

## **Research Devices In The Academic Formation Of Students Of The Faculty Of Philosophy Of The University Of Guayaquil**

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### **Abstract**

A documentary review was carried out on the production and publication of research papers related to studying the variables of *Research Devices* and *Higher Education*. The purpose of the bibliometric analysis proposed in this document was to know the main characteristics of the volume of publications registered in the Scopus database during the period 2018-2022 and to identify the current situation in Ecuadorian institutions regarding the study of the variables above, achieving the identification of 82 publications in total at the Latin American level. The information provided by the said platform was organized using tables and figures, categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics had been described, the position of different authors on the proposed topic was referenced through a qualitative analysis. Among the main findings of this research, it is found that Brazil, with 27 publications, was the country with the highest scientific production registered in the name of authors affiliated with institutions of that country. The Area of Knowledge that made the most significant contribution to the construction of bibliographic material referring to the study of

Research Devices in Academic Education was Social Sciences, with 44 published documents, and the Type of Publication that was most used during the period mentioned above was the Journal Article, representing 65% of the total scientific production.

**Keywords:** Research Devices, Higher Education, University Education, Latin America, Ecuador.

## 1. Introduction

The implementation and development of research projects throughout the professional training of undergraduate students are of utmost importance since, at the end of their university careers, most graduates, whether or not they have implemented research projects during the different years or semesters of their careers, should have the necessary skills and abilities to prepare a thesis or educational project as a minimum requirement for acquiring their university degree.

Scientific and technological research, together with innovation, is taken as one of the purposes of higher education since the idea of changing the educational matrix of the country. Therefore, the universities begin by training students who generate knowledge to improve the quality of research and thus improve the positioning, university levels and the quality of education in the country. For all this, it is important to address how they are developing and obtaining results in the different curricular careers, obtaining in this way to ratify and rectify, if necessary, the training and teaching of students who are developing their due research projects for the completion of their studies.

In such a situation, different conflicts may be encountered, such as a lack of knowledge on the part of managers, teachers and students about which tutoring should be used and the methodologies to develop it, which generates little or no guidance for the many students in the choice of a topic, discordance. The main problem is to establish guidelines for the proper development of a degree, which is relevant to the need to train professional researchers if not even the teachers and directors themselves have access to the different indicators to develop and improve their different roles in the training of students in the Faculty of Philosophy at the University of Guayaquil and other educational institutions. For this reason, this article seeks to describe the main characteristics of the compendium of publications indexed in the Scopus database related to the variables Research Devices and Higher Education, as well as the description of the position of specific authors affiliated with Latin American institutions, during the period between 2018 and 2021.

## 2. General Objective

To analyze from a bibliometric and bibliographic perspective, the production of research papers on the variables Research and Higher Education Devices registered in Scopus during the period 2018-2022 by Latin American institutions.

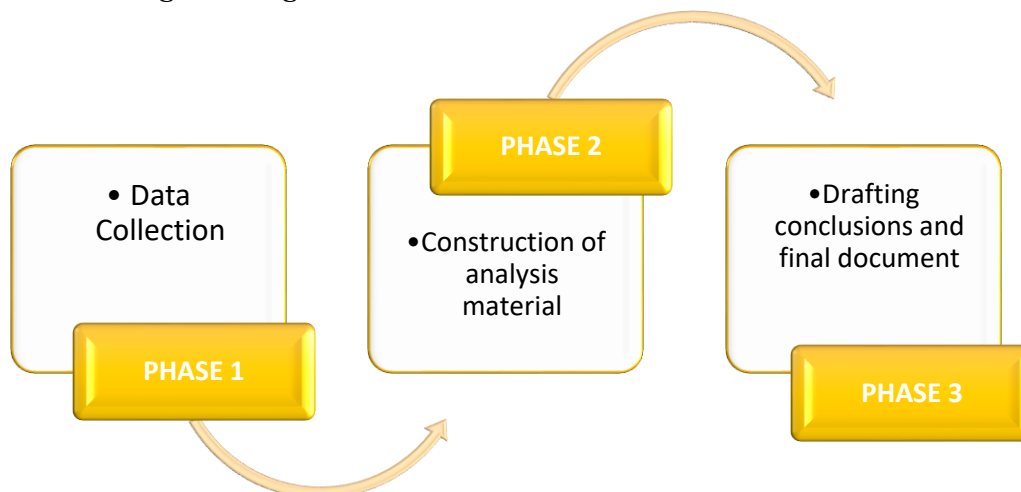
## 3. Methodology

Quantitative analysis of the information provided by Scopus is performed under a bibliometric approach on the scientific production related to studying the variables *Research Devices* and *Higher Education* in Latin America. Also, from a qualitative perspective, examples of some research works 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 using the Scopus web page search tool, through which a total of 82 publications were identified. For this purpose, search filters were established consisting of:

- ✓ Published papers whose study variables are related to the study of the variables Research and Higher Education Devices.
- ✓ Limited to Latin American countries.
- ✓ 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

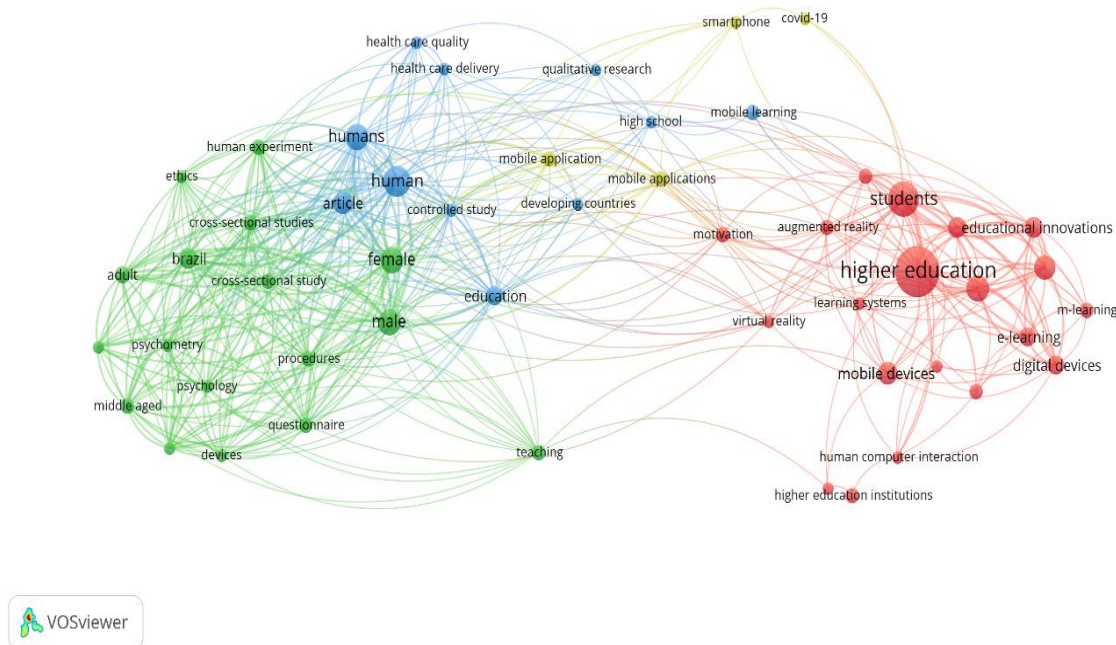
#### 3.1.3 Phase 3: Drafting conclusions and final document

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.

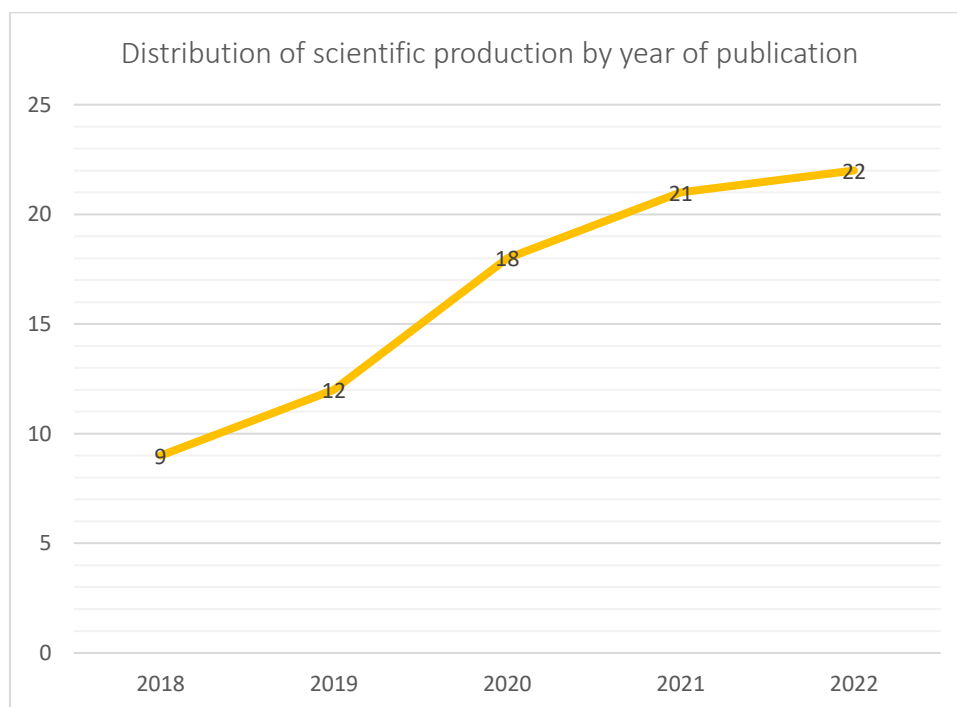


**Figure 2.** Co-occurrence of words.  
**Source:** Own elaboration (2023); based on data provided by Scopus.

Within the study of the research reported by the Scopus platform, referring to the variables Research Devices and Higher Education, the object of this scientific debit, it is considered that within the tasks to be developed, it is urgent and pertinent the participative approach on how the processes, learning and development of students who elaborate their research projects as a way of the culmination of their studies are being carried out. 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, Education, Controlled Study, and Higher Education, in attention to the considerable difficulties and low levels of knowledge about the research processes to be developed by the students, as well as the inefficiency in the tutoring work and the due documents that manage the research development of the students. Therefore, emphasis should be placed on developing and properly implementing research devices in the training of undergraduate students as part of the culmination of their studies. In this same sense and according to the graph interpreted, words such as Teachers, Procedures, and Transversal Study, are of recurrent appearance in the works under analysis since, although university teachers should indeed encourage active participation in the socialization of documents through new research resources with diverse pedagogical topics, in addition, including research professors, this allows directing the student with theoretical bases in the global study of the marked educational problems.

#### 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 2018 to 2022.

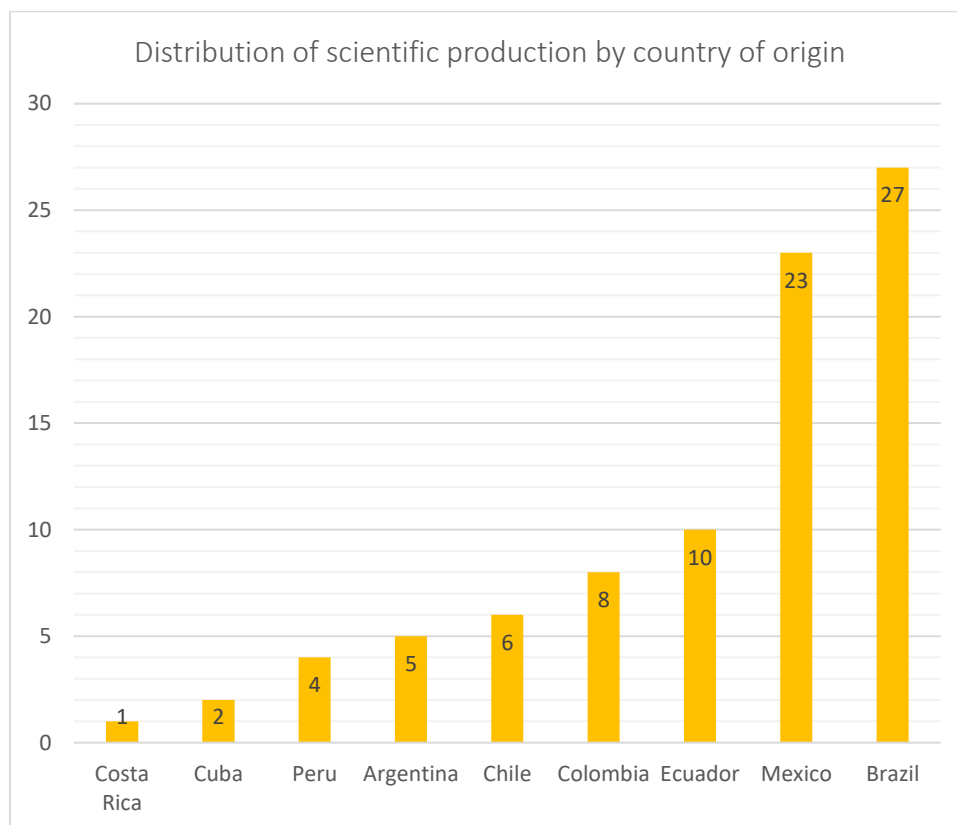


**Figure 3.** *Distribution of scientific production by year of publication.*  
**Source:** *Own elaboration (2023); based on data provided by Scopus.*

Figure 3 shows the scientific production around the variables Research Devices and Higher Education in the period between 2018 and 2022, where the increase in production volume in the year 2022 is evident, with a total of 22 publications related to the keywords, among which the article entitled “Influence of active methodologies: projects and cases in the development of digital competences with mobile devices” stands out (Agila-Palacios et al., 2022), whose purpose is to analyze the influence of two active methodologies in the development of digital competencies using mobile devices. The first methodology is project-oriented learning (POL); the second is case-based learning (CBL). The digital competencies analyzed belong to the communication and collaboration area of the DIGCOMP framework. Design/methodology/approach: This article shows the results of the quantitative stage with a pre-experimental pre-post-test design. A questionnaire was designed and applied to a purposive sample from two courses. The results show that students to whom POL was applied increased by 7% competence in interacting with mobile technology. Results also show that students to whom CBL was applied increased all four competencies (interaction +8%, sharing +6%, collaboration +5%, netiquette +4%). Limitations/implications of the research: However, the results of this research confirm that it is possible to promote these digital competencies from a practical and implicit vision in the educational practices of active methodologies.

#### 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.

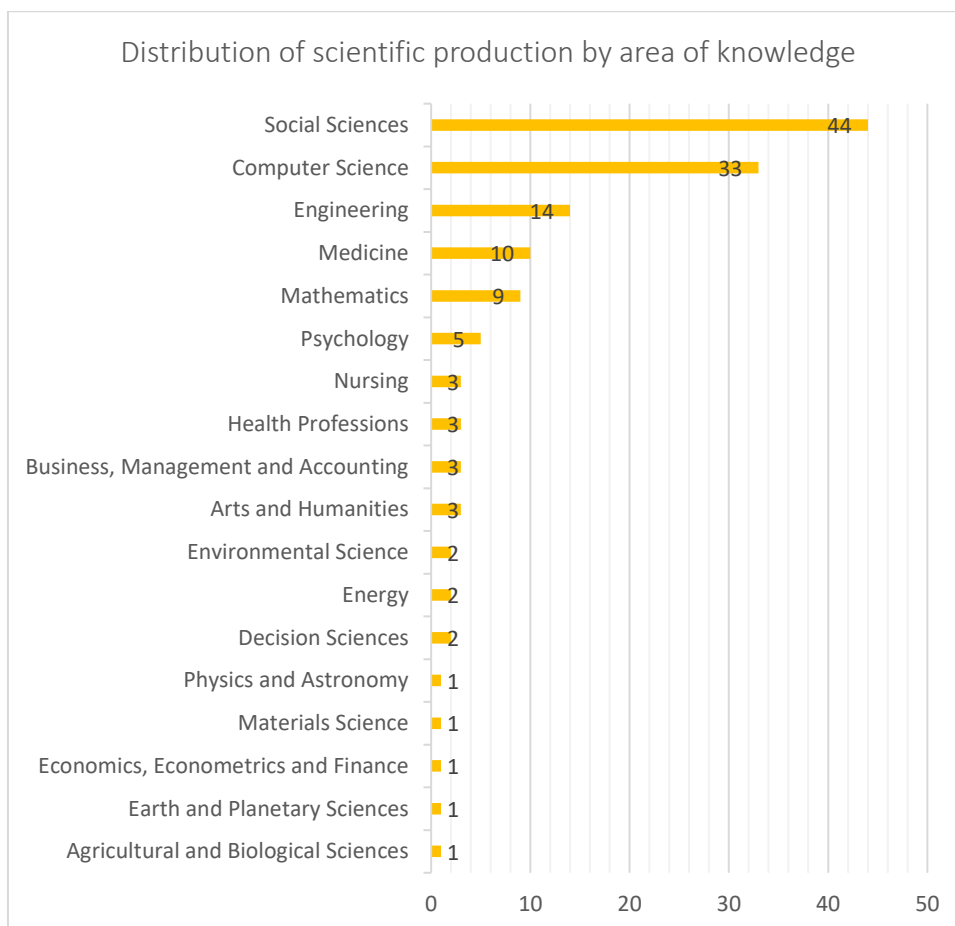


**Figure 4.** *Distribution of scientific production by country of origin.*  
**Source:** *Own elaboration (2023); based on data provided by Scopus.*

Brazil was the Latin American country with the highest number of publications registered in Scopus referring to the study of Research Devices and Higher Education during the period 2018-2021 with a total of 27 publications, followed by Mexico with 23 registrations and Ecuador with 10. Of the latter, the article entitled “Quality education and pandemic: challenges, experiences and proposals of students in teacher training in Ecuador” stands out (López et al., 2021), whose purpose was to know the challenges, experiences and proposals that students at a Higher Education Institution in Ecuador have faced to identify elements to improve it. For this purpose, a mixed approach methodology was used to approach the phenomenon studied, which was carried out through a bibliographic and documentary review, a questionnaire and a focus group. The results of this process are relevant to understanding the scenarios students face: limitations in connections and devices, the perception that learning is not fully realized, and the need to resort to methodologies that motivate interaction and participation in classes. However, some proposals should be taken into account to have a quality education, such as promoting mobile learning, strengthening digital skills, knowing the different realities faced by students to adapt learning to them and linking initiatives of emerging learning systems theories such as connectivism.

#### **4.4 Distribution of scientific production by area of knowledge**

Figure 5 shows how the production of scientific publications is distributed according to the area of knowledge through which the different research methodologies are executed.

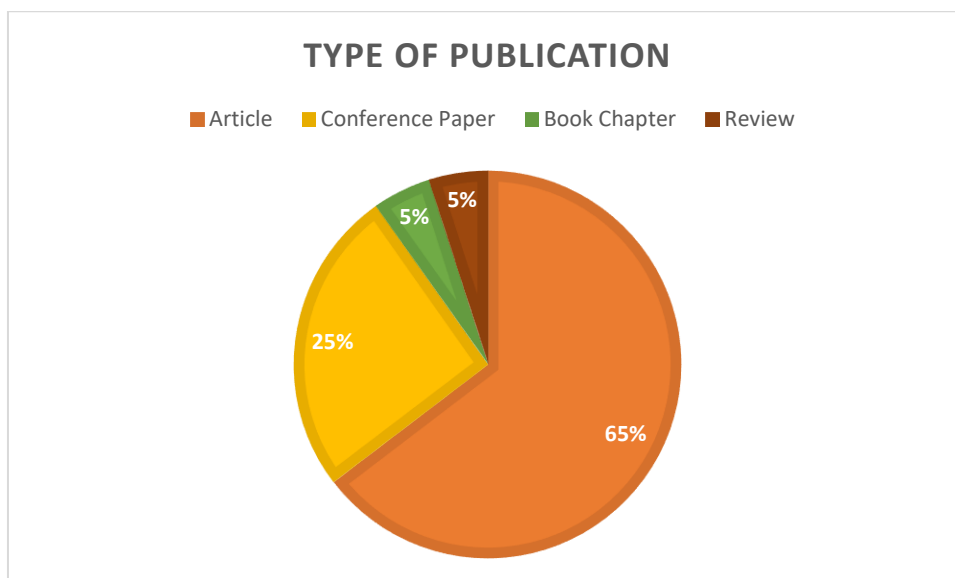


**Figure 5.** *Distribution of scientific production by area of knowledge.*  
**Source:** *Own elaboration (2023); based on data provided by Scopus.*

Social Sciences was the area of knowledge with the highest number of publications registered in Scopus, with 44 documents that have based their methodologies on the study of Research and Education Devices. In the second place is Communication Sciences with 33 documents. Of the latter, the article entitled “Human Interface and Competitive Intelligence in the Management of Teaching Research in Business Sciences” stands out (Jiménez-Calderón et al., 2022). The object of the study is to elaborate a system to be implemented based on human interface and competitive intelligence that leads to the management of business science research in higher education Lima, Peru. Each dimension of the project will be discussed through the descriptive comparative method between the statements and the evidence of the research group’s practice. The language of the presentation of a computer to a human being and the language of action of a human being to a computer will be measured as hypotheses fulfilled on a Likert Scale to build an analytical roadmap for decision-making. In conclusion, developing a competitive intelligence plan in the management of teaching research, combined with the design of the organizational structure, will allow the staff to create a management control model for a business research group in Lima.

#### **4.5 Type of publication**

Figure 6 shows how the bibliographic production is distributed according to the author’s chosen publication type.



**Figure 6.** *Type of publication*

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

The type of publication most frequently used by Latin American researchers was the article; 65% of the total scientific production corresponds to this document type. In the second place, Session Papers with 25% and Book Chapters with 5%. In this last category, the one entitled “Sustainability Practices in a Public University in Bahia, Brazil” stands out (Borges et al., 2022), whose objective is based on the search for economic development and preservation of the environment is an increasingly popular topic worldwide. As organs of production and dissemination of knowledge, Higher Education Institutions (HEIs) not only work for the research of sustainable methods, processes and technologies but also exercise and serve as an example to society with the implementation of sustainable practices. Within the scope of the sustainability actions of a public university in Bahia, Brazil, a work team periodically visits the institution’s units to guide workers and students on the segregation of waste in appropriate containers. This document is based on the Sustainable Logistics Plan (SLP) established by normative instruction to highlight the gains for the environment, the institution, and the culture of a sustainable society. Specific aspects around sustainability, with emphasis on how waste generation and management is related to the Sustainable Development Goals (SDGs) proposed by the 2030 Agenda, are discussed based on the data obtained in the institution’s RM.

## 5. Conclusions

Through the bibliometric analysis carried out in this research work, it was possible to establish that Brazil was the country with the highest number of published records facing the variables Research Devices and Education, with a total of 27 publications in the Scopus database during the period 2018-2022. Similarly, it was possible to establish that the application of theories framed in the area of Social Sciences was the most frequently used in measuring the impact generated by the importance of the implementation of new devices in research for academic performance in Higher Education. It is important to highlight that most authors support the idea of strengthening the academy by taking advantage of the resources that lead to the development of the degree work, for which it is important to identify the multiple sources of information related to the different research profiles. Subsequently, there is a need for constant training for students in university training for the development of research projects.



On the other hand, it is important to analyze and consider the high demand for tutors necessary to take advantage of the pedagogical resources that allow working inside and outside the training classrooms, making use of technological resources which facilitate an assertive communication between the authors that make up the training process. Interactive catalogs as pedagogical research resources have suitable characteristics to be part of the degree process of many students providing tools concerning research needs from global studies, research relevance, theoretical value, ethics and academic quality. Democratizing information through the interactive catalog as a pedagogical research resource is pertinent. The scientific production of this educational faculty will be indexed to transfer knowledge and improve the degree process for future generations.

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