type of publication.

3.1.2 Phase 2: Construction of analysis material

The information identified in the previous phase is organized. The classification will be made through graphs, figures and tables based on data provided by Scopus.

- ✓ Word Co-occurrence.
- ✓ Year of publication
- ✓ Country of origin of the publication.
- ✓ Knowledge area.
- ✓ Type of Publication

3.1.3 Phase 3: Drafting conclusions and final document

After the analysis carried out in the previous phase, the study drafted the conclusions and prepared the final document.

4. Results

4.1 Co-occurrence of words

Figure 2 shows the Co-occurrence of keywords within the publications identified in the Scopus database.

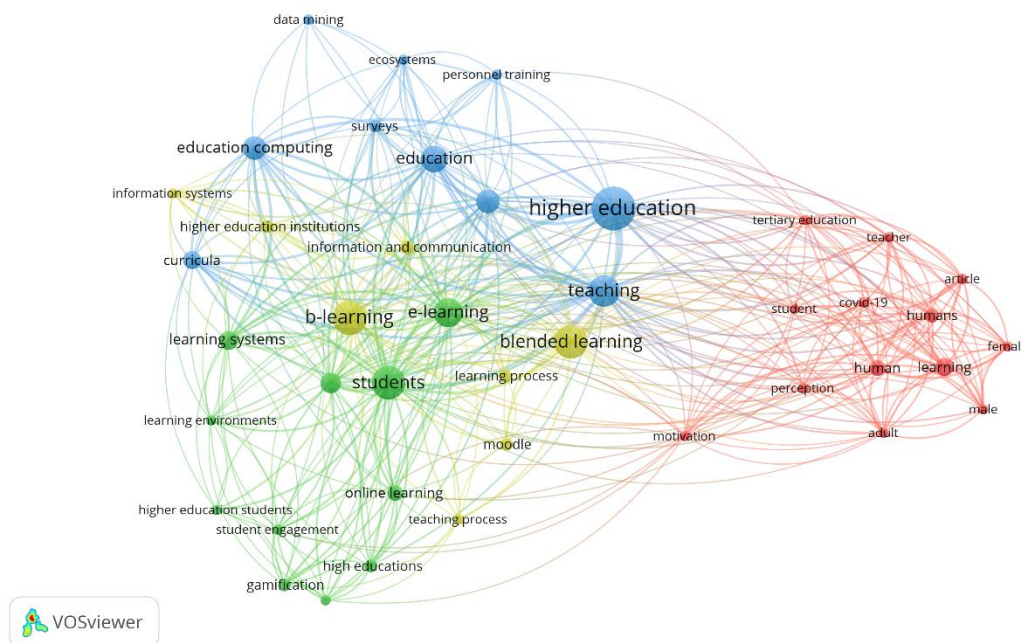


Figure 2. Co-occurrence of words

Source: Own elaboration (2023); based on data provided by Scopus.

Within the study of the research shown by the Scopus platform, referring to the variables B-learning, Higher Education, Moodle as a strategy in university education, the implementation of information and communication technologies in education has evolved the way of transmitting knowledge and significant changes have had to be made to be at the forefront of technological advances, which have made a significant contribution to virtual learning environments as support in teaching, facilitating increased access and the development of new learning opportunities, It is for this reason that through the interpretation of Figure 2, it is possible to determine how keywords of the publications reported in Scopus, Teachers, B-learning, Students, given that ICT-assisted learning

encourages the use and exploitation of the benefits and virtues of technological resources, facilitating the distribution of content and achieving synchronized communication. This learning model adapts to the rhythm of each student; in the space of time available, it is also possible to emphasize a learning process of theoretical type and autonomous and collective learning.

4.2 Distribution of scientific production by year of publication.

Figure 3 shows how the scientific production is distributed according to the year of publication, considering the period from 2017 to 2022.

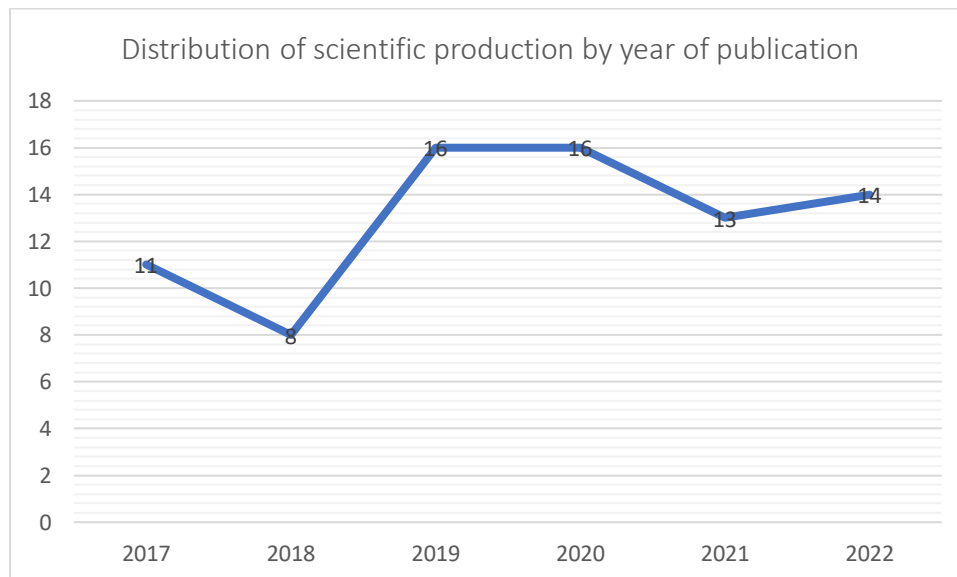


Figure 3. Distribution of scientific production by year of publication.

Source: Own elaboration (2023); based on data provided by Scopus.

Figure 3 shows the scientific production around the variables B-learning, Higher Education, Moodle as a strategy in university education in the period from 2017 to 2022, where an increase in the volume of production in the year 2021-2022 is evidenced, with a total of 14 publications related to the keywords, among which the article entitled “E-learning: The new standard of higher education: impact of the pandemic in the

perspectives of students” is highlighted (Vale, 2022). This research aims to study the influence of the pandemic on the methods of current higher education institutions to better understand its impact on the development of e-learning structures as a proactive solution to face-to-face classes and methods. A quantitative methodology was developed through a questionnaire survey of students at the Porto School of Accounting and

Business to identify e-learning initiatives and the possible new standard for higher education. The results show that the current pandemic situation is a basis for developing and implementing online learning methodologies such as e-learning and b-learning. Furthermore, they are concluding the most common struggles or barriers students highlight during their online learning experiences are related to their previous arrangement with the learning process and connected to the institution's investments in "remote" learning structures. It is

crucial to mention that this study can give further insights to develop specific research from the student's perspective.

4.3 Distribution of scientific production by country of origin.

Figure 4 shows the distribution of scientific production according to the nationality of the authors.

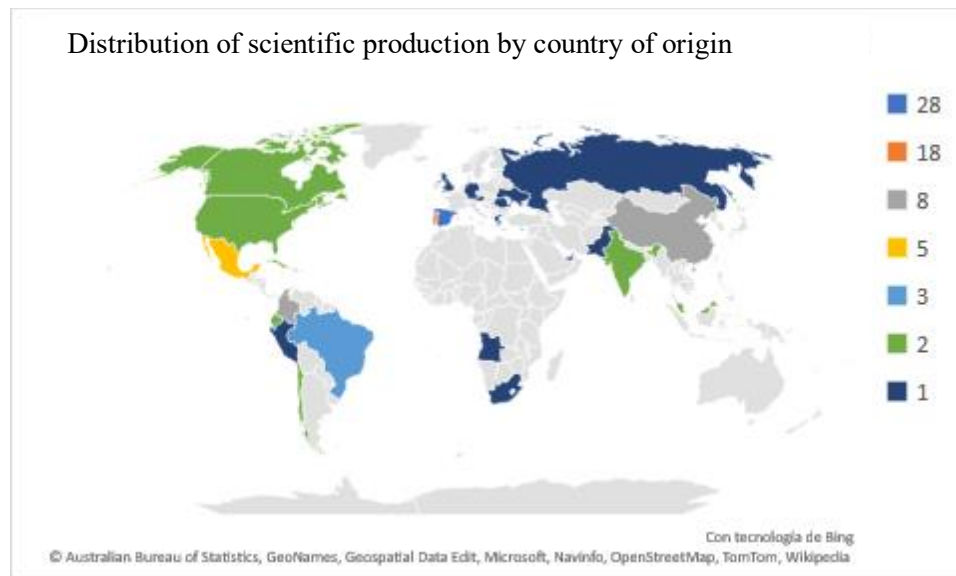


Figure 4. Distribution of scientific production by country of origin.

Source: Own elaboration (2023); based on data provided by Scopus

Spain was the country with the highest number of publications registered in Scopus referring to the variable B-learning, Higher Education, Moodle as a strategy in university education during the period 2017-2022 with a total of 28 publications, followed by Portugal with 18 registrations and China with 8. Of the latter, the article entitled "Research on Blended Learning Teaching Modality under the Information Condition" stands out from the rest (Wang, 2020) aims at the advantages of c-learning and e-learning, blended learning (B-Learning) optimizing the teaching process and achieving the teaching objectives through the mutual complementation and promotion between c-learning and e-learning.

Although B-Learning is one of the focuses of research in the educational community, few cases apply the concept of blended learning with the flipped classroom in higher education teaching. In this paper, the teaching environment for B-Learning in universities is constructed from, firstly, the existing research results; secondly, the internalization process of B-Learning knowledge for teaching in the classroom and network environments under the condition of information respectively is analyzed; finally, according to the advantages of B-Learning, the effect evaluation for B-Learning is designed from the evaluation subject, evaluation means an evaluation content.

4.4 Distribution of scientific production by area of knowledge

knowledge through which the different research methodologies are executed.

Figure 5 shows how the production of scientific publications is distributed according to the area of

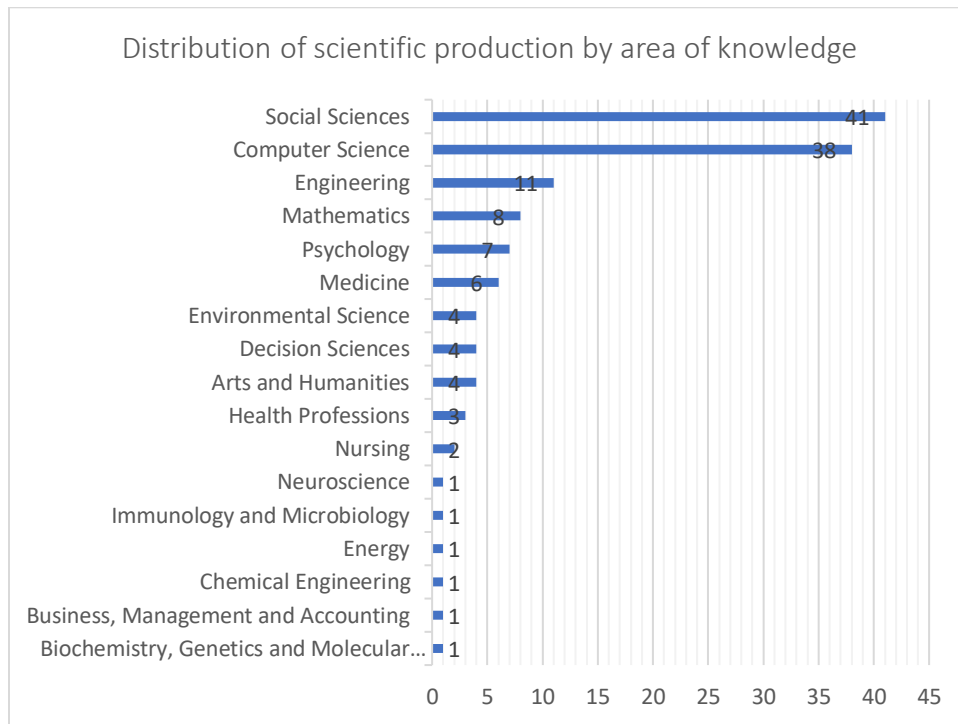


Figure 5. Distribution of scientific production by area of knowledge.

Source: Own elaboration (2023); based on data provided by Scopus.

Social Sciences was the area of knowledge with the highest number of publications registered in Scopus, with a total of 41 documents that have based their methodologies on the impact of the variable B-learning, Higher Education, Moodle as a strategy in university education. In second place, Computer Science with 38 papers. The above can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by the area of Social Sciences entitled “A Systematic Mapping of Variables Studied in Research Related to Education in Informatics and Computer Science” (Estrada-Molina, 20). (Estrada-Molina, 2022) whose objective of this article was to conduct a systematic mapping (2010-2019) to determine which variables are studied in research related to informatics and computing education. We

performed a systematic mapping to IEEE Xplore (2010-2019). The protocol corresponds to the PRISMA guidelines for systematic reviews and their contextualization to the conduct of systematic mappings. When the protocol was finally applied, 160 articles were selected, of which 154 are indexed in Scopus (96.25%) and 132 indexed in Scopus and WoS (82.5%). The results highlight that the most studied variables are programming education, software engineering education, teamwork, collaborative learning, educational technology, evaluation, project-based learning, problem-based learning and game-based learning.

4.5 Type of publication

Figure 6 shows how the bibliographic production is distributed according to the type of publication chosen by the authors.

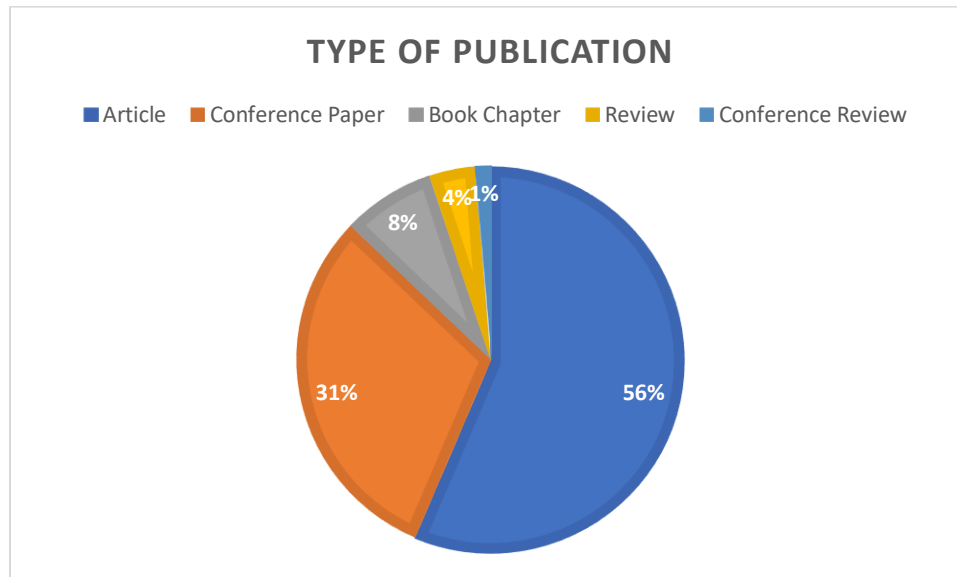


Figure 6. Type of publication

Source: Own elaboration (2023); based on data provided by Scopus.

The type of publication most frequently used by researchers was the Article; 56% of the total scientific production corresponds to this type of document. In the second place, session papers with 31% and Book Chapters with 8%. In this last category, “The Blended Learning Pedagogical Model in Higher Education” stands out (Vásquez Astudillo, 2020). The objective of this chapter is to present a Blended Learning pedagogical model implemented ten years ago in higher education, which pedagogically structures the teaching-learning process around face-to-face and online activities, articulated and sequenced in stages of increasing complexity, based on the contributions of various theories. The model promotes the extension of a face-to-face class using technologies and technological platforms. The activities of the model offer various opportunities for guided online and face-to-face work to develop increasing degrees of autonomy, with the student playing the role of active protagonist and the teacher fulfilling the dual role of designer of learning situations and mediator, facilitator and

manager Planning schemes are offered in a B-Learning course and the design of e-activities, as well as didactic and pedagogical suggestions for their implementation and progressive experience on the part of the teacher.

5. Conclusions

Implementing information and communication technologies allows higher education to efficiently and effectively manage the delivery of knowledge, achieving higher performance in undergraduate students. The benefits and facilities of educational platforms using the b-learning model are enormous.

The knowledge of the resources implemented through b-learning for learning allows the development of satisfactory curricular activities at a distance, from anywhere in the world, at any time and with academic flexibility for the students. Furthermore, the flexibility of these learning

models allows students to organize themselves better according to their diverse extracurricular activities and learning pace. Although synchronous communication tools greatly impact the teaching and learning processes, direct access to digital platforms and real-time achieves effective communication; the success of this learning method requires relevant and strategic planning of dynamic learning sections that achieve student motivation. Based on this educational and teaching model, universities provide teachers with cutting-edge tools that achieve innovation and collectivism among students and teachers, effectively incorporating technology into teaching and learning strategies, not as an end but as a channel to improve university education.

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