Journal of Namibian Studies, 33 S3(2023): 2316–2327 ISSN: 2197-5523 (online)

EDUCATION IN THE DIGITAL AGE: HOW THE INTERNET TRANSFORMS THE WAY WE LEARN

Dr. Luis Santiago García Merino[1], Dr. Segundo Cesar Tapia Cabrera[2], Mgtr. Felicitas Eumelia Tapia Cabrera[3], Dra. Blanca Yannet Ávila Valdiviezo[4], Dr. Alex Miguel Hernández Torres[5], Dra. Cecilia Eugenia Mendoza Alva[6]

[1]Universidad Católica Los Ángeles de Chimbote, Instituto de Investigación, Innovación Ciencia y Tecnología

[2,3]Universidad Nacional de Tumbes

[4]Universidad Cesar Vallejo, yanneavila06@gmail.com

[5]Universidad Privada del Norte, alex.hernandez@upn.pe

[6]Universidad Cesar Vallejo, ceciliae@ucvvirtual.edu.pe

Abstract

A documentary review was carried out on the production and publication of research papers related to the study of the variable EDUCATION AND DIGITAL ERA. 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 by Latin American institutions, achieving the identification of 218 publications. 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 towards the proposed theme is referenced through a qualitative analysis. Among the main findings made through this research, it is found that Brazil with 76 publications was the Latin American country with the highest scientific production registered in the name of authors affiliated with institutions in that country. The Area of Knowledge that made the greatest contribution to the construction of bibliographic material referring to the study of EDUCATION AND DIGITAL ERA in Latin America was Social Sciences with 109 published documents, and the Type of Publication most used during the period indicated above were Journal Articles with 69% of the total scientific production.

Keywords: EDUCATION, DIGITAL AGE.

1. Introduction

Today, education is constantly evolving thanks to the rapid development of technology. Internet connectivity in particular has changed the way we learn and get information. The digital age has opened up a world of unprecedented opportunities, broken down geographical barriers and democratized access to education. We are no longer limited to traditional teaching methods in a physical classroom, but have access to a wealth of online resources and tools that allow us to learn more flexibly, individually and collaboratively.

Internet access has revolutionized education through instant access to a wealth of information. Through search engines, virtual libraries, online courses and educational platforms, students can access specialized content, research, e-books, educational videos and various interactive resources. You no longer have to rely only on textbooks and lectures, because the Internet offers an infinite number of constantly updated sources of information.

In addition, the Internet connection has facilitated communication and collaboration of students and teachers around the world. Video conferencing, online forums, collaborative learning platforms, and educational social networks enable real-time communication and exchange of ideas, regardless of geographical location. It promotes a diversity of perspectives and enriches learning by allowing the active participation of students and teachers from different cultures and backgrounds. Education in the digital age has also given rise to teaching roles and methods. Educators now become facilitators of learning, guiding and supporting students in the process of acquiring knowledge. Classrooms have become more dynamic and interactive environments that encourage critical thinking, problem solving and teamwork. In turn, students are taking a more active role using digital tools to research, create content and present work in innovative ways.

However, it is important to note that the digital divide remains a challenge in many parts of the world. Although Internet access has opened up many educational opportunities, there are disparities in access and technology infrastructure that limit the scope of these benefits for some students and communities. It is important to address these differences and work towards inclusive and accessible education in the digital age. 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 EDUCATION AND DIGITAL ERA, as well. As the description of the position of certain authors affiliated with institutions, during the period between 2017 and 2022.

2. General Objective

Analyze from a bibliometric and bibliographic perspective, the elaboration and publication of research works in high-impact journals indexed in Scopus database on the variables EDUCATION AND DIGITAL ERA in Latin America during the period 2017-2022.

3. Methodology

This article is carried out through a mixed orientation research that combines the quantitative and qualitative method.

On the one hand, a quantitative analysis of the information selected in Scopus is carried out under a bibliometric approach of the scientific production corresponding to the study EDUCATION AND DIGITAL ERA. On the other hand, examples of some research works published in the area of study indicated above are analyzed from a qualitative perspective, starting from a bibliographic approach that allows describing the position of different authors against the proposed topic. It is important to note that the entire search was performed through Scopus, managing to establish the parameters referenced in Figure 1.

3.1. Methodological design

Figure 1. Methodological design

Source: Authors.

3.1.1 Phase 1: Data collection

Data collection was executed from the Search tool on the Scopus website, where 218 publications were obtained from the choice of the following filters:

 TITLE-ABS-KEY (AND education, AND digital AND age) 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)) AND (LIMIT-TO (AFFILCOUNTRY , "Brazil") OR LIMIT-TO (AFFILCOUNTRY , "Mexico") OR LIMIT-TO (AFFILCOUNTRY , "Ecuador") OR LIMIT-TO (AFFILCOUNTRY , "Peru") OR LIMIT-TO (AFFILCOUNTRY , "Chile") OR LIMIT-TO (

AFFILCOUNTRY , "Colombia") OR LIMIT-TO (AFFILCOUNTRY , "Argentina") OR LIMIT-TO (AFFILCOUNTRY , "Costa Rica") OR LIMIT-TO (AFFILCOUNTRY , "Puerto Rico") OR LIMIT-TO (AFFILCOUNTRY , "Cuba") OR LIMIT-TO (AFFILCOUNTRY , "Dominican Republic") OR LIMIT-TO (AFFILCOUNTRY , "Bolivia") OR LIMIT-TO (AFFILCOUNTRY , "Guatemala") OR LIMIT-TO (AFFILCOUNTRY , "Panama") OR LIMIT-TO (AFFILCOUNTRY , "Honduras") OR LIMIT-TO (AFFILCOUNTRY , "Nicaragua") OR LIMIT-TO (AFFILCOUNTRY , "Paraguay"))

- Published documents whose study variables are related to the study of EDUCATION AND DIGITAL AGE
- Limited to the years 2017-2022.
- Limited to Latin American countries.
- Without distinction of area of knowledge.
- Regardless of type of publication.

3.1.2 Phase 2: Construction of analysis material

The information collected in Scopus during the previous phase is organized and subsequently classified by graphs, figures and tables as follows:

- Co-occurrence of words.
- Year of publication.
- Country of origin of the publication.
- Area of knowledge.
- Type of publication.

3.1.3 Phase 3: Drafting of conclusions and outcome document

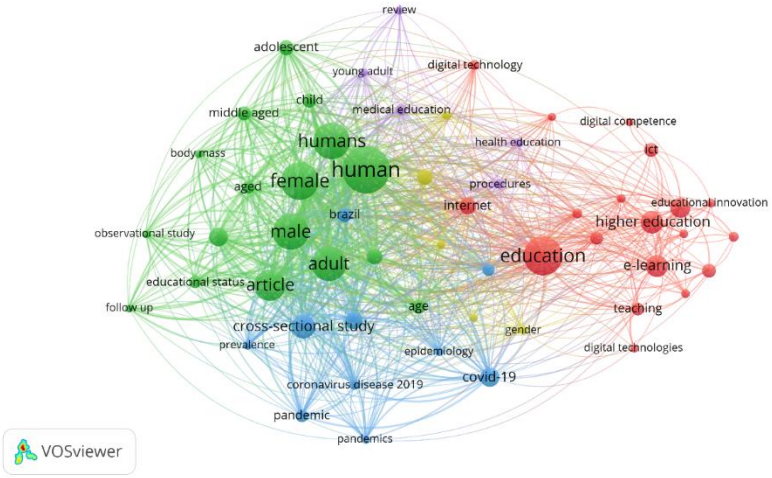
In this phase, we proceed with the analysis of the results previously yielded resulting in the determination of conclusions and, consequently, the obtaining of the final document.

4. Results

4.1 Co-occurrence of words

Figure 2 shows the co-occurrence of keywords found in the publications identified in the Scopus database.

Figure 2. Co-occurrence of words



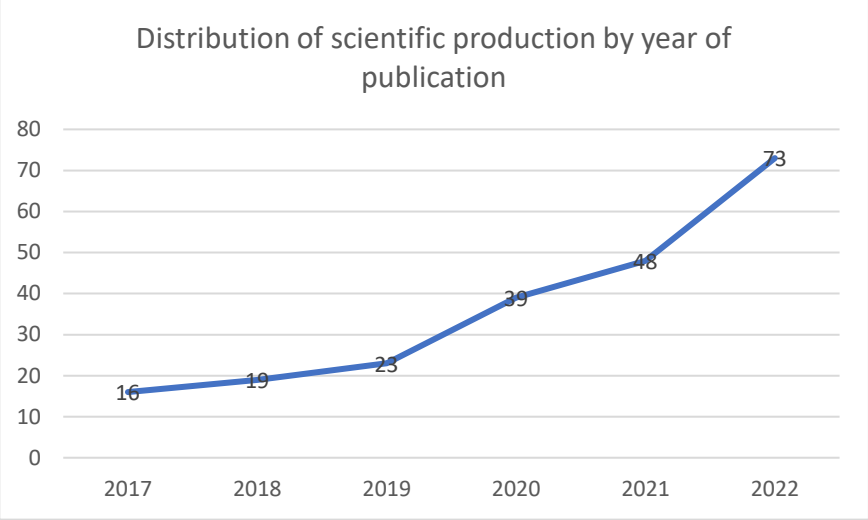
Source: Own elaboration (2023); based on data exported from Scopus.

Education was the most frequently used keyword within the studies identified through the execution of Phase 1 of the Methodological Design proposed for the development of this article. Internet is also among the most frequently used variables, associated with variables such as Higher Education, Big Data, Digital Technology, Teaching. From the above, it is striking that the implementation of the digital age and the proper internet connection has changed the way we learn by giving us unlimited access to information, resources and learning tools. Education in the digital age has allowed us to overcome geographical and temporal barriers that have fostered flexibility, personalization and collaboration in learning. However, it is important to ensure that all students have equal opportunities to access digital education.

4.2 Distribution of scientific production by year of publication

Figure 3 shows how scientific production is distributed according to the year of publication.

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



Source: Own elaboration (2023); based on data exported from Scopus

Among the main characteristics evidenced by the distribution of scientific production by year of publication, a level of number of publications registered in Scopus is notorious in the years 2022, reaching a total of 73 documents published in journals indexed in said platform. This can be explained thanks to articles such as the one entitled "Information and communication technologies in Peruvian university students: a confirmatory analysis of their frequency and degree of use" The present study validated by means of a confirmatory factor analysis the constructs proposed in the CUTIC-28 in a sample of 318 Peruvian university students. It was a quantitative approach research at the descriptive level and based on a non-experimental design. The results demonstrated, as reflected in each metric of the confirmatory factor analysis (CFA), the theoretical and empirical sustainability of the original questionnaire to evaluate the frequency and extent of ICT use in Peruvian university students; The reported dataset offers the certainty that it is a defensible and sustainable factorial model. The covariances and correlations between the dimensions and subdimensions are highly significant and positive, so the factorial structure is confirmed by the sample data. The confirmed scale has adequate properties that allow it to be considered a valid and reliable measure in future research, even after adding other variables, such as gender, age and type of university, among the variables of interest that present significant differences. The results also show that there is still a knowledge gap to be filled.(Vargas-Merino, 2022)

4.3 Distribution of scientific production by country of origin

Figure 4 shows how scientific production is distributed according to the country of origin of the institutions to which the authors are affiliated.

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

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

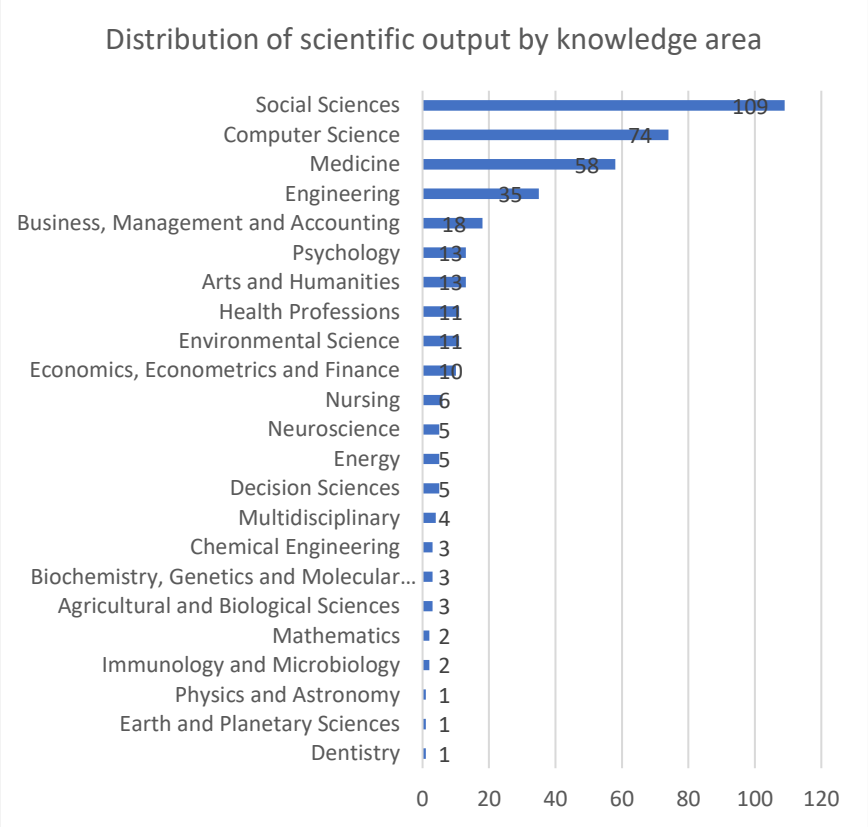
Within the distribution of scientific production by country of origin, records from institutions were taken into account, establishing Brazil, as the country of that community, with the highest number of publications indexed in Scopus during the period 2017-2022, with a total of 76 publications in total. In second place, Mexico with 42 scientific documents, and Ecuador occupying the third place presenting to the scientific community, with a total of 30 documents among which is the article entitled "Evaluation of digital competence and its relationship with the socioeconomic level of Chilean university students" This article presents the main results of a study to evaluate CD and its relationship with the socioeconomic level of first-year students of pedagogy in three Chilean public universities, located in the north, center and south of the country. A quantitative research methodology was used, with a sample of 817 students, data were collected through the DIGCOMP-PED assessment instrument, which assesses CD development using the DIGCOMP framework. The results were analyzed at a general and socioeconomic level on the variables of the educational establishment where they studied the baccalaureate and the territorial scope of the university to which they attended. The main results indicate that the level of achievement of DC is intermediate, the areas with the highest levels of achievement were "network security" and "online communication and collaboration". On the other hand, the lowest levels of achievement were achieved in the areas "information and digital literacy", "digital content creation" and "problem solving". The level of

DC is higher among students in private establishments and those attending universities located in the downtown area.(Silva-Quiroz, 2022)

4.4 Distribution of scientific production by area of knowledge

Figure 5 shows the distribution of the elaboration of scientific publications from the area of knowledge through which the different research methodologies are implemented.

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



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

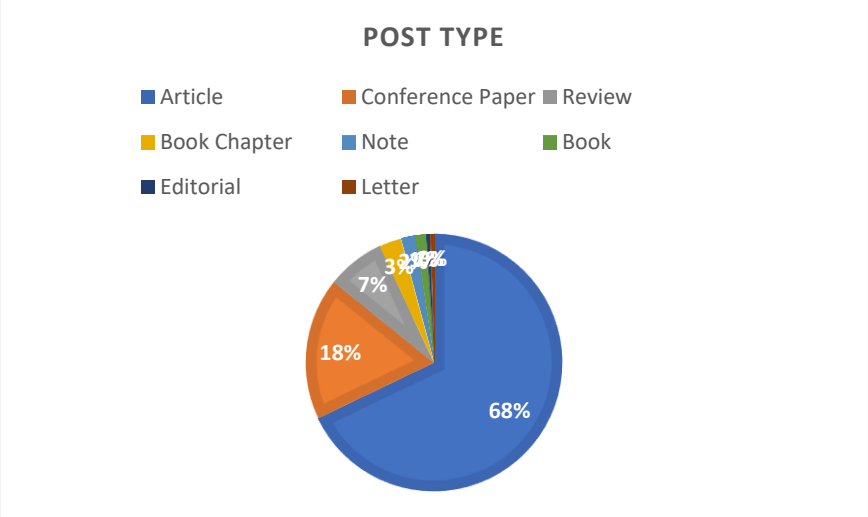
Social Sciences was the area of knowledge with the highest number of publications registered in Scopus with a total of 109 documents that have based their methodologies EDUCATION AND THE DIGITAL AGE. In second place, Computer Science with 74 articles and Medicine in third place with 58. The above can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by the Social Sciences area entitled "Use and adoption of digital educommunication media by university professors during the Covid-19 pandemic: cases of the National Autonomous University of Mexico and the Autonomous University of Chihuahua" this article aims to analyze the educational use of digital educommunication media (

DEM) by four groups of professors who work in the faculties of Philosophy and Letters and Engineering of the Autonomous University of Chihuahua (UACH) and the National Autonomous University of Mexico (UNAM). Seven hypotheses and three research questions related to the use of DEM (specifically: images, animations and video; presentations (PowerPoint/Prezi); digital texts; the Cloud; social networks/instant messaging; and email) were raised, its qualities and the differences in its use, between the different groups studied. A two-phase mixed-method explanatory sequential approach was employed, with a first phase of quantitative data collection and a second qualitative phase. A stratified sample of 177 professors was selected, which was distributed proportionally among the two selected faculties and universities. All teachers completed a 144-item questionnaire in the first phase, and based on their responses, ten teachers were selected to be interviewed in the second phase, to ensure the diversity of the interviewed group in terms of sex, age, faculty, and educational level in which they teach, as well as their teaching experience and experience in the use of DEM.(Rey-Ronquillo, 2022)

4.5 Type of publication

In the following graph, you will observe the distribution of the bibliographic finding according to the type of publication made by each of the authors found in Scopus.

Figure 6. Type of publication.



Source: 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 Journal Article with 68% of the total production identified for analysis, followed by Session Papers with 18%. Conference Journal are part of this classification,

representing 7% of the research papers published during the period 2017-2022 in journals indexed in Scopus. In this last category, the one entitled "Self-regulated Evaluation-Learning in Higher Education in a digital environment in conditions of vulnerability and confinement by Covid-19" stands out. This research is an experimental study of self-regulated learning in a digital environment of higher education with a group of first-year university students from a private institution in northern Mexico. One recommendation of the study is that before implementing any strategy to develop self-regulated learning using digital tools and virtual environments, all significant contextual aspects that could affect the effectiveness of the intervention strategy should be considered.(Cruz, 2022)

5. Conclusions

Through the bibliometric analysis carried out in the present research work, it was established that Brazil was the country with the highest number of records published for the variable EDUCATION AND DIGITAL ERA Internal with a total of 76 publications in the Scopus database. In the same way, it was established that the application of theories framed in the area of Social Sciences, were the most frequently used in the measurement of the impact generated by the implementation of the digital era and education, this has undergone a great change thanks to the internet connection. This technology has changed the way we learn, giving us access to a variety of resources, tools, and collaboration opportunities that were previously unimaginable. Internet connectivity has democratized access to knowledge, removing the geographical and socioeconomic barriers that previously limited learning. Now, anyone with internet access can access a variety of courses, educational materials, and resources that can complement or even replace traditional education. In addition, online training allowed for flexibility in learning. Students can access the materials anytime, anywhere, allowing them to tailor their curriculum to their individual needs. This has been especially beneficial for those with family or work responsibilities, as they can better balance their responsibilities and continue their studies. However, it is also important to understand the challenges and gaps that education can create in the digital age. Not everyone has access to a reliable internet connection or adequate devices, creating a digital divide that limits participation in online learning. In addition, the abundance of information on the Internet can make it difficult to choose reliable sources and use critical thinking to assess the quality and veracity of information.

Bibliography

Cruz, R. P.-D. (2022). Self-regulated Assessment-Learning in Higher Education in a digital environment in conditions of vulnerability and confinement due to Covid-19. Monterrey, Mexico .

Rey-Ronquillo, R. R.-M. (2022). Use and adoption of digital means of educommunication by university professors during the Covid-19 pandemic: cases of the National Autonomous University of Mexico and the Autonomous University of Chihuahua. Chihuaha, Mexico .

Silva-Quiroz, J. M.-M. (2022). Evaluation of digital competence and its relationship with the socioeconomic level of Chilean university students. Santiago de Chile.

Vargas-Merino, J. A.-A.-B.-Z.-B. (2022). Information and communication technologies in Peruvian university students: a confirmatory analysis of their frequency and degree of use. file.

Altamirano-Pazmiño, M., Guaña-Moya, J., Arteaga-Alcívar, Y., Patiño-Hernández, L., Chipuxi-Fajardo, L., & Flores-Cabrera, P. (2022). Use of digital tools in virtual education in ecuador. [Use of digital tools in virtual education in Ecuador] RISTI - Revista Iberica De Sistemas e Tecnologias De Informacao, 2022(E54), 194-202. Retrieved from www.scopus.com

Alvarado Giménez, J. S., Vera, C., Adaro, D., Vidal, O. F., Vega, G., & Valente, R. (2022). Clinical and socio-demographic characteristics of patients hospitalized due to acute heart failure at hospital el carmen and prognosis evaluation at 6 months. [Clinical and sociodemographic characteristics of patients hospitalized for acute heart failure at El Carmen Hospital and prognostic evaluation at 6 months] Revista de la Federacion Argentina de Cardiologia, 51(1), 26-31. Retrieved from www.scopus.com

Alvareli, L. V. G., Bento, M. C. M., & De Oliveira, N. A. A. (2017). Technological teacher training: An experience with sway and adobe applications: Learning meetings. Paper presented at the Iberian Conference on Information Systems and Technologies, CISTI, doi:10.23919/CISTI.2017.7976009 Retrieved from www.scopus.com

Alves, L. N. R., Pereira, M., dos Santos, J. A., dos Santos, E. D. V. W., Carvalho, G. Q., Santana, J. D. M., . . . Louro, I. D. (2022). Investigation of maternal polymorphisms in genes related to glucose homeostasis and the influence on birth weight: A cohort study1. Journal of Pediatrics, 98(3), 296-302. doi:10.1016/j.jped.2021.06.007

Apolo, D., D´aubeterre, L., González-Téllez, S., & Cabascango, G. (2020). Eduprosumers: Educational actors in the digital age doi:10.1007/978-3-030-37221-7_30 Retrieved from www.scopus.com

Arrieta-López, M., & Carrasquilla-Díaz, L. P. (2021). Bullying and cyberbullying: A legal and public policy perspective in colombia. Pertanika Journal of Social Sciences and Humanities, 29(4), 2135-2151. doi:10.47836/pjssh.29.4.02

Arroyo-Cruz, L., Chacón-Castro, M., & Jadán-Guerrero, J. (2021). Geo-colonizing mars: A fun way to raise awareness about environment caring and teach geometry. Paper presented at the ACM International Conference Proceeding Series, 179-182. doi:10.1145/3486011.3486442 Retrieved from www.scopus.com

Asto, J. L. V., Guevara, L. P., Uribe-Hernández, Y. C., Flores-Sotelo, W. S., Arévalo-tuesta, J. A., & Tomas-Francisco, R. L. (2021). Personal factors associated with digital competencies in university students in the context

of pandemic. International Journal of Early Childhood Special Education, 13(2), 624-637. doi:10.9756/INT-JECSE/V13I2.211101

Azevedo, I. G., Sousa, S. L. D. O., Viana, E. D. S. R., Dantas, D. D. S., Maciel, Á. C. C., & da Câmara, S. M. A. (2021). Relationship between symptomatic pelvic organ prolapse and respiratory muscle strength in middle-aged and older women in northeast brazil: A cross-sectional study. Physiotherapy Theory and Practice, 37(6), 755-761. doi:10.1080/09593985.2019.1642428

Baek, J. J. H., Soares, G. H., da Rosa, G. C., Mialhe, F. L., Biazevic, M. G. H., & Michel-Crosato, E. (2021). Network analysis and psychometric properties of the brazilian version of the eHealth literacy scale in a dental clinic setting. International Journal of Medical Informatics, 153 doi:10.1016/j.ijmedinf.2021.104532

Barbieri, G., Garces, K., Abolghasem, S., Martinez, S., Pinto, M. F., Andrade, G., . . . Jimenez, F. (2021). An engineering multidisciplinary undergraduate specialty with emphasis in society 5.0. International Journal of Engineering Education, 37(3), 744-760. Retrieved from www.scopus.com

Barbosa, M. Z., Zylbersztejn, D. S., Mattos, L. A., & Carvalho, L. F. (2019). Three-dimensionally-printed models in reproductive surgery: Systematic review and clinical applications. Minerva Gynecologica, 71(3), 235-244. doi:10.23736/S0026-4784.19.04319-3