

# Redefining Teaching Modalities In The Wake Of The Covid-19 Crisis

César Augusto Hernández Suárez<sup>1</sup>, Carlos Antonio Pabon Galan<sup>2</sup>, Luisa Stella Paz Montes<sup>3</sup>

<sup>1</sup>Universidad Francisco de Paula Santander, Cúcuta, Colombia. <https://orcid.org/0000-0002-7974-5560>

<sup>2</sup>Universidad Francisco de Paula Santander, Cúcuta, Colombia. <https://orcid.org/0000-0003-4027-819X>

<sup>3</sup>Universidad Francisco de Paula Santander, Cúcuta, Colombia. <https://orcid.org/0000-0002-8887-3441>

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## Abstract

A systematic review was carried out on the production and publication of research papers on the study of Teaching Modalities and their redefinition due to the Covid-19 crisis between 2020 and the first semester of 2022 under the PRISMA approach (Preferred Reporting Items for Systematic reviews and Meta-Analyses). The purpose of the analysis proposed in this document was to know the main characteristics of the publications registered in the Scopus and Wos databases during the period and their scope in the study of the proposed variables, achieving the identification of 119 publications in total. Thanks to this first identification, refining the results through the keywords entered in the search button of both platforms, which were TEACHING MODALITIES, TEACHING METHODOLOGIES, COVID-19, and reaching a total of 24 documents, already excluding duplicates and those that did not meet the analysis criteria. The identified scientific publications were analyzed in the hope of knowing the main characteristics of the teaching modalities to face the virtuality forced as a result of the declaration of a pandemic due to the disease called COVID-19 and how the teaching methodology was adapted to the new digital system, taking into account that all the academic activities migrated to remote access.

**Keywords:** Teaching Modalities, Teaching Methodologies, Covid-19.

## 1. Introduction

At the end of 2019, a global health alert arose in the region of Wuhan, China, when the presence of a virus called Covid-19 was recognized, whose transmission and deadly effects on human beings were accelerated. There seemed to be no control whatsoever, so in March 2020, the World Health Organization decreed a pandemic, generating a high degree of

uncertainty in absolutely all economic sectors due to the unknown nature of this virus and without close hopes of the invention of an antidote or vaccine to help reduce the catastrophic effects of Covid-19. (Inter-American Development Bank, 2020). Education at a global level was one of the sectors with the greatest impact due to the drastic change in the teaching methodology, migrating all activities to virtuality and making exclusive use of ICT (Avendaño-Castro et al., 2022; Prada Núñez et al., 2022; Hernández Suarez et al., 2022; Hernandez Suarez et al., 2022; Hernández Vergel et al., 2021; Hernandez Suárez et al., 2021; Espinel Rubio et al., 2021; Maldonado Estévez et al., 2021; Hernández Suárez et al., 2021; Rincón Leal et al., 2021; Avendaño Castro et al., 2021; Avendaño-Castro et al., 2021; Hernández-Suárez et al., 2021; Gamboa Suárez et al., 2020; Ayala-García et al., 2020; Prada Núñez et al., 2020; Prada Núñez et al., 2020), in response to the imposition of mandatory restrictive quarantine that forced people to confinement as the main strategy to reduce the number of infections and deaths due to the disease. The entire educational community adopted and accepted the virtual methodology, basing its training processes on strategies such as those suggested by Dave Cormier and Bryan Alexander in Canada in 2008, called MOOC (Massive Open Online Course) (Lopez-Meneses & Vazques, 2020). Designed to expand educational coverage and access to professional training by digital means, guaranteeing those who, for various reasons, could not access face-to-face education (Hernández-Suárez et al, 2022). Consequently, what was previously seen as a training option within the educational offer, became the only alternative to give continuity to the academic calendar, identifying dozens of opportunities, threats, strengths and weaknesses that were inherent to an abrupt and unprecedented change in recent history. For teachers, this sudden methodological change meant a challenge to digital competencies, so educational institutions began efforts to keep them trained and updated in the use of technological tools in the education service. In this way, training and continuing education were fundamental pillars in the pursuit of the fulfillment of academic objectives (Artavia & Castro, 2019). Motivation among teachers is also a fundamental factor in the design of strategies to implement digital resources in academic training, so it is assumed that the success of teachers in the completion of training courses was decisive and their performance has been of interest to the scientific community that has proposed to identify which have been the most representative changes and the most implemented strategies when addressing virtual academic training in times of pandemic. Therefore, the development of this document has been proposed to know the main characteristics of the scientific production regarding the redefinition of the teaching modalities as a result of the Covid-19 crisis at Latin American crisis between 2020 and the first semester of 2022.

## **2. General Objective**

To analyze from a bibliometric and bibliographic perspective, the production of research papers on the variable Teaching Modalities, Teaching Methodologies and Covid-19 published in high-impact journals indexed in Scopus and Wos databases during the period 2020 and first semester of 2022 by Latin American institutions.

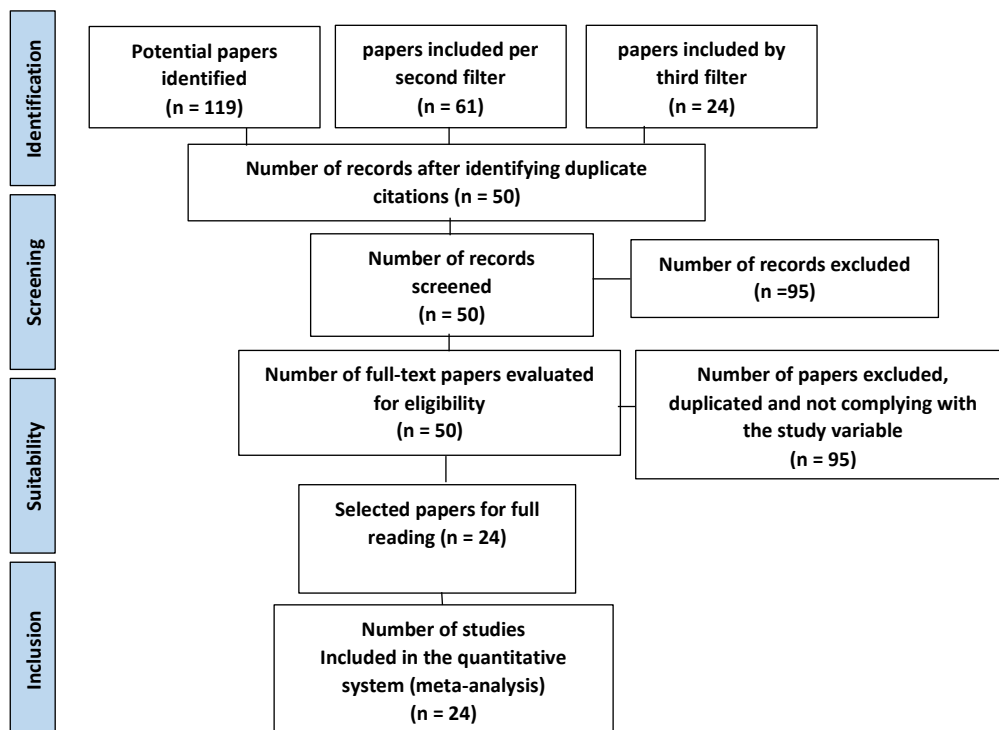
### 3. Methodology

The present research is of qualitative type; according to Hernández et al. (2015), qualitative approaches correspond to researches that perform the procedure of obtaining information to review and interpret the results obtained in such studies; for this purpose, the search for information was carried out in the Scopus and Wos databases using the words TEACHING MODALITIES, TEACHING METHODOLOGIES, COVID-19.

#### 3.1 Research design

The research design proposed for this research was the Systematic Review, which involves a set of guidelines to carry out the analysis of the data collected, framed in a process that began with the coding to the visualization of theories (Strauss & Corbin, 2016). On the other hand, it is stated that the text corresponds to a descriptive narrative because it is intended to find out how the levels of the variable effect; and systematic because after reviewing the academic material obtained from the scientific journals, the theories on knowledge management were analyzed and interpreted. (Hernández et al., 2015).

The results of this search are processed as shown in Figure 1, which expresses the PRISMA technique for identifying documentary analysis material. It was taken into account that the publication was published between 2020 and 2022, limited to Latin American countries, without distinction of the area of knowledge, as well as any publication, namely: Journal Articles, Reviews, and Book Chapters, Book, among others.



**Figure 1.** Flow diagram of systematic review performed under the PRISMA technique (Moher et al., 2009). **Source:** Own elaboration; Based on the proposal of the Prisma Group technique (Moher et al., 2009).

#### 4. Results

Table 1 shows the results after applying the search filters related to the methodology proposed for this research after recognizing the relevance of each referenced work.

No.	TITLE OF THE RESEARCH	AUTHOR/YEAR	COUNTRY	TYPE OF STUDY	INDICATION
1	Academic performance before and during the State of Emergency due to Covid-19: Analysis from the Perspective of Distance Education	Chamorro-Atalaya, O., Olivares-Zegarra, S., Atoche-Wong, R., Anton-De los Santos, M., Fierro-Bravo, M., Ruiz-Carrasco, K., ... & Chávez-Herrera, C. (2022).	PERU	QUALITATIVE	SCOPUS
	Evaluation of a Virtual Campus Adapted to Web-Based Virtual Reality Spaces: Assessments of Teachers and Students	Rocha Estrada, F. J., Glasserman Morales, L. D., Ruiz Ramírez, J. A., & George Reyes, C. E. (2022).	MEXICO	QUALITATIVE	SCOPUS
	Application of technological tools Youtube and Zoom in the teaching-learning process of fifth grade students	Montalvan-Chamba, S. M., Juarez-Illescas, M. P., & Ureña-Torres, J. P. (2022, June).	ECUADOR	QUALITATIVE	SCOPUS

	of the Basic General Education School “Gral. Manuel Serrano Renda” del Cantón El Guabo				
	University teachers facing academic lockdown: an exploratory analysis	Rocha Estrada, F. J., & Rincón Flores, E. G. (2022).	MEXICO	QUALITATIVE	SCOPUS
5	Active Learning Implementation as Digital Education Strategy During the COVID-19	Suarez-Escalona, Ruben;Estrada-Dominguez, Jesus Eduardo;Infante-Alcantara, Lizbeth;Cavazos-Salazar, Rosario Lucero;Treviño-Rodriguez, Francisco Javier (2022)	MEXICO	QUANTITATIVE	SCOPUS
	Instruction Models of Located Cognition and Their Effectiveness Using Flipped Learning in Initial Training Students	Talavera-Mendoza, F., Paucar, F. H. R., Delgado, R. L., & Choque, Y. M. R. (2022).	PERU	QUALITATIVE	SCOPUS
	Virtual Classroom Design Model	Llerena-Izquierdo, J. (2022).	ECUADOR, SPAIN	QUALITATIVE	SCOPUS

and Its Relation to Student Motivation and Performance in a Moodle Learning Environment During the Emergency of COVID-19				
Teaching medicine in pandemic times: an experience from mental health rotation	Acero-González, Á., Toro-Herrera, S. M., Ruíz-Moreno, L. M., & Yaver-Suárez, N. (2022).	COLOMBIA	QUANTITATIVE/QUALITATIVE	SCOPUS
Development of Online Teaching Tools for Engineering: Immersive Virtual Reality Application for Manipulation of a Vertical Milling Machine Using Unity	Sánchez, R. E. P., Pérez, R. J. D., & Castro, R. C. (2021, December).	HONDURAS	QUALITATIVE	SCOPUS
The challenges of teaching Chemistry in the COVID-19 pandemic: The flipped classroom methodology adapted for	Freitas, A. G. O. D., Irala, V. B., & Bordin, D. M. (2021).	BRAZIL	QUALITATIVE	SCOPUS

	virtual mode in Brazil				
	Conceptions of teacher trainers from COVID-19. A comparative study in three regions of Chile	Gajardo-Asbún, K. P., Paz-Maldonado, E., & Salas, G. (2021).	CHILE	QUALITATIVE	SCOPUS
	Perception of Chilean University Professors on the Impact of the Didactic Operation in the COVID-19 Context	Videla, C. B., Castillo-Rojas, W., & Flores, C. P. (2020, December).	CHILE	QUALITATIVE	SCOPUS
	Teacher performance evaluation model in Covid-19 times	Aguilar, O. G., Perez, A. B. D., & Aguilar, A. G. (2020, October).	JAPAN, CHINA	QUALITATIVE	SCOPUS
	Practice, training, and teaching competence in the exercise of the virtual academic modality	Roque Herrera, Y., Maygua, V., Romero-Rodríguez, J. M., & Alonso-García, S. (2022).	ECUADOR, SPAIN	QUALITATIVE	WOS

	Digital Technologies in Chemistry Teaching: A Brief Review of the Available Categories and Tools.	De Souza, L. D., Silva, B. V., Araujo Neto, W. N., & Rezende, M. J. C. (2021).	BRAZIL	QUALITATIVE	WOS
	VIRTUALITY IN TEACHING OF RESEARCH IN UNIANDES LAW CAREER: CON-COVID VERSUS POST-COVID	Velazquez, M. R., Abreu, M. A., & Cordova, M. E. V. (2021).	ECUADOR	QUALITATIVE	WOS
	Teaching innovation as a Result of the COVID-19 Pandemic: The Case of the Introduction to Computing and Informatics Course	Mok, SC	COSTA RICA	QUALITATIVE	WOS
	Remote education and teaching performance in educational institutions of Huancavelica in times of COVID-19	Ramos, L. H., Inga, L. A. T., Anzuheldo, A. M. A., & Diaz, S. S. (2021).	PERU	QUALITATIVE	WOS



	Life cycle assessment teaching innovation: experiences from a Brazilian higher education institution	Silva, D. A. L., Giusti, G., Rampasso, I. S., Junior, A. C. F., & Anholon, R. (2022).	BRAZIL, CHILE	QUALITATIVE	WOS
	University teachers facing academic lockdown: an exploratory analysis	Rocha Estrada, F. J., & Rincón Flores, E. G. (2022).	MEXICO	QUALITATIVE	WOS
	Factors associated with the teacher's practice that affect the dropout of students in the e-learning modality, a case study in the context of Chilean higher education	Carcamo, JL	CHILE	QUALITATIVE	WOS
	E-learning Education for Teachers: Prospects for the Agreement between the Universidad Autonoma de Bucaramanga	Pinzon, L. R. P. (2021).	COLOMBIA	QUANTITATIVE	WOS

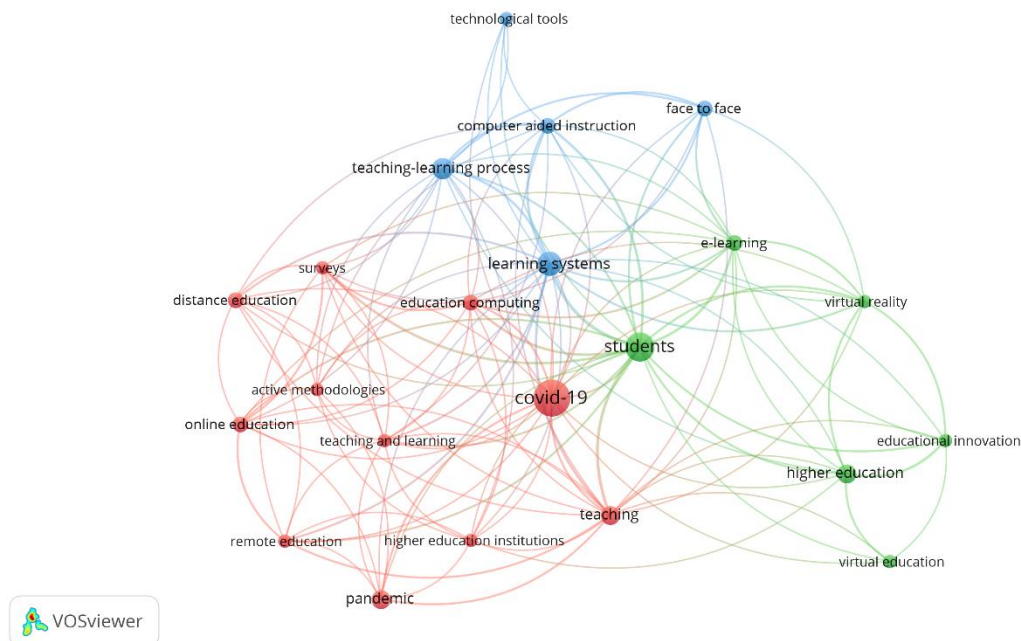
	(UNAB) and the Universitat Oberta de Catalunya (UOC)				
	Evaluation of a Virtual Campus Adapted to Web-Based Virtual Reality Spaces: Assessments of Teachers and Students	Rocha Estrada, F. J., Glasserman Morales, L. D., Ruiz Ramírez, J. A., & George Reyes, C. E.	MEXICO	QUANTITATIVE	WOS

**Table 1.** List of articles analyzed

**Source:** Own elaboration

#### 4.1 Co-occurrence of words

Figure 2 shows the relationship between the keywords used to search the study material for the elaboration of the systematic analysis proposed for the present research.



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

**Source:** Own elaboration

As shown in Figure 2, the keywords most frequently used in the publications identified for analysis are Covid-19 as a central variable that delimits the impact on the modalities of teachers in the face of a factor that determined the course of the vast majority of educational institutions worldwide, thus confirming the relevance of such research concerning the objective of this article. Furthermore, this variable is associated with research related to words such as Teaching, Virtual Education, Distance Education, On-line Education, Teaching and Learning, Higher Education Institutes, and Remote Education, among others, which allow addressing the impact of the aforementioned disease on the traditional education system, as well as research concerning the effectiveness of virtual education and how strategies based on this methodology allowed to continue all the training processes despite the ordinances that forced the confinement. Similarly, under keywords such as Teaching-Learning Processes, Technological Tools, and Learning Systems, among others, it is shown how researchers sought to focus their research methodologies on the different modalities adopted by Latin American teachers in search of innovation for virtual education that went from being optional to mandatory, demanding a more significant effort from teachers who had to enhance their digital skills in the design of programs and strategies that kept students adhering to their academic training.

## 4.2 Discussion

The purpose of this article was to analyze, from a systematic perspective, the contribution of the authors through their publications to the study of the new teaching modalities as a result

of the Covid-19 crisis in Latin American educational institutions, carried out through high-impact journals indexed in Scopus and Wos databases during the period between 2020 and the first semester of 2022. Thus, it is possible to affirm that the publications indicated in the body of this document have carried out research at different levels whose findings contribute to the generation of new knowledge regarding the variables proposed for the present study (Rocha & Rincón, 2022), whose objective was to know the implications of life in confinement for a group of university teachers. The study was carried out through an exploratory qualitative methodology since the data were collected through a semi-structured interview with young university teachers in public and private institutions in the state of Nuevo Leon in Mexico. The data collection tools were applied to a total of 10 teachers (5 women and 5 men) who were evaluated on three dimensions affected by confinement and the implications that this would bring to these three vital aspects in the life of each individual, which were professional implications, personal implications and passion for teaching.

Among the main findings reached by the researchers, it is found that the implications of confinement not only affected the development of their professions but also transcended to their personal lives; in some points, it was determined that the teachers highlighted their value as main actors in society and how their work was titanic and heroic by managing to give continuity to the academic training of students despite all the adversities presented and the complexity involved only in virtualizing all academic content. Among these strategies is the application of tools such as the inverted classroom, which is explained in the article entitled “The challenges of teaching chemistry in the COVID-19 pandemic: The methodology of the inverted classroom adapted for the virtual modality in Brazil”, in which the authors reported the results of a study on the use of the inverted classroom in the virtual modality in Brazil (Freitas et al., 2021) in which the authors reported the use of the inverted classroom methodology in two General Chemistry classes, adapted to the virtual modality, in the context of a Brazilian federal university. The Inverted Classroom strategy, created by Aaron Sams and Jonathan Bergmann, consists of providing students with the necessary tools to put their knowledge into practice, facilitating a more active role in the training process. The study confirms that the application of this strategy can be carried out successfully through the virtual media used to support the academic training processes during the Covid-19 pandemic. It is important to emphasize that the work of the teachers, defines in a high percentage, the success in the culmination of the academic processes of the students, as shown in the article entitled “Factors associated to the teaching practice that affect the desertion of students in the e-learning modality, a case study in the context of Chilean higher education” (Carcamo, 2021), whose objective was to present the results of a research that analyzed the influence of teaching activity on student dropout in the technical career in the e-learning modality, of Higher Education institutions, with students admitted in the 2018 academic year and not enrolled in 2019. The study revealed that the decision of student desertion is largely influenced by the modality in which teachers develop their virtual subjects, suggesting that these should make greater efforts in the processes of feedback, accompaniment, deepen the

orientation on the e-learning modality, that is, that they manage to present with greater emphasis the procedures carried out through digital tools so that students can use them correctly and the training process is more successful. On the other hand, it is necessary to have evaluative processes for teachers' work in digital skills so that the modalities applied in the virtual classroom are of greater benefit to both students and teachers themselves in the exercise of their functions.

## **5. Conclusions**

This review article concludes by highlighting the importance of knowing the updated state of the bibliography published in databases such as Scopus or Wos, referring to the study of teaching modalities due to the Covid-19 crisis. It is important to emphasize that the work of teachers during the pandemic caused by this disease has been recognized and highlighted by the same society since the vocation and commitment printed in each activity has meant a great contribution to reducing the implications generated by the confinement subjected as a strategy for the reduction in the number of infections and deaths due to the transmission of Covid-19 in the care of mental and physical health of students. The design of particular strategies to support the academic deformation process also constituted one of the most significant contributions to the virtual methodology since being recursive at that specific moment led the teachers to devise a way to transfer all the activities practiced in person to the virtual one. The strengthening of digital competencies was a key aspect not only in teachers but also in students, so continuous training and feedback processes were essential in the redefinition of the teaching modalities applied during the Covid-19 pandemic since, through these processes, it was possible to identify the points to improve and strengthen as well as the opportunities presented to expand the resources in the virtual academic offer, which ends up being in the framework of this pandemic, competitive advantage within the educational institutions of any academic level since the coverage in education is extended thanks to the use of information and communication technologies. Therefore, it is of great importance to know the current state of the bibliography published about the teaching modalities and their adaptation to a moment of the health crisis that forces the confinement of all the people involved in the formative process, since in this way, it is possible to know in detail the current situation of virtual education and opportunities for improvement in the construction of new knowledge supported by information collected in reviews such as the one presented in this document.

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