

Challenges and Barriers to the Development of Research Skills in University Students

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Abstract

A documentary review was carried out on the production and publication of research papers related to the study of the variables Research Skills 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 2017-2022 and to identify the current situation in Latin American institutions with respect to the study of the aforementioned variables, achieving the identification of 623 publications in total at the Latin American level. The information provided by this platform was organized through graphs and figures, categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics have been described, the position of different authors on the proposed topic is referenced through a qualitative analysis. Among the main findings made through this research, it is found that Brazil, with 156 publications, was the Latin American 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 related to the study of Research Skills and Higher Education was Social Sciences with 406 published documents, and the Type of Publication that was most used during the period indicated above was the Journal Article, which represents 71% of the total scientific production.

Keywords: *Research Skills, Higher Education, Teaching Strategies.*

1. Introduction

In this intricate web of challenges and barriers, it is imperative to recognize the interconnected nature of these issues. Higher education is marked by its constant need to impart knowledge and obtain academic excellence, these being the basis of developing research skills in academia. For undergraduates, developing strong research skills is not simply an academic requirement but a transformative journey that equips them with the tools to critically analyze, synthesize information, and contribute meaningfully to their respective fields. Despite educational efforts that have a straightforward twist, this one is

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not without presenting challenges and execution barriers that often prevent a smooth cultivation of research skills for students.

In the context that governs academia, which has multiple disciplines and new methodologies focused on learning, these evolutions in education represent an environment of obstacles for students since they must overcome teaching methods to become qualified researchers. One of the main challenges arises from the inherent complexity of the research process itself. The complicated dance between formulating a research question, analyzing large amounts of literary information, designing methodologies, and interpreting hypotheses requires a level of intellectual dexterity that is overwhelming for prospective students who want to enter the world of research. As students grapple with these complexities, they may find themselves in an overwhelming maze of uncertainty, not knowing where to start or how to proceed.

The academic environment is not immune to systemic challenges that hinder the development of research skills. Limited resources, both financial and infrastructural in universities, can limit students' access to new technologies, which will allow students to access databases immediately and cutting-edge literary resources which are essential for research. Inadequate tutoring and guidance exacerbate this problem, leaving students adrift in a sea of information without a compass to navigate the nuances of their chosen field. This not only impedes the development of research skills, but also hinders students' confidence in their ability to contribute meaningfully to the academic conversation.

Cultural and socio-economic factors are relevant to the trajectory of the development of essential research skills. Since these shortcomings in these factors generate a gap between students, which limits access to technology, language barriers and opportunities to access information, which is a fundamental pillar for the development of these models. The homogeneity of academic spaces, coupled with implicit biases, can create an environment in which certain students feel like outsiders, struggling to find their voices amid a cacophony of academic discourse.

Although we know that the technology factor adds another barrier of complexity in the development of these investigative skills. Online platforms and digital tools offer full access to information in a timely and effective manner, they also present a steep learning curve. Navigating the sea of online databases, discerning the credibility of sources, and mastering new research methodologies in the digital age can be daunting, especially for those who didn't grow up immersed in technology-driven culture. By recognising these obstacles, universities will be able to create an environment conducive to the organic growth of research skills among their students, fostering a generation of academics prepared to meet the complex challenges of the future. 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 Skills and Higher Education, as well. Such as the description of the position of certain authors affiliated with 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 Research Skills and Higher Education registered in Scopus during the period 2017-2022 by Latin American institutions.

3. Methodology

A quantitative analysis of the information provided by Scopus is carried out under a bibliometric approach on the scientific production related to the study of the variables Teaching Strategies, Research Skills, Higher Education. Likewise, from a qualitative

perspective, examples of some research works published in the area of study mentioned above are analyzed, from a bibliographic approach to describe the position of different authors regarding the proposed topic.

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

3.1 Methodological design

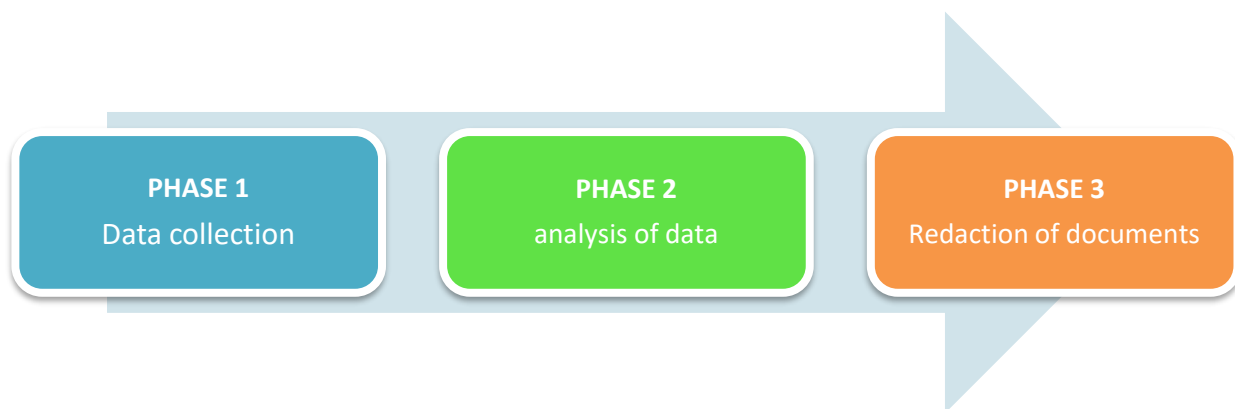


Figure 1. Methodological design

Source: Authors.

3.1.1 Phase 1: Data collection

Data collection was carried out through the Search tool on the Scopus website, through which a total of 623 publications were identified. To this end, search filters were established consisting of:

TITLE-ABS-KEY (research AND skills, AND higher AND education) AND PUBYEAR > 2016 AND PUBYEAR < 2023 AND (LIMIT-TO (AFFILCOUNTRY , "Brazil") OR LIMIT-TO (AFFILCOUNTRY , "Mexico") OR LIMIT-TO (AFFILCOUNTRY , "Colombia") OR LIMIT-TO (AFFILCOUNTRY , "Chile") OR LIMIT-TO (AFFILCOUNTRY , "Ecuador") OR LIMIT-TO (AFFILCOUNTRY , "Peru") OR LIMIT-TO (AFFILCOUNTRY , "Argentina") OR LIMIT-TO (AFFILCOUNTRY , "Cuba") OR LIMIT-TO (AFFILCOUNTRY , "Costa Rica") OR LIMIT-TO (AFFILCOUNTRY , "Venezuela") OR LIMIT-TO (AFFILCOUNTRY , "Puerto Rico") OR LIMIT-TO (AFFILCOUNTRY , "Guatemala") OR LIMIT-TO (AFFILCOUNTRY , "Dominican Republic") OR LIMIT-TO (AFFILCOUNTRY , "Honduras") OR LIMIT-TO (AFFILCOUNTRY , "Bolivia") OR LIMIT-TO (AFFILCOUNTRY , "Uruguay") OR LIMIT-TO (AFFILCOUNTRY , "Panama")

- ✓ Published documents whose study variables are related to the study of the variables Research Skills and Higher Education
- ✓ Limited to Latin American countries.
- ✓ Without distinction of area of knowledge.
- ✓ No distinction of type of publication.

3.1.2 Phase 2: Construction of analytical material

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

- ✓ Co-occurrence of Words.
- ✓ Year of publication
- ✓ Country of origin of the publication.

4.2 Distribution of scientific production by year of publication.

Figure 3 shows how scientific production is distributed according to the year of publication, taking into account that the period between 2018 and 2022 is taken

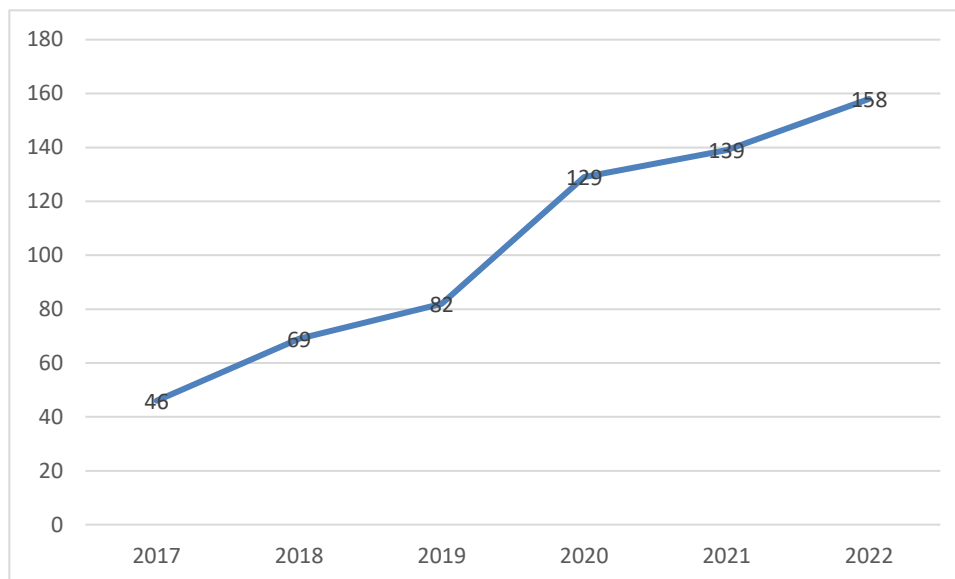


Figure 3. Distribution of scientific production by year of publication.

Source: Authors' own elaboration (2023); based on data provided by Scopus.

Among the main characteristics evidenced through the distribution of scientific production by year of publication, the number of publications registered in Scopus was in 2022, reaching a total of 158 documents published in journals indexed on this platform. This can be explained thanks to articles such as the one entitled "Socio-emotional skills and inclusion: the case of the undergraduate student Tétis" whose object of study was to understand the possible contributions of the socio-emotional skills of an undergraduate student of Biology with hearing and visual impairment during her academic inclusion process. Therefore, we opted for a qualitative approach, through the case study method, using the semi-structured interview as a data collection instrument, with the application of textual discursive analysis for data processing. The interviews were conducted with the student, her mother, the LIBRAS (Brazilian Sign Language) interpreter and a graduation teacher, who was indicated by the student. The analysis showed that, during her academic life, the student has had socio-emotional learning mainly in the fields of extroversion and openness to new experiences, also expanding skills related to conscientiousness, with special positive influence from the interpreter and negative influence from some classmates. of the course. We believe that this research is still early and we highlight the need for future research to address these issues, presenting their relationships more broadly.(de Andrade, 2022)

4.3 Distribution of scientific production by country of origin.

Figure 4 shows how the scientific production is distributed according to the nationality of the authors.

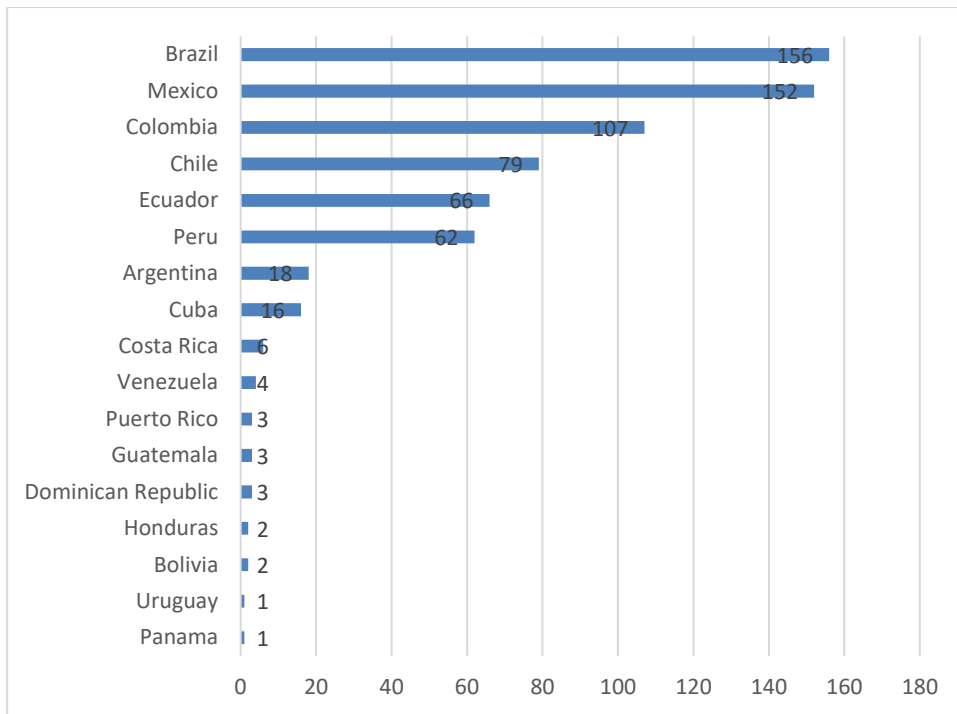


Figure 4. Distribution of scientific production by country of origin.

Source: Authors' own elaboration (2023); based on data provided by Scopus.

Within the distribution of scientific production by country of origin, registrations from institutions were taken into account, establishing Brazil as the country of this community, with the highest number of publications indexed in Scopus during the period 2017-2022, with a total of 156 publications in total. In second place, Mexico with 152 scientific documents, and Colombia occupying the third place presenting to the scientific community, with a total of 107 documents among which is the article entitled "Students' perception of the use of an educational web application during the COVID-19 pandemic" The general objective of this mixed research was to build and analyze the use of a web application for the educational process on the t-test Considering data science. In particular, the teacher of the Mathematics Teaching II career needed to update school activities due to the new educational demands caused by the COVID-19 pandemic. To facilitate the educational process of mathematics, this teacher decided to build a web application that presents the formulas and the calculation of the mean, standard deviation and statistical error to understand the use of the t-test. This technological tool allows the personalization of learning through data simulation. The participants were 42 students from a Mexican university. The results of the machine learning indicated that the contents of the web application positively influenced the assimilation of knowledge, satisfaction during the learning process, the development of mathematical skills and distance learning. (Salas-Rueda, 2022)

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.

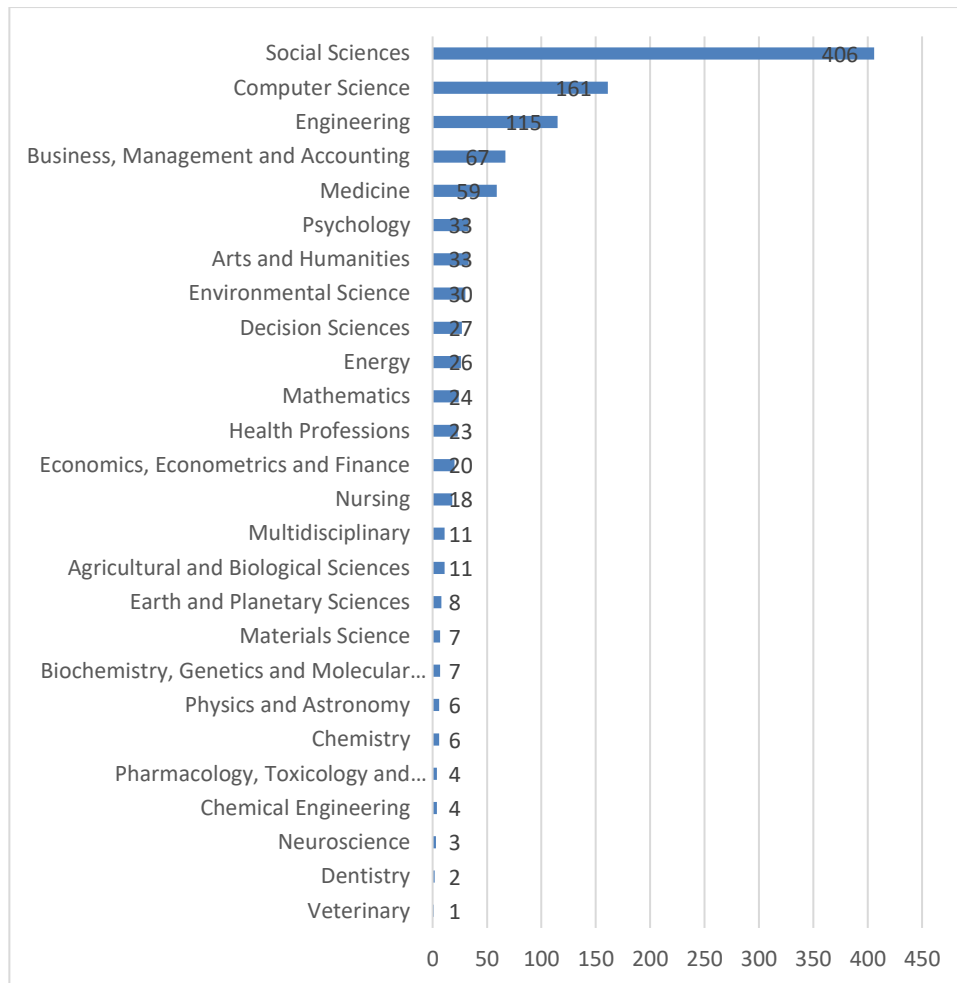


Figure 5. Distribution of scientific production by area of knowledge.

Source: Authors' 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 406 documents that have been based on its Research Skills and Higher Education methodologies. In second place, Computer Science with 161 articles and Engineering in third place with 115. The above can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by Social Sciences entitled "Frequency of use of online assessment by higher level teachers during the confinement due to the COVID-19 pandemic" The purpose of this research was to review how often mathematics teachers use technological tools to evaluate their students and, the relationship established with the reliability, ease of use and usefulness that teachers find in them; In order to offer them courses or workshops that allow them to use different tools that help them in the evaluation process, as well as to show them different options of use for the different moments of their class, such as in the diagnosis, formative or summative. evaluation. Under the paradigm of quantitative research, a questionnaire was applied to a random sample of 12 professors from a public higher education institution in Mexico City. All teachers were invited (N=14), but only 12 were able to participate; therefore, there was a margin of error of 8%. The questionnaire was administered during the period of confinement. The reliability of the questionnaire has been validated and Pearson's correlation analyses have been performed, based on the following variables: frequency and ease of use, usefulness and reliability. The results showed that in the category of use of the medium, more than half of the teachers in the sample have shown a frequency of regular use of online assessment tools. A comparison

was made with the authors of the reviewed literature and coincidences were found with the answers given by the teachers. (Ruiz-Ledesma, 2022)

4.5 Type of publication

Figure 6 shows how the bibliography is distributed according to the type of publication chosen by the authors

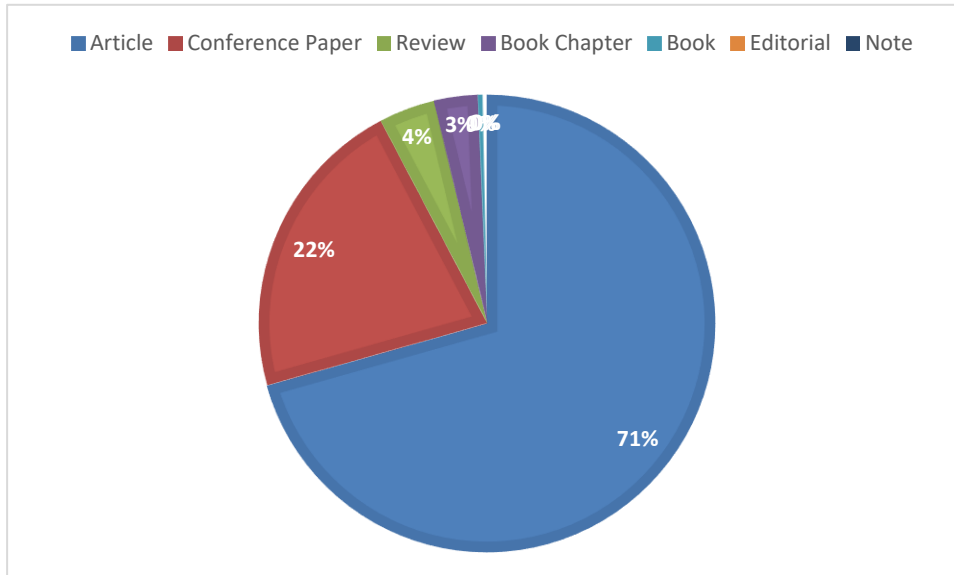


Figure 6. Publication Type

Source: Authors' own elaboration (2023); based on data provided by Scopus.

The type of publication most frequently used by the researchers referenced in the body of this document was the one entitled Journal Articles with 71% of the total production identified for analysis, followed by Session Paper with 22%. Journals are part of this classification, representing 4% of the research papers published during the period 2017-2022, in journals indexed in Scopus. In this last category, the one entitled "Evaluation of environmental competencies in Higher Education Institutions (HEIs) stands out. Case Study: National Polytechnic School, Ecuador" The objective of the research is to evaluate the environmental skills of students and teachers of the National Polytechnic School (EPN) of Ecuador through a mixed, qualitative and quantitative approach, for which the questionnaire proposed by Álvarez García (2015; 2017) was adapted. applied. The combination of both approaches and the descriptive statistical analysis made it possible to propose management strategies to increase environmental competencies for the specific context. It was determined that methodological competencies and the least evaluated topics are those of collective attitude and behavior, provoking reflection that individual and small actions count in aspects of environmental sustainability, but coordinated solutions are also required at all levels. (Araujo-Vizuet, 2022)

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 for the variables Research Skills and Higher Education. With a total of 156 publications in the Scopus database. In the same way, it was possible to establish that the application of theories framed in the area of Social Sciences, were used more frequently in order to address the research skills around university students since being able to acquire these processes is plagued by numerous challenges and barriers. These obstacles, ranging from institutional constraints to individual factors, collectively impede students' growth as

effective researchers. One of the main challenges lies in the overwhelming nature of the information available in the digital age, which can be both a blessing and a curse. While the resources that students can acquire in a pool of knowledge are beneficial, it is also important to ensure that students have the necessary literacy skills in order to perfect their online navigations, having official sites, a literary network, and being able to discard credible sources of misinformation. Limited access to resources, inadequate training programs, and the absence of mentoring opportunities can hinder students' ability to engage deeply in the research process. Universities must recognize the importance of creating a campus with a cultural focus focused on research, which provides students with the necessary tools and state-of-the-art systematized support to be able to face the complexities of research. Another formidable barrier is the lack of emphasis on critical thinking skills in academic curricula. Research is not only conscious in collecting information or decoding data, it is important to be able to critically and objectively analyze and synthesize the information obtained from information sites. Without a solid foundation of critical thinking, students may find it difficult to approach research with the necessary depth and analytical acumen. Integrating critical thinking into the educational framework is imperative to train well-rounded researchers. It is important to point out the importance of the socioeconomic environment of the students, since this is an obstacle when it comes to acquiring skills related to research, the lack of economic and financial resources drastically limits access to resources and research opportunities, so it is important that universities manage to close the gaps of this type as this will allow them to exploit their skills to the maximum and therefore Provide improved academic achievement by providing equitable access to research materials and mentoring programs and financial support.

References

- Araujo-Vizuete, G. R.-L.-O. (2022). Evaluation of environmental competencies in Higher Education Institutions (HEIs). Case study: National Polytechnic School, Ecuador. ECUADOR.
- de Andrade, J. A. (2022). Social-emotional skills and inclusion: the case of undergraduate student Tétis. BRAZIL.
- Ruiz-Ledesma, E. F.-G. (2022). Frequency of use of online assessment by higher education teachers during the COVID-19 pandemic lockdown. MEXICO.
- Salas-Rueda, R.-A. M.-R.-M.-O.-Z. (2022). Students' perception of using an educational web application during the COVID-19 pandemic. MEXICO.
- Alvarado, M. Á. C., & Martinell, A. R. (2019). Digital culture and institutional change in universities. [Digital Culture and Institutional Change in Universities] *Journal of Higher Education*, 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-Ruíz, 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. *Ibero-American Journal of Exercise and Sport Psychology*, 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. [Online Teaching Assignments in the Subjects of Biology and Spanish as a Foreign Language] *Virtual Campus*, 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 Martín, 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. [Use of ICT and TAC in Higher Education: A Bibliometric Analysis] *Revista Complutense de Educación*, 33(3), 601-613. doi:10.5209/rced.73922
- Criollo-C, S., Moscoso-Zea, O., Guerrero-Arias, A., Jaramillo-Alcázar, 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. *Global Nursing*, 19(3), 389-421. doi:10.6018/global.396671
- de Oliveira, H. S., & Cavalcante, L. E. (2022). Ex-libris: An integrative review. [Ex-libris: uma revisão integrativa] *Revista Digital De Bibliotéconomia e Ciencia Da Informação*, 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
- Diaz, N. M. (2022). PROPOSAL TO KNOWLEDGE MANAGEMENT AND DIGITAL TRANSFORMATION, IN THE CONTEXT OF DIGITAL HEALTH, IN THE HIGHER CUBAN MEDICAL EDUCATION*. [PROPOSAL FOR KNOWLEDGE MANAGEMENT AND DIGITAL TRANSFORMATION, IN THE CONTEXT OF DIGITAL HEALTH, IN CUBAN HIGHER MEDICAL EDUCATION*] *Libraries, Annals of Research*, 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. [The tablet. Dynamic Strategy to Promote Meaningful University Learning] *Pixel-Bit, Revista De Medios y Educación*, 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] *Journal of University Pedagogy and Didactics of Law*, 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] *Informação e Sociedade*, 30(1) doi:10.22478/ufpb.1809-4783.2020v30n1.47582
- González-Hernández, H. G., Peña-Cortés, 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 Electrónica 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