

Didactic strategies for virtual teaching in secondary education

Estrategias didácticas para la enseñanza virtual en la educación media
Estratégia didática para a aprendizagem eletrônica no ensino secundário

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Abstract

Virtual education took off after the suspension of face-to-face activities due to Covid-19. In Ecuador, high school education adopted virtuality to follow the activities, so this study had the objective to determine the didactic strategies used for virtual teaching in Ecuadorian high school education. It was a qualitative, theoretical, documentary type, bibliographic design, descriptive level research. Among the results, it stands out that all the research reviewed mentions the design of interactive activities, the use of educational platforms, and the use of multimedia resources; no coincidences were found with the a priori categories: class recording and online evaluations. Emerging categories such as time organization, relevance of teacher participation and motivation were obtained. In conclusion, the studies prioritize the use of digital tools and social networks as tools for connection and interactivity.

Key words: didactic strategies, virtual teaching, Ecuadorian secondary education.

Resumen

La educación virtual tomó auge a partir de la suspensión de actividades presenciales por causa del Covid-19. En Ecuador, la educación media adoptó la virtualidad para seguir las actividades, por lo cual este estudio tuvo por objetivo determinar las estrategias didácticas usadas para la enseñanza virtual en la educación media ecuatoriana. Fue una investigación cualitativa, teórica, tipo documental, diseño bibliográfico, de nivel descriptivo. Entre los

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resultados se destaca que todas las investigaciones revisadas hacen mención del diseño de actividades interactivas, la utilización de plataformas educativas, y el uso de recursos multimedia; no se encontraron coincidencias con las categorías apriorísticas: grabación de clases y evaluaciones en línea. Se obtuvieron categorías emergentes tales como organización del tiempo, relevancia de la participación del docente y motivación. Como conclusión se tiene que los estudios priorizan el uso de las herramientas digitales y redes sociales como herramientas de conexión e interactividad.

Palabras clave: estrategias didácticas, enseñanza virtual, educación media ecuatoriana.

Resumo

A educação virtual tomou impulso após a suspensão das atividades presenciais devido à Covid-19. No Equador, a educação secundária adotou a virtualidade para acompanhar as atividades, portanto, este estudo teve como objetivo determinar as estratégias didáticas utilizadas para o ensino virtual na educação secundária equatoriana. Tratou-se de uma pesquisa qualitativa, teórica, do tipo documental, de desenho bibliográfico, descritiva. Entre os resultados, todas as investigações analisadas mencionaram a concepção de atividades interativas, a utilização de plataformas educativas e a utilização de recursos multimídia; não foram encontradas coincidências com as categorias a priori: gravação de aulas e avaliações online. Foram obtidas categorias emergentes como a organização do tempo, a relevância da participação do professor e a motivação. Como conclusão, temos que os estudos dão prioridade à utilização de ferramentas digitais e redes sociais como instrumentos de ligação e interatividade.

Palavras-chave: estratégias didáticas, ensino virtual, educação secundária equatoriana.

INTRODUCTION

Currently, virtual education has taken on great relevance due to the pandemic that has forced many educational institutions to adopt this modality (Valero-Cedeño et al., 2020; Hueso, 2020; Aedo and Millafilo, 2022). Secondary education has not been the exception and has seen the need to use digital tools to continue providing quality

education. Some didactic strategies that can be used to improve virtual teaching in secondary education are the following:

Design of interactive activities: It is important to design activities that involve the active participation of students, these can be in the form of games, debates, discussion forums, among others. Their objective is to encourage collaborative learning and student participation in the teaching and learning process. Teamwork and online collaboration can be encouraged through videoconferencing platforms such as Zoom, Google Meet, Microsoft Teams. Teachers have the possibility of creating assignments and practical activities for students to apply what they have learned, even remotely.

Use of educational platforms: Educational platforms such as Moodle, Canvas, Google Classroom, among others, allow content management and interaction between students and teachers. These tools can be used to share materials, assign tasks, monitor student activities, among other functionalities.

Class recording : Classroom recordings allow students to review content and review topics covered in class. In addition, they can be a useful tool for students who could not attend the class in real time. Teachers can create educational videos to explain concepts, allowing students to visualize the content and review the material as often as necessary.

Use of multimedia resources: Multimedia resources such as videos, infographics, animations, among others, can be used to reinforce concepts and improve students' understanding. These resources can be used by both teachers and students to complement class content.

Online assessments: Various online tools can be used to conduct assessments and tests, such as Kahoot, Google Forms, and others. It is important to perform continuous assessments to verify student learning. These evaluations can be in the form of quizzes, exams, papers, among others. In addition, it is important to provide feedback to students so that they can improve their performance.

Didactic strategies for virtual teaching in secondary education should focus on the active participation of students, the use of digital tools, the use of multimedia resources and continuous evaluation. It is important that teachers are trained to use these tools and adapt them to the needs of their students. In this way, a quality education and an enriching learning experience for students can be guaranteed. Thus, it is important to review other studies related to this topic in order to know what has been done and what still needs to be done; to this end, the objective of this literature review study was to determine the

didactic strategies used for virtual teaching in Ecuadorian secondary education.

MATERIALS AND METHODS

This inductive study was conducted using the qualitative approach, which offers the opportunity to make theoretical constructions from a holistic representation, where the researcher intervenes with his critical stance (Taylor et al., 2016). It is a theoretical research, supported by other studies or secondary sources of information (Del Cid et al., 2011).

It was conducted as a documentary research, through a bibliographic design, and its level was descriptive (Hernández-Sampieri and Mendoza, 2020) in order to achieve the objective of determining the didactic strategies used for virtual teaching in Ecuadorian secondary education. The starting point was previously defined categories such as the design of interactive activities, use of educational platforms, class recording, use of multimedia resources and online evaluations. Content analysis was assumed through the process of Cáceres (2008) as the technique for data collection, starting with a search for information through sources such as written documents available on the Internet, using the search engine "Google Scholar"®, and keywords such as: didactic strategies, virtual teaching, Ecuadorian secondary education. Books, complete theses and research articles indexed in Dialnet, Latindex, SciELO or Scopus, which were published between 2019 and 2023, were selected, only those related to Ecuador, at the middle level.

RESULTS

In order to determine the didactic strategies used for virtual teaching in Ecuadorian secondary education a review and analysis of the content of the research shown in Table 1 was carried out.

Table 1.

Research on didactic strategies used for virtual teaching in Ecuadorian high school education

Author(s)	Year	Title	Description
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Hermann-Acosta et al.	2019	Reflections and Perspectives on the Uses of Social Networks in Education. A Case Study in Quito-Ecuador	It focused on determining how the use of Web 2.0 resources such as social networks is allowing the construction of learning in non-formal educational contexts mediated by the use of digital technologies. It was found that 80% of media users have used social networks for educational purposes. In conclusion, the use of digital technologies is not only contributing to promote aspects such as communication and entertainment, but also to incorporate invisible learning to their cognitive processes.
Rojas-Londoño and Diaz-Mora	2020	COVID-19 The transformation of education in Ecuador through the inclusion of technological tools for meaningful learning	The study is the result of research in repositories of relevant reviews that are on the web, as a sample of a number of valuable tools for the educational field that evolved by leaps and bounds since the advent of COVID-19. They found that they are frequently used (Zoom and Microsoft Teams). They also used social networks such as Whatsapp and Facebook as an important pillar to continue education from home, they became a key tool of connection between teachers and students.
Chong-Baque and Marcillo-García	2020	Innovative pedagogical strategies in virtual learning environments.	This study describes innovative pedagogical strategies that have been mainly based in the educational field to enhance Virtual Learning Environments (VLE), from the constructivist framework. The use of gamification, collaborative learning, project-based learning is described,

Tafur	2020	Playful virtual teaching (Gamification) of the periods of regional development and integration of the cultures of the highlands of Ecuador.	Its objective was to analyze the gamified virtual education (gamification) of the periods of regional development and integration of the cultures of the Sierra of Ecuador. Among the results, it was found that gamification systems are not used in the classroom, but rather for leisure and recreation. When describing the applications and tools, it could be perceived that they are varied. In conclusion, it is possible to create playful virtual material for learning, and it is also an adaptable tool for learning any subject.
Alfonzo et al.	2020	Didactic strategies for the effectiveness of physical education: a challenge in times of confinement.	The objective was to propose didactic strategies to favor the effectiveness of physical education in times of confinement. Different didactic strategies are proposed whose components were the starting point to structure the proposal and their adaptations are framed in the virtual context, based on curricular guidelines.
Encarnación and Ayala	2021	Didactic strategies through mixed reality for theoretical-practical learning in high school students.	The objective was to evaluate the influence that this technology has on the theoretical-practical learning of high school students. As a result, 79.2 % of theoretical-practical knowledge was obtained. In the usefulness indicator, 87 % was obtained, in usability 69 % and in ease of use 65 %. The study made it possible to observe that the use of mixed reality can support students' theoretical-practical learning.
Pastora and Fuentes	2021	The planning of teaching	Its objective was to analyze the importance of planning

		strategies in a virtual learning environment.	teaching strategies in a Virtual Learning Environment (VLE). It is concluded that the planning of strategies in a virtual environment requires teachers to carefully organize the virtual classroom , select the resources and technological means that best suit the needs or requirements of the learner, in order to promote self-management of independent learning and collaborative work, a contextualized, interactive experience with shared responsibilities.
Giler-Velásquez	2021	Virtual mathematics teaching university education Ecuador.	The purpose of the article was to analyze the virtual teaching of mathematics in Ecuador. It concluded that in order to achieve quality virtual teaching it is essential for teachers to be updated in virtual competencies, to train students in ICT, and to empower them with virtual pedagogical strategies and resources.
Morales-Zambrano et al.	2021	Digital competencies of teachers in secondary education Ecuador.	An analysis of the most important aspects of the digital competencies of teachers working in secondary education in Ecuador, especially in Manabí, was carried out. It was concluded that the digital competence of teachers and its impact on the teaching-learning process can help improve the teaching activities of teachers working in secondary education in Ecuador, as long as they are used as teaching resources and not in a way that tries to supplant the teacher .

Prado-Bailón and Corral-Joza	2021	Didactic strategies in virtual education and learning styles in high school students.	The didactic strategies used in virtual education and their relationship with the learning styles of the students of the Colegio Técnico de Bachillerato "Luis Arboleda Martínez" of Manta were analyzed. The results showed that teachers mainly used didactic strategies focused on the individualization of teaching, and to a lesser extent those related to expository techniques and collaborative work. The way students perceive and process information is wide, therefore, the teacher must implement strategies based on the facilities provided by virtual tools.
Hernandez et al.	2021	Autonomous learning: a requirement of virtual education. Experiences at Uniandes, Ibarra.	In this study, the authors elaborated a didactic strategy, composed of interrelated phases, to contribute to the autonomous learning of the students of the Second Level of the Software Career, of the Presential Modality, in UNIANDES, Ibarra, Ecuador, during the academic period May - September 2020, in the conditions of virtual teaching. This consisted of four phases to strengthen autonomous learning.
Pantoja and others	2021	Education and pandemic: challenge for teachers of higher basic education and high school in the city of Ibarra, Ecuador.	The purpose was to identify the pedagogical and technological challenges faced by teachers of elementary and high school in the city of Ibarra in times of pandemic. It was determined that both pedagogical and technological challenges are significant, mainly in terms of the drastic change in methodology and teaching

		resources, as well as the fact of having to acquire technological equipment, improve connectivity and train quickly in the use of new technologies.
Hernández-Chacón et al.	2022	Inverted classroom methodology for strengthening Intercultural Bilingual Education in virtual education.
		The authors analyzed the possibilities offered by the inverted classroom for learning Kichwa. The application of the inverted classroom proved to be efficient for strengthening intercultural bilingual education, in terms of learning the Kichwa language, providing teachers with a more comprehensive and interactive methodology and varied material for application in classes. It strengthened the students' protagonism.
Cedeño and García	2022	Methodological strategies in virtual teaching at the Eugenio Espejo Educational Unit in the canton of Chone - Province of Manabí - Ecuador.
		The objective was to know the methodological strategies applied during virtual teaching at the Eugenio Espejo Educational Unit. The results were oriented to demonstrate the effectiveness of the methodological strategies implemented by teachers during virtual teaching, concluding that during the validity of this modality in the Eugenio Espejo Educational Unit, teachers prioritized the use of innovative methodological strategies such as inverted classroom, problem solving, mind maps, semantic networks, role-playing that contributed significantly to give continuity to the teaching process, mind maps, semantic networks, role-playing that contributed significantly to give continuity to the teaching-learning process, and that,

			<p>although most of the teachers had no previous experience in the development of virtual teaching the use of methodological strategies helped them to execute virtual classes in which motivation was a priority .</p>
Castro	2022	<p>Didactic strategies and their influence on virtual teaching in students of an educational institution Guayaquil Ecuador, 2022</p>	<p>Its objective was to demonstrate that didactic strategies influence virtual teaching in students of an educational institution in Guayaquil Ecuador, 2022. She found that the variable didactic strategies influenced the interactive materials; she evidenced sustainability of the use of WhatsApp, the computer, video conferences, they used the chat, there was a good management of Google, and programs such as Excel. It found that didactic strategies have a significant influence on student learning.</p>
Intriago-Alarcón and Rodríguez-Zambrano	2022	<p>Didactic strategies for schoolchildren with special educational needs during Covid-19. A review study in Ecuador</p>	<p>This article presents the results obtained through a documentary review of the didactic strategies for the care of schoolchildren with special educational needs applied during Covid 19, 2019-2022. The results reflect didactic strategies such as inclusive classroom, distance education, digital classroom, cooperative learning, stimulation with art, sounds and movements, comprehensive reading, stimulation with sports and cooperative learning where parents are included to participate in the development of skills and new knowledge.</p>

Lorenty	2022	Virtual teaching strategies in the academic performance of students of the School of E.B. "Guayaquil" Canton Vinces - Ecuador, 2021.	The objective was to propose adequate virtual teaching strategies for the academic performance of the students of the "Guayaquil" B.E. School, Canton Vinces-Ecuador, 2021. They conclude by emphasizing the need to establish educational strategies that use current technological resources for the construction of knowledge, where students are more participatory, motivating them to previous research.
Bajaña-Vera	2022	Virtual didactic strategies in teachers of an educational unit in Ecuador, 2022	Their objective was to determine the current state of virtual teaching strategies designed and implemented by teachers in an Educational Unit in Ecuador in the year 2022. They noticed that teachers confuse virtual methods and techniques, they consider that the same methods and techniques are used as in face-to-face education. They have mastery of skills to select and develop digital resources, highlighting Quizziz, Canva and Educaplay as the most used online tools.

Source: authors' own elaboration (2023).

Table 1 shows that in the studies reviewed, coincidences were found with the defined a priori categories; in this regard, all the mentioned researches present or mention the design of interactive activities, the use of educational platforms, and the use of multimedia resources. It should be noted that no coincidences were found with the aprioristic categories: class recording and online evaluations.

In addition, from the analysis of these, emerging categories such as time organization, relevance of teacher participation and motivation were obtained. The first, expressed by Pastora and Fuentes (2021) who mention that "the planning of strategies in a virtual environment requires teachers to be carefully organized to manage the virtual classroom in time", the relevance of the teacher was expressed by Morales-Zambrano et al. (2021) who stated: "as long as they are used

as didactic resources and not in a way that tries to supplant the teacher". Motivation was revealed by Cedeño and García (2022) who stated that "the use of methodological strategies helped them to carry out virtual classes in which motivation was a priority".

CONCLUSIONS

In this study, didactic strategies used for virtual teaching in Ecuadorian secondary education during the period between 2019 and 2022 were determined, in this regard it is concluded:

The studies prioritize the use of digital tools and social networks as tools for connection and interactivity. All of them refer to the design of interactive activities, the use of educational platforms, and the use of multimedia resources. No strategies were found for the evaluation and feedback of the educational process. Categories such as motivation, time organization, and relevance of the teacher in the teaching and learning process emerged.

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