

Connectivity and Management of Technological Supplies in Educational Institutions during COVID 19

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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 variable Connectivity and Management of Technological Supplies in Educational Institutions during Covid-19 in Latin America. The purpose of the bibliometric analysis proposed in this document is to know the main characteristics of the volume of publications registered in Scopus database during the period between 2020 and the first semester of 2021 in Latin American countries, achieving the identification of 32 publications in total. The information provided by this platform was organized by means of graphs and figures, categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics were described, the position of different authors regarding the proposed topic was referenced by means of a qualitative analysis. Among the main findings of this research, it is found that Mexico, with 10 publications, is the Latin American country with the highest production. The area of knowledge that made the greatest contribution to the construction of bibliographic material related to the study of Connectivity and Supply Management was Social Sciences with 19 published documents, and the type of publication that was most used during the period mentioned above was the journal article, which represents 66% of the total scientific production.

Keywords: Conectividad, COVID-19, Gestión Educativa, Suministros Tecnológicos.

INTRODUCTION

In March 2020, the World Health Organization (WHO) declared a pandemic situation due to the rapid growth in the number of infections caused by the disease known as Covid-19, which originated in the Wuhan region of China and spread rapidly throughout the world in just a few days. At that time, absolutely all economic sectors were affected by the measures adopted by governments worldwide, with the purpose of curbing the accelerated number of infections and deaths due to the pandemic. Education was not immune to the disastrous consequences caused by the declaration of mandatory quarantine; however, a strategy had to be devised to comply with the academic objectives set forth and to ensure education as a fundamental right (Banco Interamericano de Desarrollo, 2020).

Therefore, educational institutions found it necessary to rely on virtual education principles such as those proposed by Dave Cormier and Bryan Alexander in Canada in 2008 and their MOOC (Massive Open Online Course) strategy (Lopez-Meneses & Vazques, 2020), which would serve to virtualize the entire academic content that would give continuity to the training process. This undoubtedly constituted one of the

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greatest challenges that education has assumed in recent times, which required the allocation not only of a significant percentage of the financial muscle of institutions and government entities, but also the constant training and motivation of teachers who were forced from one moment to another, to share their knowledge through technological platforms, regardless of the fact that some teachers did not have the skills and abilities in the knowledge of virtuality (Artavia & Castro, 2019).

In addition to the above, one of the most important aspects in the identified problem is the perception of students who were forced to move from face-to-face to virtuality, when the latter was always treated as an option for those who preferred it in their training process (Education, 2016). However, perception is not only measured in terms of affinity and preference, since a social and economic problem arises, which is access to technological resources not only by families but also by educational institutions, and how educational management has been responsible for designing plans and strategies to have a whole technological arsenal in order to provide attention to the educational needs of students.

Similarly, many families in conditions of poverty and extreme poverty, who do not have access to the Internet or electronic tools to ensure an efficient training process for their members, are dissatisfied. The above motivates researchers in Latin America and worldwide, to find strategies that can provide solutions to the problems identified and that were mentioned above, therefore, knowing the current literature is an important support in the search for new knowledge. Thanks to this arises the need to answer the question: How has been the

production of scientific publications related to the study of Connectivity and Management of Technological Supplies in Educational Institutions during the year 2020 and the first semester of the year 2021??

General Objective

To analyze from a bibliometric and bibliographic perspective, the production of high impact research papers on the variable Connectivity and Management of Technological Supplies in Latin American Educational Institutions during Covid-19, framed in the period between 2020 and the first semester of 2021.

Methodology

Quantitative analysis of the information provided by Scopus is performed under a bibliometric approach on the scientific production regarding Connectivity and Management of Technological Supplies in Educational Institutions. Also, 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 on the proposed topic.

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

Methodological design

Table 1 shows the methodological design proposed for this research.

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Table 1. Methodological design.
Source: Own elaboration (2021)

PHASE	PHASE	DESCRIPTION	CLASSIFICATION
PHASE 1	DATA COLLECTION	Data was collected using the Scopus web page search tool, through which a total of 1,623 publications were identified.	Published papers whose study variables are related to Connectivity and Management of Technological Supplies in Educational Institutions. Research papers published during 2020 and the first semester of 2021. Limited to Latin American countries. Without distinction of area of knowledge. Without distinction of type of publication.
PHASE 2	CONSTRUCTION OF ANALYSIS 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.	Word Co-occurrence. Year of publication Country of origin of the publication. Area of knowledge. Type of publication
PHASE 3	DRAFTING OF CONCLUSIONS AND FINAL DOCUMENT	After the analysis carried out in the previous phase, the conclusions are drawn up and the final document is prepared.	

Results

Figure 1 shows the frequency of keywords belonging to the documents identified through the execution of Phase 1 of the methodological design proposed for this article.

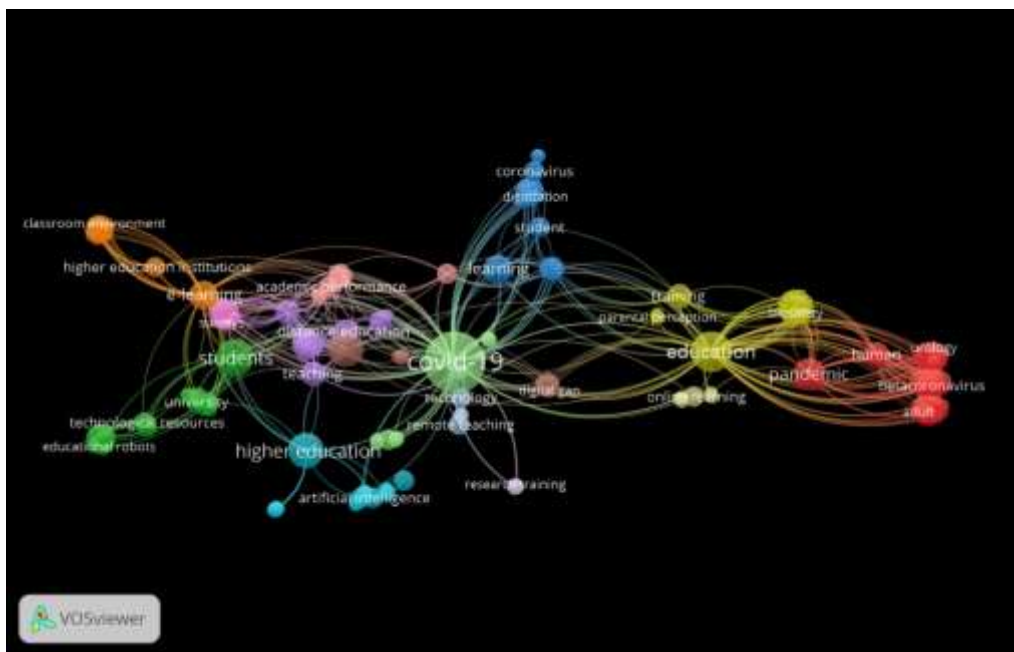


Figure 1. Co-occurrence of words

Source: Own elaboration (2021); based on data provided by Scopus.

Covid-19, Learning and Technology, are the variables mostly used in the research identified, which allows confirming that a set of documents relevant to the topic proposed in this research is indeed being analyzed. Education as a central axis within a subset of keywords such as Training, Online Learning, Parental Perception, also demonstrate how the research identified in the Scopus database, have the purpose of knowing, analyzing and even proposing plans and strategies to address the measures imposed by governments in the world, with the purpose of reducing the high numbers of contagions through social distancing and the implementation of mandatory restrictive quarantine. Therefore, educational institutions were forced to implement digital mechanisms to comply with their academic content, online classes, access to virtual classroom, remote learning, were one of the techniques mostly used by these institutions to meet the pedagogical objectives.

On the other hand, there is evidence of research that measures the students' perception of this type of methodologies, through research related to the variables Students, Technological Resources, e-learning, Distance Education, Quality, Perception of Quality. This is undoubtedly vital to evaluate if the educational institutions are really fulfilling their teaching objectives and if the students are satisfied with this type of learning, with a view to measuring the consequences in indicators such as student desertion, which turned out to be another variable of study derived from many disagreements on the part of students and their families for different causes.

Distribución de la producción científica por año de publicación.

Figure 2 shows the distribution of scientific production according to the year of publication, taking into account the period from 2020 to 2021.

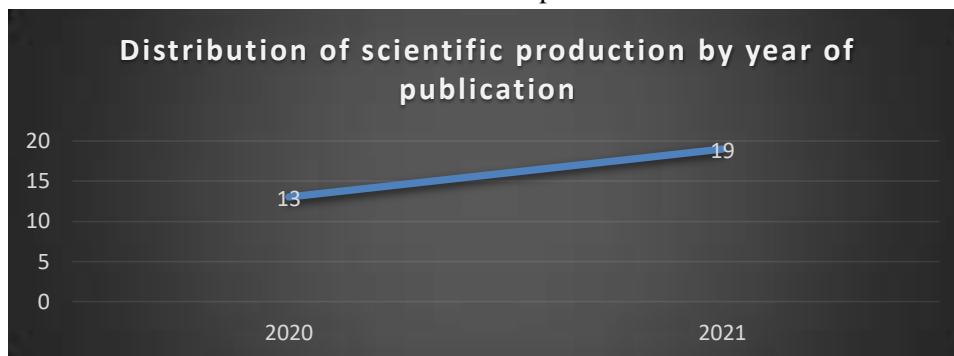


Figure 2. Distribution of scientific production by year of publication.

Source: Own elaboration (2021); based on data provided by Scopus.

The study, research and publications concerning Connectivity and Management of Technological Supplies for Educational Institutions during Covid-19, is of course framed by the time in which this disease has appeared on the world agenda causing countless crises in all sectors. The year 2020 records a total of 13 documents published in high impact journals indexed in Scopus database, while the first months of 2021 surpasses this figure reaching 19, which allows inferring that as strategies were institutionalized to provide attention to students, in terms of learning by technological means, more and better techniques were being devised to meet the pedagogical objectives.

In other words, educational institutions have specialized their teaching-learning processes through platforms and mechanisms designed with the purpose of recreating a face-to-face environment within remote classes. This in order to stimulate and motivate students so that they do not give up their training process and adapt to the new reality. As time went by during the pandemic decreed by the WHO, greater advances were made in terms of technological resources at the service of education at all levels. Among the most relevant publications of the year 2020 is the article entitled "Critical and prospective analysis of online education in pandemic and

post-pandemic contexts: Digital tools and resources to support teaching in synchronous and asynchronous learning modalities" (Careaga-Butter et al, 2020) which analyzes the accelerated transition between face-to-face and virtual in terms of teaching methodology by educational institutions, clarifying that long before the pandemic was decreed, the world had already been adapting some processes to virtuality.

He article proposes synchronous models, i.e. through which students have a remote session with their teachers and classmates in real time through a technological platform, and asynchronous models through the assignment of academic activities in virtual platforms but without real-time meetings. The analysis carried out in the aforementioned article concludes by supporting the different strategies designed for the attention to education by educational institutions, and seeks continuous improvement through the measurement of the perception of all stakeholders related to these institutions.

Distribution of scientific production by country of origin

Figure 3 shows the distribution of scientific production according to the nationality of the authors.

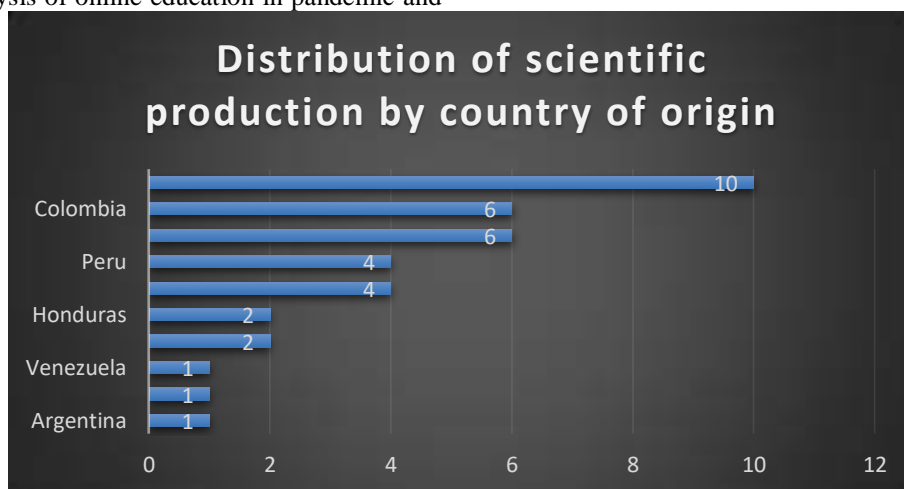


Figure 3. Distribution of scientific production by country of origin. *Source:* Own elaboration (2021); based on data provided by Scopus.

Figure 3 shows the participation of authors affiliated with institutions of different nationalities within the Latin American community, with Mexico occupying first place in terms of scientific publications related to the study variable proposed in this research. A total of 10 documents were written by researchers affiliated with institutions in that country. Among the most outstanding publications registered by that country is the article entitled "Higher education during the covid-19 health contingency: Use of ICT as learning tools. case study: students of the faculty of accounting and administration" (Sapién et al., 2020), which analyzes the perception of students of the faculty of accounting and administration of the Universidad Autónoma de Chihuahua in Mexico regarding the use of ICT as a tool for continuing professional training through virtual scenarios. The main contribution of this research consists of two identified aspects,

the first positive and deals with the identification by the students of the availability of information and collaborative learning, which in this type of methodology is of great importance when establishing the pedagogical objectives, and on the other hand, a negative aspect, which highlights the difficulties presented in the access to the Internet, and the different sources of distraction that are found in the academic preparation from home in the absence of a face-to-face moderator.

At this point, it is worth noting that the production of scientific publications, when classified by country of origin, presents a special characteristic and that is the collaboration between authors with different affiliations to public and private institutions, and these institutions can be from the same country or from different nationalities, so that the production of an

article with co-authorship of different authors from different countries of origin allows each of the countries to add up as a unit in the general publications. This is best explained in

Figure 4, which shows the flow of collaborative work from different countries.

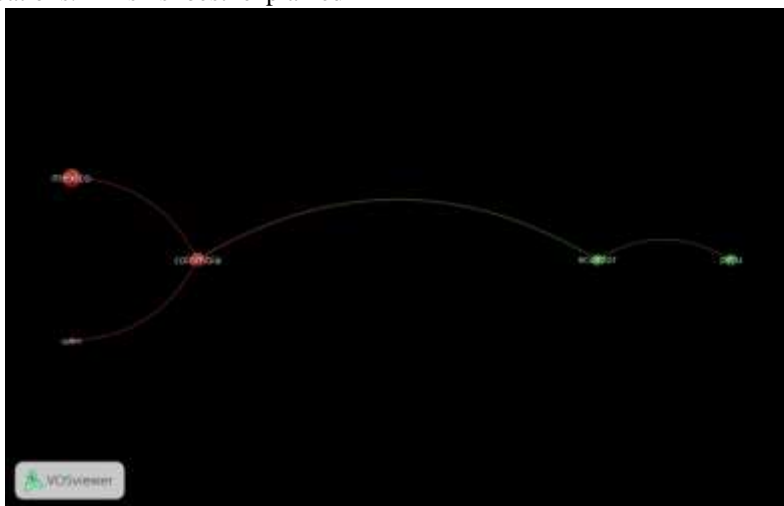


Figure 4. Co-citations between countries.

Source: Own elaboration (2021); based on data provided by Scopus.

Figure 4 shows how two groups of countries that have participated in common research projects and their subsequent publication are formed. Thus, authors from Colombia, Mexico and Spain form the first group, and Ecuador and Peru form the second. Colombia and Brazil occupy the second place each with 6 publications, from the latter country stand out papers such as the one entitled "Students of technological and digital convergence, emergency remote education and ADHD attending the last years of elementary school" (Gonçalves & Ferreira, 2021) whose purpose is to show the technological tools used for education aimed at students with SEN (Special Educational Needs), with emphasis on students with ADHD (Attention Deficit Hyperactivity Disorder) attending the last years of elementary school. The objective is to show some digital resources that can encourage these students to read and

write from remote education, understanding the difficulty that can represent due to the level of specialty required by students with the aforementioned characteristics.

Studies of this type show a great contribution to the achievement of values such as inclusion in education, since it is not possible to ignore this right to all types of population, therefore, it is necessary to innovate in the different methodologies that guarantee access to academic training attending the diversity identified in all communities.

Distribución de la producción científica por áreas de conocimiento

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.

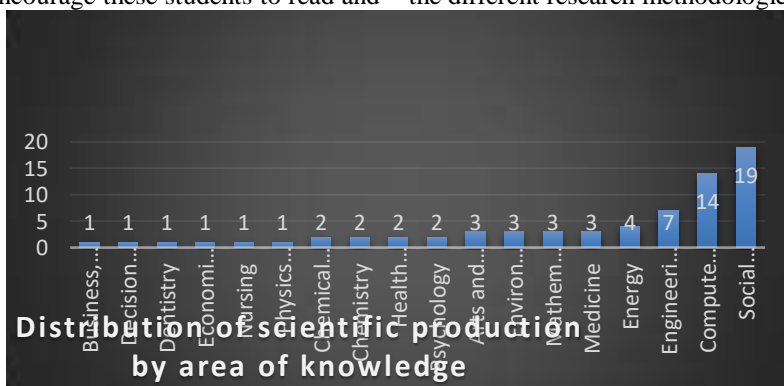


Figure 5. Distribution of scientific production by area of knowledge.

Source: Own elaboration (2021); based on data provided by Scopus.

Social Sciences is the area of knowledge that has made the greatest contribution in the execution of research projects related to Connectivity and Management of Technological Supplies in Educational Institutions during Covid-19. This is due to the social component and the nature of this study, since it seeks to measure the level or volume of publications on similar topics, as well as the impact they have had on the social area. 19 documents were prepared, based mainly on

theories derived from social sciences. In second place, understanding the technological component of the study, are the Computer Sciences, with 14 publications, among which the article "Breaking the gap: collaborative environment as a meeting point to provide and receive help to overcome the digital divide" (Alvites-Huamaní et al., 2021) stands out. This paper presents a topic of interest for the study, focusing on measuring how wide the digital divide can be, that

is, to evaluate from the social and economic point of view, how much accessibility people from different socioeconomic levels of the community have to connectivity and technological tools to carry out their training process. The study sought to know the perception of parents in Peru, regarding the use of different digital tools for the fulfillment of the academic calendar. The vast majority expressed great concern about the difficulty of accessing the Internet and electronic devices, since the family economy also plays an important role, which was also affected by the restrictive measures established to reduce the number of contagion and death by Covid-19.

Type of publication

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

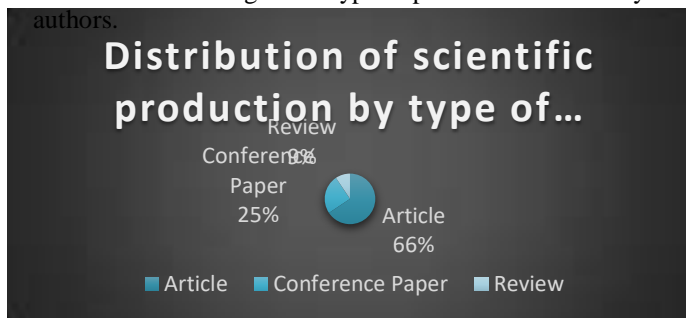


Figure 6. Distribution of scientific production by type of publication.
Source: Own elaboration (2021); based on the data provided by Scopus.

Of the different types of publication that exist, the journal article was the one chosen for the publication of documents referring to the topic proposed in this research. Sixty-six percent of the total production identified in Phase 1 of the Methodological Design corresponds to this modality. In second place, with 25% are located the Articles or Conference Proceedings, among which stands out the one entitled "Digital resources and children's learning: parents' perception during the pandemic" (Alvites-Huamaní et al., 2021) which measures the perception of parents, against the repota methodology adopted by educational institutions. One of the main findings indicates a high percentage of neglect on the part of governmental actors, in terms of allocating resources to ensure access to the Internet and electronic tools that facilitate low-income families to have the possibility of carrying out the

REFERENCES

- Alvites-Huamaní, C., Arias-Flores, H., Jadán-Guerrero, J., & Acosta-Vargas, P. (2021). Breaking the Gap: Collaborative Environment as a Meeting Point to Provide and Receive Help to Overcome the Digital Gap. *Lecture Notes in Networks and Systems. AHFE Conference on Human Factors and Systems Interaction*.
- Alvites-Huamaní, C., Arias-Flores, H., Jadán-Guerrero, J., & Acosta-Vargas, P. (2021). Digital Resources and Children's Learning: Parental Perception During the Pandemic. *AHFE Conference on Human Factors and Systems Interaction*, (págs. 219-226).
- Artavia, K., & Castro, A. (2019). Implementación de herramientas tecnológicas en la educación superior universitaria a distancia. *Educacion Superior*. 13-30.

process of training students at all academic levels.

Conclusion

Thanks to the bibliometric analysis proposed for this document, it can be concluded that Mexico is the country with the highest production of scientific publications by authors affiliated with institutions in that country. A total of 10 documents were published, which allows inferring that studies on accessibility to technological resources seek to measure how efficient the policies designed by educational institutions have been to carry out their academic calendar, measuring important aspects such as access to the Internet, electronic tools and support material for the construction of new knowledge, as well as the degree of aptitude of teachers who were responsible for virtualizing academic content and carrying out the plans of each subject through programs designed for this purpose.

The area of knowledge that made the greatest contribution to the elaboration of scientific documents was Social Sciences, understanding the nature of the study and the social impact generated by the sudden institutionalization of digital methodologies for the fulfillment of academic objectives thanks to the restriction measures adopted by governments around the world with the purpose of reducing the curve of contagions and the number of deaths caused by Covid-19. The focus of this research seeks to measure the state of the digital gap, understood as equality in terms of access to the Internet and technological tools, taking into account the socioeconomic level of families in Latin America, establishing that there is still, on the part of parents, a negative perception of the virtual modality adopted by educational institutions, due to the difficult access to the aforementioned tools, as well as little efficiency in government policies that pursue the assurance of education at all academic levels for the community in general. The above allows to conclude that any study aimed at knowing the state of current theory on such an important subject that addresses one of the most influential aspects in the micro and macro economy in Latin American countries, such as education, and its affectation by the sudden change in the teaching methodology due to one of the biggest health disasters in recent history, generates a positive impact on the creation of new knowledge and new alternatives to meet the specific needs of a population whose Fundamental Rights must be guaranteed, as it is stated in the political constitutions of each country.

- Banco Interamericano de Desarrollo. (2020). *La Educacion Superior en los Tiempos del Covid-19*. Washington, D.C. Obtenido de <https://publications.iadb.org/publications/spanish/document/La-educacion-superior-en-tiempos-de-COVID-19-Aportes-de-la-Segunda-Reunion-del-Di%C3%A1logo-Virtual-con-Rectores-de-Universidades-Lideres-de-America-Latina.pdf>
- Careaga-Butter, M., Badilla-Quintana, M., & F.-H. C. (2020). Critical and prospective analysis of online education in pandemic and post-pandemic contexts: Digital tools and resources to support teaching in synchronous and asynchronous learning modalities. *Aloma*, 23-32.
- Educación, A. d. (2016). Estrategías de Evaluación Formativa. Obtenido de <https://educarea.cl/wp-content/uploads/2017/12/DOC1-ev-formativa.pdf>

- Gonçalves, S., & Ferreira, B. (2021). Technological and digital convergence, emergency remote education and ADHD students who attend the final years of elementary school. *Texto Livre*.
- Lopez-Meneses, E. G.-G., & Vazques, E. (2020). Fortalezas y Debilidades de los Cursos Masivos Abiertos en Linea (MOOC) frente a otros modelos de enseñanza en contextos socio-educativos. *Formacion Universitaria*, 77-84.
- Sapién, A. A., Piñón, H. L., Gutiérrez, D. M., & Bordas, B. J. (2020). Higher education during the health contingency covid-19: Use of icts as learning tools. case study: Students of the faculty of accounting and administration. *Revista Latina de Comunicacion Social*, 309-328.
- Alvites-Huamaní, C., Arias-Flores, H., Jadán-Guerrero, J., & Acosta-Vargas, P. (2021). *Digital resources and Children's learning: Parental perception during the pandemic* doi:10.1007/978-3-030-79816-1_27 Retrieved from www.scopus.com
- Ariza, H. M., Martínez Sarmiento, F. H., & Castillo, H. G. (2020). Connectivity characteristics and level of acceptance linked to online learning by higher education students during the confinement generated by the covid-19 pandemic. *International Journal of Engineering Research and Technology*, 13(8), 1934-1939. doi:10.37624/ijert/13.8.2020.1934-1939
- Atencio, P., Sánchez-Torres, G., Palomino, R. I., Branch Bedoya, J. W., & Burgos, D. (2021). Conceptual architecture of the epidemiological surveillance technology platform for CoVid-19. [Arquitectura conceptual de plataforma tecnológica de vigilancia epidemiológica para la CoVid-19] *Campus Virtuales*, 10(1), 21-34. Retrieved from www.scopus.com
- Bento, F., Giglio Bottino, A., Cerchiaro Pereira, F., Forastieri de Almeida, J., & Gomes Rodrigues, F. (2021). Resilience in higher education: A complex perspective to lecturers' adaptive processes in response to the covid-19 pandemic. *Education Sciences*, 11(9) doi:10.3390/educsci11090492
- Bernaola, A. R., Tipula, M. A., Moltalvo, J. E., Sandoval, V. S., & Andrade-Arenas, L. (2020). Analysis of the use of technological tools in university higher education using the soft systems methodology. *International Journal of Advanced Computer Science and Applications*, 11(7), 412-420. doi:10.14569/IJACSA.2020.0110754
- Careaga-Butter, M., Badilla-Quintana, M. G., & Fuentes-Henríquez, C. (2020). Critical and prospective analysis of online education in pandemic and post-pandemic contexts: Digital tools and resources to support teaching in synchronous and asynchronous learning modalities. [Análisis crítico y prospectivo de la educación en línea en contextos pandémicos y pospandémicos: herramientas y recursos digitales para apoyar la enseñanza en modalidades de aprendizaje sincrónico y asincrónico] *Aloma*, 38(2), 23-32. doi:10.51698/ALOMA.2020.38.2.23-32
- Casanova Romero, I., Canquiz Rincon, L., & Mendoza, M. C. (2020). Challenges of health emergency in the face of research training. [Desafíos de la emergencia sanitaria ante la formación en investigación] *Utopia y Praxis Latinoamericana*, 25(Extra 8), 248-259. doi:10.5281/zenodo.4087481
- Cudris-Moreno, M., Cudris-Torres, L., Bustos-Arcón, V., Olivella-López, G., Medina-Pulido, P. L., & Moreno-Londoño, H. A. (2021). Educational technology and academic performance in students of public educational institutions during confinement by COVID-19. *Gaceta Medica De Caracas*, 128, S336-S349. doi:10.47307/GMC.2020.128.S.20
- De Souza, L. D., Silva, B. V., Araujo Neto, W. N., & Rezende, M. J. C. (2021). Digital technologies in chemistry teaching: A brief review of the available categories and tools. [Tecnologias Digitais no Ensino de Química: Uma Breve Revisão das Categorias e Ferramentas Disponíveis] *Revista Virtual De Química*, 13(3), 713-746. doi:10.21577/1984-6835.20210041
- Do Amaral, J. H. L., Palmier, A. C., Werneck, M. A. F., Lucas, S. D., & Senna, M. I. B. (2021). Challenges and dilemmas for dental undergraduate teaching with the advent of covid-19. *Pesquisa Brasileira Em Odontopediatria e Clínica Integrada*, 21 doi:10.1590/PBOCL2021.067
- Gomero-Fanny, V., Acuña-Jeferson, C., Espinoza-Max, A., Ruiz-Bengy, A., Calderón-Angie, R., & Andrade-Arenas, L. (2020). Impact of virtual education in times of pandemic at the university of north lima. Paper presented at the 2020 *IEEE Congreso Bienal De Argentina, ARGENCON 2020 - 2020 IEEE Biennial Congress of Argentina, ARGENCON 2020*, doi:10.1109/ARGENCON49523.2020.9505393 Retrieved from www.scopus.com
- Gonçalves, S., & Ferreira, B. E. B. (2021). Technological and digital convergence, emergency remote education and ADHD students who attend the final years of elementary school. [A convergência tecnológica e digital, o ensino remoto emergencial e os alunos com TDAH que frequentam os anos finais do ensino fundamental] *Texto Livre*, 14(1) doi:10.35699/1983-3652.2021.25043
- Gudiño Paredes, S., Jasso Peña, F. D. J., & de La Fuente Alcazar, J. M. (2021). Remote proctored exams: Integrity assurance in online education? *Distance Education*, 42(2), 200-218. doi:10.1080/01587919.2021.1910495
- Hernández-Chávez, M., Cortés-Caballero, J. M., Pérez-Martínez, Á. A., Hernández-Quintanar, L. F., Roa-Tort, K., Rivera-Fernández, J. D., & Fabila-Bustos, D. A. (2021). Development of virtual reality automotive lab for training in engineering students. *Sustainability (Switzerland)*, 13(17) doi:10.3390/su13179776
- López-Pimentel, J. C., Medina-Santiago, A., Alcaraz-Rivera, M., & Del-Vallesoto, C. (2021). Sustainable project-based learning methodology adaptable to technological advances for web programming. *Sustainability (Switzerland)*, 13(15) doi:10.3390/su13158482
- Medina Marín, A. J. (2021). Technological tools in the teaching management of the training process plan for the home university and distance education. [Herramientas tecnológicas en la gestión docente del proceso de formación plan la universidad en casa y educación a distancia] *Universidad y Sociedad*, 13(4), 258-266. Retrieved from www.scopus.com
- Mejia, K., Escoto, B., Barahona, J., & Flores, O. (2020). Designing a MOOC to prepare faculty members to teach on virtual learning environments in the time of COVID-19. Paper presented at the *Proceedings of 2020 IEEE Learning with MOOCS, LWMOOCS 2020*, 96-99. doi:10.1109/LWMOOCS50143.2020.9234381 Retrieved from www.scopus.com
- Miranda, E. M. C., Rocha, B. P. A., Machado, L. C., & Cordeiro, M. P. S. (2021). Teacher education in times of pandemic covid-19-view of teachers from the public-school system in the federal district. [Formacao de professores em tempos de pandemia da covid-19 - visao dos docentes da rede publica de ensino do distrito federal] *Praksis*, 3, 336-356. doi:10.25112/RPR.V3.2500
- Montiel, H., & Gomez-Zermeño, M. G. (2021). Educational challenges for computational thinking in k-12 education: A systematic literature review of "scratch" as an innovative programming tool. *Computers*, 10(6) doi:10.3390/computers10060069
- Oliveira, H. C., Souza, L. C., Leite, T. C., & Campos, J. F. (2020). Personal protective equipment in the coronavirus pandemic: Training with rapid cycle deliberate practice. *Revista Brasileira De Enfermagem*, 73(Suppl 2(Suppl 2), e20200303. doi:10.1590/0034-7167-2020-0303
- Paesano, N., Santomil, F., & Tobia, I. (2020). Impact of COVID-19 pandemic on ibero-american urology residents: Perspective of american confederation of urology (CAU). *International Braz J Urol*, 46, 165-169. doi:10.1590/S1677-5538.IBJU.2020.S12
- Pinos-Vélez, E., Cordero-Mendieta, M. I., Coronel-Berrezueta, R., & Pinos-Velez, E. (2021). *Bioethics in teaching bioengineering in times of COVID-19* doi:10.1007/978-3-030-80744-3_91 Retrieved from www.scopus.com
- Ranjan, R., López, J. L., Lal, K., Saxena, S., & Ranjan, S. (2021). Adopting A new hybrid force model: A survey during covid-19 in indian higher education. *International Journal of Emerging Technologies in Learning*, 16(16), 169-185. doi:10.3991/ijet.v16i16.23371
- Real, C. C. (2020). Educational video and its uses on you tube. Paper presented at the *Proceedings - 10th International Conference on Virtual Campus, JICV 2020*, doi:10.1109/JICV51605.2020.9375757 Retrieved from www.scopus.com
- Santos Covarrubias, D. E., Meléndez, G. K. G., Cerón, J. A. M., Cristóbal, S. S., & Abascal-Mena, R. (2020). *Breaking the gap: Collaborative environment as a meeting point to provide and receive help to overcome the digital gap* doi:10.1007/978-3-030-66919-5_5 Retrieved from www.scopus.com
- Sapién Aguilar, A. L., Piñón Howlet, L. C., Gutiérrez Diez, M. C., & Bordas Beltrán, J. L. (2020). Higher education during the health contingency

covid-19: Use of icts as learning tools. case study: Students of the faculty of accounting and administration. [La educación superior durante la contingencia sanitaria covid-19: Uso de las tic como herramientas de aprendizaje. caso de estudio: alumnos de la facultad de contaduría y administración] *Revista Latina De Comunicacion Social*, 2020(78), 309-328. doi:10.4185/RLCS-2020-1479

- Sierra, S. M. C., Farfán, L. F. I., Salazar, Ó. J. Q., & Betancourt, M. A. M. (2020). Remote teaching of chemistry in secondary-university education. [Enseñanza remota de la Química en Educación Secundaria-Universitaria] *Educacion Quimica*, 31(5), 73-87. doi:10.22201/fq.18708404e.2021.5.77099
- Tobar, J., Prócel, Á., López, A., Bacca, B., & Caicedo, E. (2021). *Robotic tool as support in teaching processes during COVID 19 pandemic* doi:10.1007/978-3-030-72212-8_12 Retrieved from www.scopus.com

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