

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

**By**

**Olga Marisol Bravo-Santos**

Docente de la Universidad de Guayaquil

Email: [olga.bravos@ug.edu.ec](mailto:olga.bravos@ug.edu.ec)

<https://orcid.org/0000-0002-3695-6878>

**Guido Homero Poveda-Burgos**

Docente de la Universidad de Guayaquil

Email: [guido.povedabu@ug.edu.ec](mailto:guido.povedabu@ug.edu.ec)

<https://orcid.org/0000-0002-2158-6293>

**Ericka Jazmín Figueroa-Martínez**

Docente de la Universidad de Guayaquil

Email: [ericka.figueroama@ug.edu.ec](mailto:ericka.figueroama@ug.edu.ec)

<https://orcid.org/0000-0002-5058-8741>

**Marcelo Ludgardo Proaño-Cobos**

Docente de la Universidad de Guayaquil

Email: [marcelo.proanoc@ug.edu.ec](mailto:marcelo.proanoc@ug.edu.ec)

<https://orcid.org/0000-0003-0535-795X>

**Rosa Esther Segarra-Mendoza**

Docente de la Universidad de Guayaquil

Email: [rosa.segarram@ug.edu.ec](mailto:rosa.segarram@ug.edu.ec)

<https://orcid.org/0000-0001-6102-0388>

**Alejandra Elizabeth García-Suarez**

Docente de la Universidad de Guayaquil

Email: [alejandra.garcias@ug.edu.ec](mailto:alejandra.garcias@ug.edu.ec)

<https://orcid.org/0000-0001-5358-4423>

### **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.

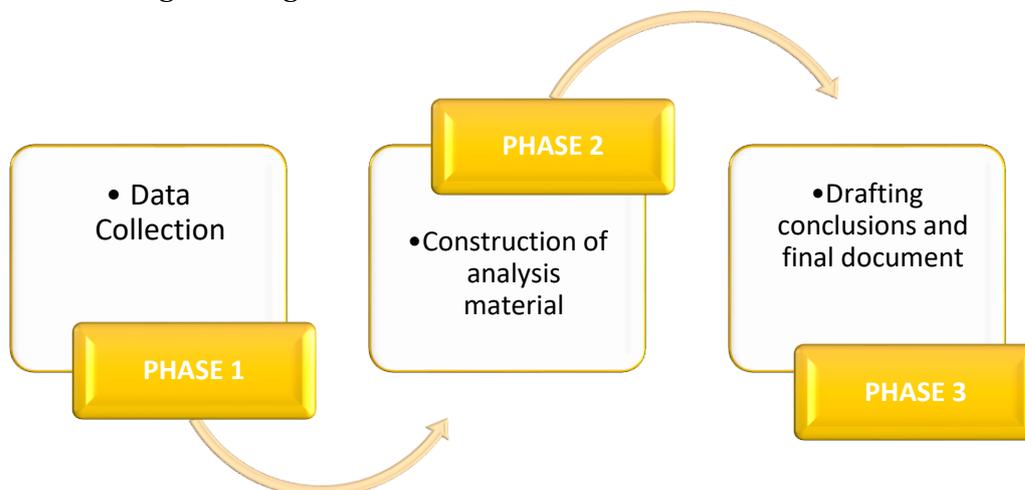
## 3. Methodology

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

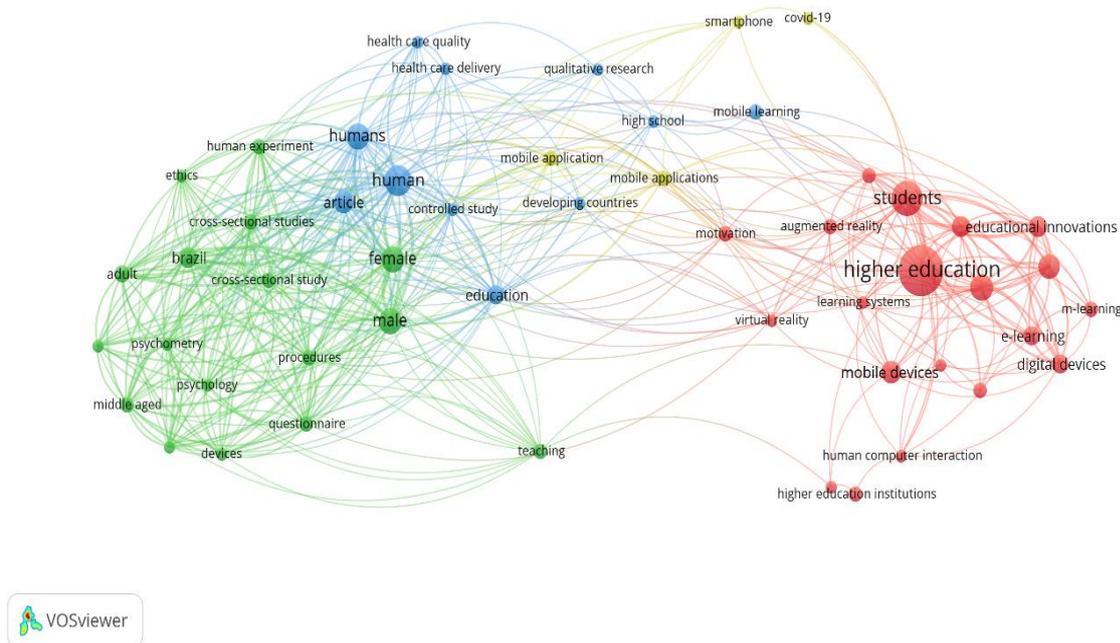
#### 3.1.3 Phase 3: Drafting conclusions and final document

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.



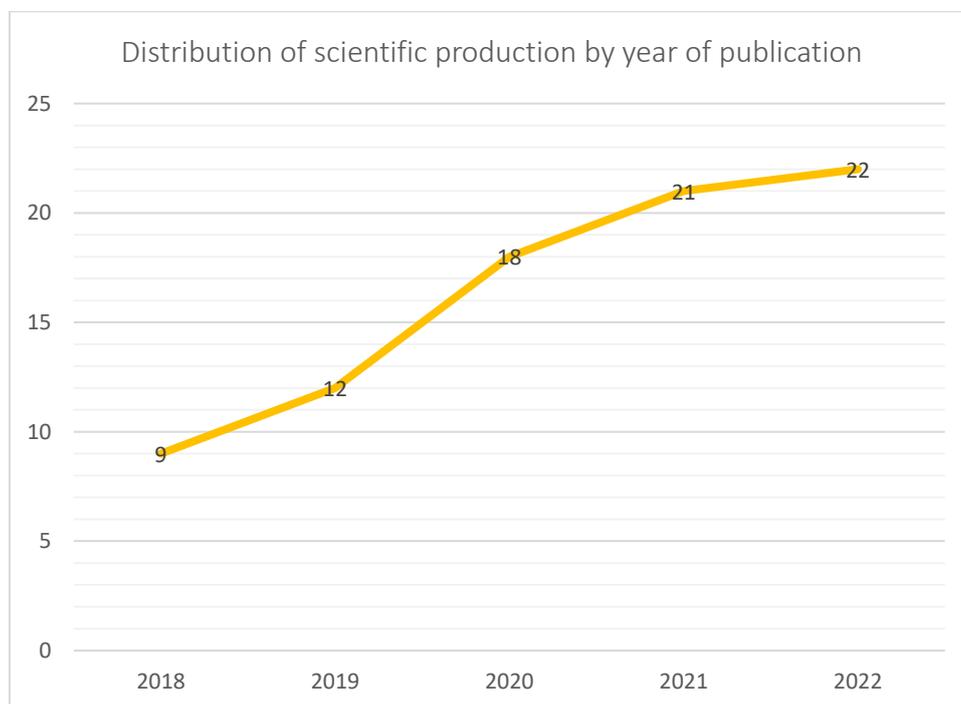
**Figure 2.** Co-occurrence of words.

**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.

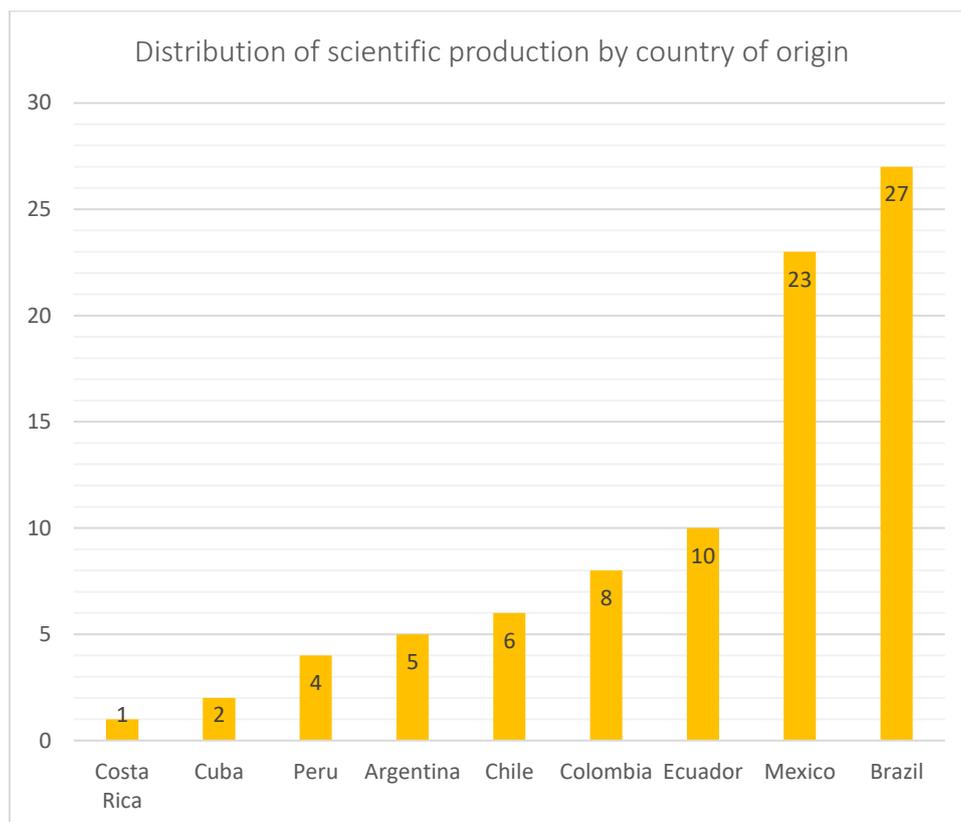


**Figure 3.** *Distribution of scientific production by year of publication.*  
**Source:** *Own elaboration (2023); based on data provided by Scopus.*

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.

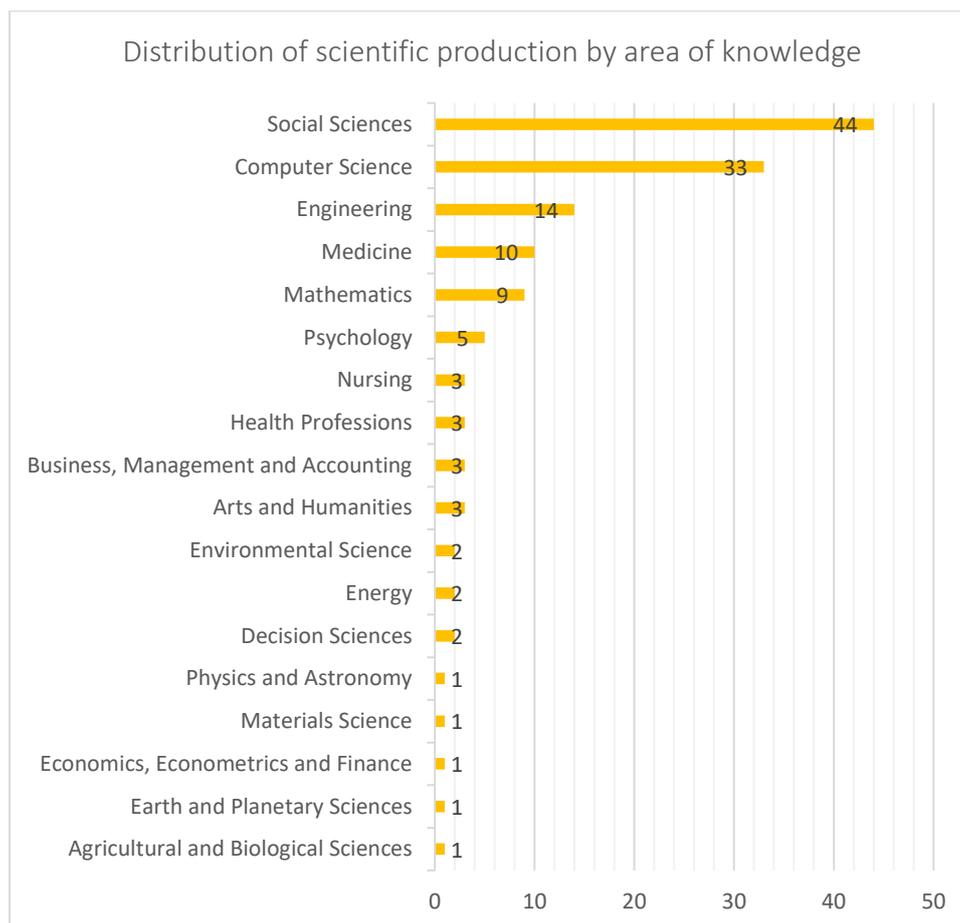


**Figure 4.** *Distribution of scientific production by country of origin.*  
**Source:** *Own elaboration (2023); based on data provided by Scopus.*

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.

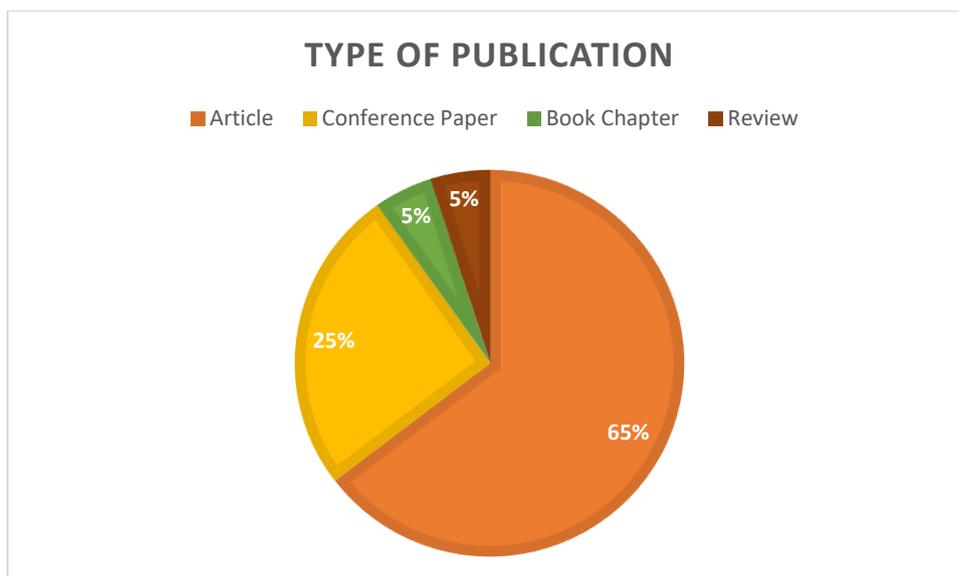


**Figure 5.** *Distribution of scientific production by area of knowledge.*  
**Source:** *Own elaboration (2023); based on data provided by Scopus.*

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.

## References

- Agila-Palacios, M. V., Muñoz-Repiso, A. G.-V., & Ramírez-Montoya, M. S. (2022). *Influencia de las metodologías activas: proyectos y casos en el desarrollo de competencias digitales con dispositivos móviles*. monterrey.
- Borges, R. R., Dinis, M. A., & Barros, N. (2022). *Práticas de Sustentabilidade em uma Universidade Pública de Bahía, Brasil*. brasil.
- Jiménez-Calderón, C. E., Mairena-Fox, P. L., & Mancarella-Valladares, G. M. (2022). *Interfaz Humana e Inteligencia Competitiva en la Gestión de la Investigación Docente en Ciencias Empresariales*. lima.
- López, M., Herrera, M., & Apolo, D. (2021). *Educación de calidad y pandemia: retos, experiencias y propuestas de los estudiantes en formación docente en ecuador*. provincia de uzuay .
- Alvarado, M. Á. C., & Martinell, A. R. (2019). Digital culture and institutional change in universities. [Cultura digital y cambio institucional de las universidades] *Revista De La Educacion Superior*, 48(191), 97-111. doi:10.36857/resu.2019.191.839
- Alvarez, C., Rojas, L. A., & de Dios Valenzuela, J. (2022). Design and Evaluation of a Programming tutor based on an Instant messaging interface doi:10.1007/978-3-031-05064-0\_1 Retrieved from www.scopus.com
- Amores-Valencia, A., Burgos, D., & Branch-Bedoya, J. W. (2022). Influence of motivation and academic performance in the use of augmented reality in education. A systematic review. *Frontiers in Psychology*, 13 doi:10.3389/fpsyg.2022.1011409
- Ávalos-Ramos, M. A., Martínez-Ruiz, M. A., Benítez, J. M., & Merma-Molina, G. (2020). The international language of metaphors: A case study of higher education students in sport and physical activity in ecuador and spain. *Revista Iberoamericana De Psicología Del Ejercicio y El Deporte*, 15(1), 61-66. Retrieved from www.scopus.com
- Balderas-Solís, J., Roque-Hernández, R. V., Salazar-Hernández, R., & López-Mendoza, A. (2021). Experiences of undergraduates' emergency remote education in mexico. *Cogent Education*, 8(1) doi:10.1080/2331186X.2021.2000846
- Barreto, I. B., & Aparicio, S. S. P. (2022). Emergency remote education: A perspective of its potentialities and limitations in a peruvian university. *Tuning Journal for Higher Education*, 9(2), 307-323. doi:10.18543/tjhe.2139
- Barreto, L. P., Rodrigues, A. A. D., de Oliveira, G. C. B., de Almeida, L. T. G., Felix, M. A. C., Silva, P. S., . . . Mortimer, E. F. (2021). The use of different translation devices to analyze knowledge-building in a university chemistry classroom. *Research in Science Education*, 51(1), 135-152. doi:10.1007/s11165-020-09969-z
- Baumgarten, A., Hugo, F. N., Bulgarelli, A. F., & Hilgert, J. B. (2018). Curative procedures of oral health and structural characteristics of primary dental care. *Revista De Saude Publica*, 52 doi:10.11606/S1518-8787.2018052016291

- Bianchi, F. M., & Gonçalves, L. T. (2021). Getting science priorities straight: How to increase the reliability of specimen identification? *Biology Letters*, 17(4) doi:10.1098/rsbl.2020.0874
- Bordignon, S. S., Lunardi, V. L., Barlem, E. L. D., Dalmolin, G. D. L., da Silveira, R. S., Ramos, F. R. S., & Barlem, J. G. T. (2019). Moral distress in undergraduate nursing students. *Nursing Ethics*, 26(7-8), 2325-2339. doi:10.1177/0969733018814902
- Borges, R. R., Dinis, M. A. P., & Barros, N. (2022). Sustainability practices in a public university in bahia, brazil doi:10.1007/978-3-030-86304-3\_23 Retrieved from www.scopus.com
- Borroto, G., Medina Olazabal, I., Sánchez Mesa, B., & Fonseca Montes E Oca, L. (2021). Online teaching tasks in the subjects biology and spanish as a foreign language. [Tareas docentes en línea en las asignaturas biología y español como lengua extranjera] *Campus Virtuales*, 10(1), 163-172. Retrieved from www.scopus.com
- Caputo, E. L., Feter, N., Alberton, C. L., Leite, J. S., Rodrigues, A. N., Dumith, S. D. C., & Silva, M. C. D. (2022). Reliability of a smartphone application to measure physical activity. *Research in Sports Medicine*, 30(3), 264-271. doi:10.1080/15438627.2021.1899919
- Carreño, M. J., Castro-Alonso, J. C., & Gallardo, M. J. (2022). Interest in physics after experimental activities with a mobile application: Gender differences. *International Journal of Science and Mathematics Education*, 20(8), 1841-1857. doi:10.1007/s10763-021-10228-4
- Casali, A., Zanarini, D., Monjelat, N., & San Martin, P. (2018). Teaching and learning computer science for primary school teachers: An argentine experience. Paper presented at the Proceedings - 13th Latin American Conference on Learning Technologies, LACLO 2018, 349-355. doi:10.1109/LACLO.2018.00067 Retrieved from www.scopus.com
- Chan, M., Uribe-Quevedo, A., Kapralos, B., Jenkin, M., Kanev, K., & Jaimes, N. (2021). A review of virtual reality-based eye examination simulators doi:10.1007/978-3-030-59608-8\_6 Retrieved from www.scopus.com
- Contreras, J. L. G., Torres, C. A. B., & Ojeda, Y. C. E. (2022). Using of ICT and LKT in higher education: A bibliometric analysis. [Uso de TIC y TAC en la educación superior: Un análisis bibliométrico] *Revista Complutense De Educacion*, 33(3), 601-613. doi:10.5209/rced.73922
- Criollo-C, S., Moscoso-Zea, O., Guerrero-Arias, A., Jaramillo-Alcazar, A., & Lujan-Mora, S. (2021). Mobile learning as the key to higher education innovation: A systematic mapping. *IEEE Access*, 9, 66462-66476. doi:10.1109/ACCESS.2021.3076148
- Cukierman, U. R., Agüero, M., Silvestri, S., Gonzalez, M., Drangosch, J., Gonzalez, C., . . . Dellepiane, P. (2019). A student-centered approach to learning mathematics and physics in engineering freshmen courses. Paper presented at the 2018 World Engineering Education Forum - Global Engineering Deans Council, WEEF-GEDC 2018, doi:10.1109/WEEF-GEDC.2018.8629733 Retrieved from www.scopus.com
- D'almeida, F. S., de Carvalho, R. B., Dos Santos, F. S., & de Souza, R. F. M. (2021). On the hibernating electronic waste in rio de janeiro higher education community: An assessment of population behavior analysis and economic potential. *Sustainability (Switzerland)*, 13(16) doi:10.3390/su13169181
- Da Silva, J. (2020). Use of smartphone applications in vibration analysis: Critical review. *International Journal of Emerging Technology and Advanced Engineering*, 10(8), 27-31. doi:10.46338/ijetae0820\_05
- de Goes Bay Júnior, O., Vieira Silva, C. R. D., Martiniano, C. S., de Figueiredo Melo, L. M., de Souza, M. B., da Silva Lopes, M., . . . da Costa Uchôa, S. A. (2022). Using the PMAQ-AB mobile app and management system to evaluate the quality of primary

- health care in brazil: Qualitative case study. *JMIR Formative Research*, 6(7) doi:10.2196/35996
- De La Cruz Paola, D. L. C., & Rusbel, D. D. (2021). Evaluation of the security level of aruba wireless networks in an educational center. Paper presented at the Proceedings - 2021 International Conference on Computational Science and Computational Intelligence, CSCI 2021, 1370-1376. doi:10.1109/CSCI54926.2021.00275 Retrieved from www.scopus.com
- de Lira, T. B., Rocha, F. C. V., Almeida, C. A. P. L., Amorim, F. C. M., & Rocha, L. P. V. (2020). Development and evaluation of a prototype-application for caregivers of elderly. *Enfermeria Global*, 19(3), 389-421. doi:10.6018/eglobal.396671
- de Oliveira, H. S., & Cavalcante, L. E. (2022). Ex-libris: An integrative review. [Ex-libris: uma revisão integrativa] *Revista Digital De Biblioteconomia e Ciencia Da Informacao*, 20 doi:10.20396/RDBCI.V20I00.8670945
- De Oliveira, M., Mattedi, A. P., & Seabra, R. D. (2018). Social perceptions about adopting smartphone applications in the context of collaborative security. Paper presented at the ACM International Conference Proceeding Series, 31-38. doi:10.1145/3229345.3229351 Retrieved from www.scopus.com
- Díaz, N. M. (2022). PROPOSAL TO KNOWLEDGE MANAGEMENT AND DIGITAL TRANSFORMATION, IN THE CONTEXT OF DIGITAL HEALTH, IN THE HIGHER CUBAN MEDICAL EDUCATION\*. [PROPUESTA PARA LA GESTIÓN DEL CONOCIMIENTO Y LA TRANSFORMACIÓN DIGITAL, EN EL CONTEXTO DE LA SALUD DIGITAL, EN LA EDUCACIÓN MÉDICA SUPERIOR CUBANA\*] *Bibliotecas, Anales De Investigacion*, 18(1) Retrieved from www.scopus.com
- Félix-Herrán, L. C., Izaguirre-Espinosa, C., Parra-Vega, V., Sánchez-Orta, A., Benitez, V. H., & Lozoya-Santos, J. -. (2022). A challenge-based learning intensive course for competency development in undergraduate engineering students: Case study on UAVs. *Electronics (Switzerland)*, 11(9) doi:10.3390/electronics11091349
- Fernández, M. J., Jaramillo-Alcázar, A., Galarza-Castillo, M., & Luján-Mora, S. (2019). A serious game to learn basic english for people with hearing impairments doi:10.1007/978-3-030-11890-7\_63 Retrieved from www.scopus.com
- Figueras-Maz, M., Grandío-Pérez, M. M., & Mateus, J. -. (2021). Students' perceptions on social media teaching tools in higher education settings. *Communication and Society*, 34(1), 15-28. doi:10.15581/003.34.1.15-28
- García, M. L. S., de Segura, B. I. E., López, J. M. S., & Romero, C. S. (2020). Tablet devices. dynamic strategy to promote significant learning at university. [La tableta. Estrategia dinámica para favorecer el aprendizaje significativo universitario] *Pixel-Bit, Revista De Medios y Educacion*, 59, 97-123. doi:10.12795/pixelbit.77407
- Gibbons, M. V. S., Corales, K. U., & Rojas, N. B. (2020). Incorporation of teaching-learning devices of the oral genres typical of initial training in law: The case of the solemn oral. [Incorporação de dispositivos de ensino-aprendizagem dos gêneros orais típicos da formação inicial em direito: O caso do oral solene] *Revista Pedagogia Universitaria y Didactica Del Derecho*, 7(2), 51-74. doi:10.5354/0719-5885.2020.54883
- Gomes, H. F., de Jesus, I. P., & do Rosário Santos, R. (2020). Scientific initiation as a device for developing information skills and conscious mediation of information. [Iniciação científica como dispositivo para o desenvolvimento de competências em informação e da mediação consciente da informação] *Informacao e Sociedade*, 30(1) doi:10.22478/ufpb.1809-4783.2020v30n1.47582
- Gonzalez-Hernandez, H. G., Pena-Cortes, D. V., Flores-Amado, A., Amozurrutia-Elizalde, A., & Mora-Salinas, R. J. (2022). Decreasing exam-anxiety levels with mindfulness

- through EEG measurements. Paper presented at the IEEE Global Engineering Education Conference, EDUCON, , 2022-March 1213-1220. doi:10.1109/EDUCON52537.2022.9766539 Retrieved from www.scopus.com
- Guadamuz-Villalobos, J. (2020). First steps of mobile learning in costa rica: Use of WhatsApp as a means of communication in the classroom. [Primeiros passos do aprendizado móvel na Costa Rica: Usando o WhatsApp como meio de comunicação na sala de aula] *Revista Electronica Educare*, 24(2) doi:10.15359/ree.24-2.18
- Guerrero, G., Guevara, A., Quiña-Mera, J. A., Guevara-Vega, C. P., & García-Santillán, I. (2022). Software project management integrating CMMI-DEV and SCRUM doi:10.1007/978-3-031-03884-6\_39 Retrieved from www.scopus.com
- Hernandez, L., Balmaceda, N., Hernandez, H., Vargas, C., De La Hoz, E., Orellano, N., . . . Uc-Rios, C. E. (2019). Optimization of a wifi wireless network that maximizes the level of satisfaction of users and allows the use of new technological trends in higher education institutions doi:10.1007/978-3-030-21935-2\_12 Retrieved from www.scopus.com
- Hernández-Horta, I. A., Monroy-Reza, A., & Jiménez-García, M. (2018). Learning through games based on principles of gamification in higher education institutions. [Aprendizaje mediante juegos basados en principios de Gamificación en Instituciones de Educación Superior] *Formacion Universitaria*, 11(5), 31-40. doi:10.4067/S0718-50062018000500031
- Herrera-Bernal, J. -, Ramírez-Hernández, D. D. C., & Ramírez-Montoya, M. S. (2020). Applied competences for students by using m-learning devices in higher education: Knowledge, skills, and attitudes. *Mobile devices in education: Breakthroughs in research and practice* (pp. 44-67) doi:10.4018/978-1-7998-1757-4.ch004 Retrieved from www.scopus.com
- Hidrogo, I., Zambrano, D., Hernandez-de-Menendez, M., & Morales-Menendez, R. (2020). Mostla for engineering education: Part 2 emerging technologies. *International Journal on Interactive Design and Manufacturing*, 14(4), 1461-1473. doi:10.1007/s12008-020-00729-x
- Holt, K., Zavala, I., Quintero, X., Mendoza, D., McCormick, M. C., Dehlendorf, C., . . . Langer, A. (2018). Women's preferences for contraceptive counseling in mexico: Results from a focus group study. *Reproductive Health*, 15(1) doi:10.1186/s12978-018-0569-5
- Isasi, R. M. G., & Morales, G. D. C. M. (2018). Use of mobile devices as tools for learning. [Uso de dispositivos móviles como herramientas para aprender] *Pixel-Bit, Revista De Medios y Educacion*, (52), 217-227. doi:10.12795/pixelbit.2018.i52.15
- Jáquez-Pérez, S. I., & Villa-Maciel, M. D. C. (2021). Adaptive learning of reading comprehension: Innovation with technologies for middle education. Paper presented at the ACM International Conference Proceeding Series, 477-481. doi:10.1145/3486011.3486497 Retrieved from www.scopus.com
- Jiménez-Calderón, C. E., Mairena-Fox, P. L., & Mancarella-Valladares, G. M. (2022). Human interface and competitive intelligence in management of business science teaching research doi:10.1007/978-3-031-19682-9\_36 Retrieved from www.scopus.com
- Jinés, G. J., & Kudín, J. W. (2020). Counseling device development at the university of chile. [El desarrollo del dispositivo de consejería en la Universidad de Chile] *Revista Brasileira De Orientacao Profissional*, 21(1), 7-16. doi:10.26707/1984-7270/2020v21n102
- Júnior, E. S., Simão Monteiro, S. B., & Madeira Campos, M. R. (2019). Serious game for the production engineering course of the UNB: Student's trajectory in the course. Paper presented at the International Symposium on Project Approaches in Engineering Education, , 9 584-593. Retrieved from www.scopus.com

- León-Pérez, F., Bas, M. -, & Escudero-Nahón, A. (2020). Self-perception about emerging digital skills in higher education students. *Comunicar*, 28(62), 89-98. doi:10.3916/C62-2020-08
- López, M., Herrera, M., & Apolo, D. (2021). Quality education and pandemic: Challenges, experiences and proposals from students in teacher training in ecuador. [Educación de calidad y pandemia: retos, experiencias y propuestas desde estudiantes en formación docente de ecuador] *Texto Livre*, 14(2) doi:10.35699/1983-3652.2021.33991
- López, W. L. G., Cují, B. R., Ríos, S. L. C., & Abásolo, M. J. (2022). OARA methodology for designing of learning objects with augmented reality, university experience. Paper presented at the Iberian Conference on Information Systems and Technologies, CISTI, , 2022-June doi:10.23919/CISTI54924.2022.9820230 Retrieved from www.scopus.com
- MacLachlan, M., Banes, D., Bell, D., Borg, J., Donnelly, B., Fembek, M., . . . Hooks, H. (2018). Assistive technology policy: A position paper from the first global research, innovation, and education on assistive technology (GREAT) summit. *Disability and Rehabilitation: Assistive Technology*, 13(5), 454-466. doi:10.1080/17483107.2018.1468496
- Marques, F. B., Bettoni, G. N., de Brito, B., de Brito, K. C. T., Fermino, M. H., Ngajilo, D., . . . Cavalli, L. S. (2019). An online survey of occupational hazards in brazilian aquaculture. *Journal of Agromedicine*, 24(4), 434-440. doi:10.1080/1059924X.2019.1647323
- Maurente, V. S. (2019). Neo-liberalism, ethics, and academic output: Subjectivation and resistance on graduate programs in brazil (abstract: P. 14). [Neoliberalismo, ética e produtividade acadêmica: Subjetivação e resistência em programas de pós-graduação Brasileiros] *Interface: Communication, Health, Education*, 23 doi:10.1590/Interface.180734
- Melo, A. R., Da Silva, C. J. P., Gomes, A. S., & Moreira, F. (2020). The educational potential of mobile technologies for young high school graduates: A situated approach. Paper presented at the Iberian Conference on Information Systems and Technologies, CISTI, , 2020-June doi:10.23919/CISTI49556.2020.9140990 Retrieved from www.scopus.com
- Melo, J. H. N. D., Trinca, T. P., & Maricato, J. D. M. (2021). Limits of international databases bibliometric indicators to evaluate the brazilian graduate programs: Web of science coverage on different scientific disciplines. [Limites dos indicadores bibliométricos de bases de dados internacionais para avaliação da Pós-Graduação brasileira: A cobertura da Web of Science nas diferentes áreas do conhecimento] *Transinformacao*, 33 doi:10.1590/2318-0889202133e200071
- Mendes, I. A. C., Trevizan, M. A., Souza, M. C., Souza-Junior, V. D., de Godoy, S., Ventura, C. A. A., & Santos, S. S. D. (2019). Empathic profile of nursing freshmen. *Nursing Ethics*, 26(7-8), 2298-2305. doi:10.1177/0969733018780532
- Mishra, S. R., Lygidakis, C., Neupane, D., Gyawali, B., Uwizihwe, J. P., Virani, S. S., . . . Jaime Miranda, J. (2019). Combating non-communicable diseases: Potentials and challenges for community health workers in a digital age, a narrative review of the literature. *Health Policy and Planning*, 34(1), 55-66. doi:10.1093/heapol/czy099
- Mladenović, R., Pereira, L., Djordjević, F., Vlahović, Z., Mladenović, K., Cvetković, A., . . . Popovski, J. (2020). The use of mobile-aided learning in education of local anesthesia for the inferior alveolar nerve block. [Primena učenja putem mobilnih uređaja u edukaciji izvođenja mandibularne anestezije] *Vojnosanitetski Pregled*, 77(8), 839-843. doi:10.2298/VSP180622154M
- Mondragon-Estrada, E., & Camacho-Zuniga, C. (2021). Undergraduate's perspective on being an effective online student during lockdown due to COVID-19 pandemic: An educational data mining study. Paper presented at the Future of Educational Innovation Workshop Series - Machine Learning-Driven Digital Technologies for Educational

- Innovation Workshop 2021, doi:10.1109/IEEECONF53024.2021.9733773 Retrieved from [www.scopus.com](http://www.scopus.com)
- Montesinos, L., Santos-Diaz, A., Salinas-Navarro, D. E., & Cendejas-Zaragoza, L. (2022). Experiential learning in biomedical engineering education using wearable devices: A case study in a biomedical signals and systems analysis course. *Education Sciences*, 12(9) doi:10.3390/educsci12090598
- Puga, R. U. (2022). Game-based learning. A tool that enhances the collaborative work: A case study of undergraduate students. Paper presented at the Proceedings of the European Conference on Games-Based Learning, , 2022-October 570-577. Retrieved from [www.scopus.com](http://www.scopus.com)
- Ricardo-Barreto, C., Molinares, D. J., Llinás, H., Santodomingo, J. P., Acevedo, C. A., Rodríguez, P. A., . . . Villa, S. V. (2020). Trends in using ict resources by professors in heis (higher education institutions). *Journal of Information Technology Education: Research*, 19, 395-425. doi:10.28945/4601
- Rojas-Contreras, M., & Ruiz-Bautista, L. E. (2020). Online laboratories supported with virtual reality for higher education. Paper presented at the *Journal of Physics: Conference Series*, , 1708(1) doi:10.1088/1742-6596/1708/1/012036 Retrieved from [www.scopus.com](http://www.scopus.com)
- Rosa, R. G., Pellegrini, J. A. S., Moraes, R. B., Prieb, R. G. G., Sganzerla, D., Schneider, D., . . . Teixeira, C. (2021). Mechanism of a flexible ICU visiting policy for anxiety symptoms among family members in brazil: A path mediation analysis in a cluster-randomized clinical trial. *Critical Care Medicine*, 49(9), 1504-1512. doi:10.1097/CCM.0000000000005037