Chapter 4 Effective teaching-learning strategies for digital distance education within the bachelor's degree in Business Administration at TESVB

Capítulo 4 Estrategias de enseñanza-aprendizaje efectivas para la educación a distancia digital dentro de la Licenciatura en Administración del TESVB.

HERNÁNDEZ-SÁNCHEZ, Josefina

Tecnológico Nacional de México/TES Valle de Bravo

ID 1st Author: *Josefina, Hernández-Sánchez* / **ORC ID**: 0009-0006-4771-5099

DOI: 10.35429/H.2023.4.40.49

Abstract

In March 2020, institutions at all levels are facing a global Covid-19 pandemic, face-to-face classes are suspended, and work begins virtually. This generated insecurity and anguish, the students did not know how the classes would be taught and evaluated; teachers had to adjust planning to new conditions. This creates the need to build forms of virtual work. Within the Bachelor of Administration of the Tecnológico de Estudios Superiores of Valle de Bravo, emergency strategies had to be developed to save the semester that was being studied, the next three semesters were already planned; there was a little time to schedule the classes, however, there were external conditions that affected the virtual work, for the above, it is important to analyze, evaluate and determine which are the strategies applied effectively within the career, to preserve them, improve them for new contexts.

Strategies for distance education

Resumen

En marzo de 2020, las instituciones de todos los niveles se enfrentan a una pandemia global de Covid-19, se suspenden clases presenciales y se inicia a trabajar de forma virtual. Esto generó inseguridad y angustia, los estudiantes no sabían cómo se les impartirán y evaluarían las clases; los profesores tenían que ajustar la planeación a nuevas condiciones. Esto crea la necesidad de construir formas de trabajo virtual. Dentro de la Licenciatura en Administración del Tecnológico de Estudios Superiores de Valle de Bravo se tuvieron que desarrollar estrategias de emergencia para salvar el semestre que se estaba cursando, los siguientes tres semestres ya fueron planeados; hubo un poco de tiempo para programar las clases, sin embargo, existieron condiciones externas que afectaron el trabajo virtual, por lo anterior, es importante analizar, evaluar y determinar cuáles son las estrategias aplicadas de forma efectiva dentro de la carrera, para conservarlas, perfeccionarlas para nuevos contextos.

Estrategias para la educación a distancia

1. Introduction

As a result of a health emergency caused by the virus, classes were mandatory suspended at all educational levels. In the case of basic education, it chose to broadcast its sessions through television, radio, and social media. However, universities were forced to shift their focus towards distance education through virtual modalities.

With this event, it was observed that some institutions already had digital platforms and remote work systems in place, which facilitated the transition from in-person to virtual classes for both teachers and students, with plans and modalities organized by faculties or departments. However, for others, it meant facing new challenges in the short term to provide a timely response to the emergency. This is the case for the Bachelor's Degree in Business Administration at the Technological Institute of Higher Studies of Valle de Bravo.

The following research will focus on the study, analysis, and development of different optimal teaching-learning strategies used for digital distance education within the bachelor’s degree in business administration at the Technological Institute of Higher Studies of Valle de Bravo.

The first step will involve analyzing the efforts made by the professors in the program to cope with the situation experienced during the pandemic and how the teaching process was carried out using technology.

The next step will be to investigate with the students about the learning models used during the same period, considering the use of available technological tools to facilitate this process.

Subsequently, documentary research will be conducted on teaching-learning strategies to refine those already implemented and propose new ones that can help achieve better results.

Finally, an anthology of strategies suitable for the needs of the program will be compiled, to the extent possible.

2. Development of the Topic

Objectives

General Objective:

Defining effective teaching-learning strategies for digital distance education within the bachelor's degree in business administration at the Technological Institute of Higher Studies of Valle de Bravo:

Specifics

- Analyze the teaching methods employed by professors for digital distance education within the bachelor's degree in business administration at TESVB.
- Determine the learning models used by students for digital distance education within the bachelor's degree in business administration at TESVB.
- Design teaching-learning strategies based on the needs of the bachelor's degree in business administration at TESVB for digital distance education.

Methodologies

1. A qualitative analysis was conducted through a discussion with the professors of the Bachelor's Degree in Business Administration at TESVB to identify their perception of the pandemic that occurred in March 2020.
2. Interviews were conducted with the professors of the Bachelor's Degree in Business Administration at TESVB to explore the teaching models applied for digital distance education (commonly known as ICT-mediated educational models) in the past three semesters, in order to assess their effectiveness.
3. A comparison was made among the different teaching models employed by professors for digital distance education in various subjects of the program.
4. A quantitative analysis was conducted to assess the resources available to students in different semesters for digital distance education within the Bachelor's Degree in Business Administration at TESVB.
5. Surveys were conducted with students from different semesters to investigate the types of learning utilized during the pandemic in their various subjects taken in the past three semesters, and a qualitative analysis was performed.
6. The optimal teaching methods used for digital distance education in the last semester by the professors of the bachelor's degree in business administration at TESVB were selected.
7. Develop teaching-learning strategies for digital distance education within the bachelor's degree in business administration.

Theoretical framework

Theories of Distance Education:

Many conventional psychopedagogical paradigms have become obsolete or face serious difficulties in understanding the changes in the educational world and society at large. To analyze the changes in teaching and learning processes in the digital era, it is necessary to pose new questions and seek new answers.

Contemporary theories agree in pointing out that the educational process should be active, dynamic, and focused on learning rather than teaching. This implies designing learning strategies that promote continuous interaction between the learner and the object of knowledge. Constructivism, as part of these approaches, conceives the teaching-learning process differently. Previously centered on the transmission or imparting of knowledge, it now focuses on showing the path followed in the acquisition of learning (Ma. Antonia Miramontes Arteaga, 2019, p. 204).

As we have seen, today we can learn anytime, anywhere, and in multiple ways. Thus, learning clearly transcends the boundaries of educational institutions, traditional classrooms, and virtual campuses, and its modalities and scenarios have multiplied.

The evolution of technology favors and amplifies informal learning (Fischer, 2000), which takes place outside the conventional frameworks of educational institutions and structured training programs. It is a free, personal, often spontaneous, and unplanned activity that, although it has always existed, now has a multitude of new resources and channels.

Description of distance, blended, and face-to-face educational models:

Models	Models of education mediated by ICT
Guided independent study (open modality)	Guided Independent Study is the "classic" model of distance education based on printed materials, also known as correspondence studies, in which students learn primarily on their own with the help of printed materials. These materials employ what is known as "guided didactic conversation" (Holmberg, 1986). This open mode model places special emphasis on the printed materials since the student will be alone and isolated when reading them. These materials strive to create a sense of personal connection with the teacher and the institution responsible for the studies. It is recommended to use a conversational language that is easy to read and not too dense, provide advice on what to do and what to avoid, encourage students to contribute their own ideas, questions, and judgments, involve students to develop a personal interest in the subject matter or problem at hand, and use a personal writing style, among other techniques.
The remote classroom (distance modality)	The model of the remote classroom is based on the use of ICT to replicate in a distance setting what normally occurs in a face-to-face classroom. In this model, also known as a distributed classroom by Miller (2004), technologies that enable synchronous transmission (in real-time, live, and spontaneous) of audio and/or video are typically used (Bates, 1995; Levenburg, 1998). In this distance education model, only predetermined locations chosen by the institution, not the students, are accessed. The remote classroom is defined by its technological infrastructure rather than its instructional design (Heydenrych, 2000), as it largely reproduces the model of a traditional classroom where the interaction between teacher and student is limited.
The interactive model based on ICT (distance modality)	The interactive model based on ICT utilizes Internet technologies for accessing materials and maintaining contact between academic advisors and students through synchronous and/or asynchronous interaction. In this model, also known as network-based distance education or the "online" model, opportunities for interaction between the teacher and the student are increased as the teacher does not dominate the conversation as is typically the case in a traditional classroom. This aspect favors, but does not guarantee, the implementation of educational models based on knowledge construction by the students.
The hybrid model (mixed modality)	Hybrid or blended learning models are those that combine face-to-face education and distance education in a way that both learning experiences are essential to successfully achieve the learning objectives. A blended model is not simply adding online modules to a face-to-face course or vice versa. Creating a hybrid educational solution requires the different components, whether face-to-face or online, to fit together logically like the parts of a machine (Zenger, 2001). In a hybrid solution, each educational model brings out its strengths. The interactive model based on ICT is used for delivering content, simulations, collaborative activities, feedback processes, and interaction between students and between the teacher and the student. The face-to-face model is used to engage students with the content, practice skills, discuss the challenges students will face in implementing this knowledge and skills in a professional context, and ensure social commitment among participants. Another characteristic of the hybrid model is that it can provide variety. The same content can be delivered in different modalities, giving students the opportunity to choose which modality is more appealing to them.
The face-to-face model supported by technology (face-to-face modality)	Some authors consider within the term "blended" or "hybrid" model, face-to-face models that incorporate the use of technology without reducing the number of in-person contact hours. However, those models, rather than being truly blended, are face-to-face models enhanced with the use of ICT ("ICT enhanced" in English). There is no single hybrid model, but rather a continuum between traditional face-to-face education and distance education (Cheese, 2003). However, at the extremes of this spectrum, we will find face-to-face education with very little distance support and distance education with very little face-to-face interaction.

Consulted source: Conacyt (2014)

The student and the teacher within distance education

The autonomy of learning refers to the student governing themselves and being able to make decisions about their learning process, thanks to the training and development of cognitive, affective, interactive, and metacognitive competencies or skills.

"The year 2020 has shown the need and urgency to promote skills that allow students to be self-managed and self-regulated, including competencies to plan their learning activities and self-assess." (Enríquez Vázquez & Hernández Gutiérrez, 2021)

According to the Tassinari model, it includes five dimensions that encompass autonomous learning.

The dimensions are as follows: affective, social, cognitive, metacognitive, and action oriented.

Internet and distance education

Currently, there is a set of computer applications available on the internet that allows us to create a very rich environment in terms of interaction and, therefore, very flexible in terms of teaching strategies.

Among the interactive resources available on the internet, they can be classified into synchronous and asynchronous services.

Synchronous services are those in which the sender and receiver of the message in the communication process must be present at the same time.

Asynchronous services are those that allow the transmission of a message between the sender and receiver without them having to coincide to interact at the same moment. They necessarily require a physical and logical location (such as a server, for example) where the data that forms the message will be stored and accessed.

Both services are necessary to carry out distance education; however, asynchronous services are more useful in this modality due to the deferred access in time, which eliminates the limitation for students.

Learning styles

Learning styles refer to a set of cognitive, affective, and physiological elements that serve as indicators to determine how individuals perceive interactions and react to their surroundings.

David Kolb states that learning is a four-stage process: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE).

Concrete Experience (CE): Individuals who develop this capacity are able to fully engage without prejudice in new experiences and learn through direct involvement.

Reflective Observation (RO): When this capacity is developed, individuals are able to reflect on their experiences and observe them from multiple perspectives. Learning is achieved through reflection.

Abstract Conceptualization (AC): When this capacity is developed, individuals become capable of constructing new concepts and integrating their observations into solid theories. Learning is achieved through thinking.

Active Experimentation (AE): When individuals use this capacity, they become capable of applying formulated theories to make decisions, solve problems, and learn through doing.

These capacities determine the degree of perception and processing, resulting in four learning styles: Diverging, Assimilating, Converging, and Accommodating.

Kolb asserts the following:

Those who combine Concrete Experience and Reflective Observation have a Diverging learning style.

Those who combine Reflective Observation and Abstract Conceptualization have an Assimilating learning style.

Those who combine Abstract Conceptualization and Active Experimentation have a Converging learning style.

Finally, those who combine Active Experimentation and Concrete Experience have an Accommodating learning style.

Diverging style: Characterized by idea generation and imaginative capacity, students with this style are experimental, creative, flexible, informal, and tend to break traditional learning norms.

Assimilating style: Characterized by the ability to create theoretical models, these students are reflective, analytical, organized, methodical, systematic, logical, rational, sequential, and rigorous in their reasoning processes. They tend to focus on the object of study.

Converging style: Typically, these students are characterized by the practical application of ideas. They engage in experiences related to the subject of study, have the ability to grasp ideas and find solutions, and are practical and efficient in applying and transferring theory.

Accommodating style: Characterized by the ability to adapt to specific immediate circumstances. Students with this style are generally observant, detail-oriented, imaginative, intuitive in anticipating solutions, emotional, and have a great capacity to relate and link content.

Teaching-Learning Strategies

Pimienta (2012) defines teaching-learning strategies as instruments used by teachers to facilitate the construction, implementation, and development of students' life skills. These instruments are based on the creation of didactic sequences divided into three main moments: the beginning of the class, development, and closure or feedback on what has been covered.

Barriga and Hernández (2010) mention the strategies most commonly used by students to improve their processes of acquiring meaningful learning.

3. Results and Analysis

To develop the project, it was necessary to analyze two key actors: teachers and students.

Based on the provided information, the following conclusions can be drawn:

Most teachers used the "Remote Classroom" distance learning modality, which relies on the use of ICT to replicate synchronously what normally occurs in a physical classroom. This distance education model is achieved through predetermined platforms chosen by the institution, such as Microsoft Teams, which was designated as the official communication medium.

Another distance learning model used was the "Interactive Model based on ICT," which utilizes Internet technologies for accessing materials and maintaining contact between academic advisors and students in synchronous and/or asynchronous interactions. This model, also known as network-based distance education or "online" model, provides increased opportunities for interaction between teachers and students.

Implementing both models is beneficial, although it does not guarantee knowledge construction by students.

Both models could be considered optimal, but since both require the implementation of ICT, a quantitative analysis of the students' resources was necessary to determine the feasibility of Digital Distance Education in the Bachelor's Degree in Administration.

It is concerning that almost half of the students in the program do not have a specific space to complete their tasks without interruptions.

All students have at least one mobile device, and the majority have internet access, both of which are necessary to implement the project.

A little over half of the students initially had difficulties using the different applications, but with increased usage, they became more familiar with them.

An important fact is that the majority of students live in communities with electricity supply issues.

Coming from rural communities, students may lack certain resources; however, they all have internet access and mobile devices, which are necessary to implement Teaching-Learning Strategies for Digital Distance Education.

Both models could be selected as optimal for Digital Distance Education in the program. However, the "Interactive Model based on ICT" better adapts to the conditions as it allows both students and teachers to connect synchronously and asynchronously with the support of the available technological tools.

It was necessary to investigate the predominant learning styles among the students in the program to develop appropriate Teaching-Learning Strategies. The findings indicate that the prominent characteristics are imaginative, experimental, analytical, and reflective. Students tend to analyze and reflect before making decisions or solving problems. They are capable of fully engaging without bias in new experiences and reflecting on their lived experiences from multiple perspectives, thus learning through experimentation and reflection.

Almost half of the students enjoy participating in or prefer obtaining new information through brainstorming, simulation exercises, the use of analogies, conducting experiments, solving riddles, crosswords, puzzles, and constructing information organizers (mind maps, concept maps). Another notable percentage prefers analyzing texts, data sorting, participating in debates, conducting research and inquiries, and preparing reports. These strategies will be used as a reference.

Based on the above, it can be concluded that the divergent learning style predominates among the students, with a smaller number exhibiting an assimilator style.

"What strategies will enable the effective implementation of the Teaching-Learning process for Digital Distance Education within the Bachelor's degree in Business Administration?

Taking into account the teaching model developed by the instructors and the prominent learning styles of the students in the Bachelor's degree in Business Administration, the following strategies are proposed.

Proposed strategies for the divergent learning style"

Proposed strategies for the divergent learning style	
Brainstorming	
AIM	Developing and exercising creative and innovative imagination, promoting the search for solutions, and enhancing decision-making skills. Encouraging autonomous behavior in learning.
Description of the strategy	It is an unstructured technique where solutions to various situations are sought through the generation of spontaneous, relaxed, and horizontal ideas. Through this practice, better results are obtained as it enhances creativity among students and fosters a collaborative environment.
Advantages	– Provides multiple perspectives. – Creates opportunities to explore others' ideas. – Often generates more ideas in a short period
Practical Cases	
AIM	Building learning through the analysis and discussion of real-life experiences and problematic situations in the workplace.
Description of the strategy	It consists of presenting real problems (business cases, work environment issues, accounting scenarios, among others) in which students are required to propose various solutions, opinions, or contributions. By using real-life cases, the aim is for students to visualize the conflicts, projects, and roles that can be encountered in the professional field.
Advantages	– Facilitates the understanding and processing of information by the student. – Establishes a connection between theoretical concepts and their practical application. – Stimulates the development of critical thinking and analytical skills. – Promotes active student participation in their own learning process.
Graphic Organizers	
AIM	Promote independent learning in students, by organizing the corresponding information.
Description of the strategy	Mind maps are effective tools for organizing information by designing a scheme that classifies ideas in a logical way, allowing students to visualize the topic as a whole. They are particularly helpful for students with learning difficulties as they include concepts, visual images, and keywords.
Advantages	– Son fáciles de crear. – Tienen un gran impacto en la simplificación de la información. – Ayudan el razonamiento, análisis y compresión lectora. – Practican habilidades de ordenamiento, comparación y clasificación. – Facilita a resumir cada vez con mayor facilidad. – Entrena tu mente para producir mejores ideas.
Crosswords	
AIM	Promoting meaningful learning and enhancing the ability to organize information, motivating students to review acquired knowledge.
Description of the strategy	It consists of developing questions and writing the answers in a template, with vertical and horizontal lines crossing each other. The template is divided into individual lettered cells.
Advantages	– Ensure students develop habits of collaborative decision-making in professional contexts. – Increase students' professional interest and motivation in technical subjects. – Assess the level of technical knowledge attained by students. – Develop generalized skills and professional capabilities in practical settings. – Enhance students' independent preparation level and provide the opportunity for the teacher to analyze the assimilation of technical content in greater detail. – Promote long-lasting learning experiences. – Offer real-world experiences that stimulate student activity. – Provide experiences that can be easily obtained through other materials and media, contributing to the efficiency, depth, and variety of learning. – Contribute to the expansion of meanings and, consequently, to the development of vocabulary.

Proposed strategies for the assimilatory learning style

Information Analysis	
AIM	Process information from different sources to understand specific content through the most prominent ideas, enabling students to generate meaningful knowledge.
Description of the strategy	It is the process of exploring, transforming, and examining data to identify relevant information that enhances efficiency in supporting decision-making.
Advantages	– Increased learning efficiency. – Greater speed and safety in decision-making. – Promotes the habit of reading.
Research Projects	
AIM	To present, in a methodical and organized manner, a set of data and information regarding a problem in order to formulate a hypothesis aimed at its resolution.
Description of the strategy	It is a scientific procedure aimed at gathering information and formulating hypotheses about a specific social or scientific phenomenon. It involves engaging students in understanding the research process that takes place prior to conducting a research project.
Advantages	– Transform the ideas on tangible achievements. – They can be of collective or personal interest. – They motivate and require interdisciplinary teamwork. – They serve to provide solutions to a problem and take advantage of opportunities that exist in the environment.
Discussion forum	
AIM	Contribute to the development of critical thinking and foster the ability to express ideas in a reasoned manner.
Description of the strategy	It is a virtual meeting among various participants with the objective of exchanging opinions, posing questions about a common topic or subtopics, as well as sharing skills, experiences, or answers to questions among its participants, which generates new knowledge.
Advantages	– Reinforces learning and enhances its meaningfulness. – Allows for understanding students' attitudes towards certain topics. – Fosters the development of social skills through interaction. – Compares results from an analysis conducted individually or in teams. – Retrieves experiences from field practices carried out by students. – Helps improve written communication skills. – Enables commenting, analyzing, and critiquing texts.
Preparation of investigation reports	
AIMS	To develop the student's writing skills, analysis, synthesis, and critical thinking.
Description of the strategy	It is a written document that seeks to communicate in a clear and objective manner the objectives pursued by the study, how it was carried out, the main results, and the main conclusions and recommendations reached once the research was completed. This learning strategy involves reflection, either personal or group, to deepen understanding of a subject matter.
Advantages	– It establishes an objective account of facts. – It promotes reading. – It develops critical thinking. – The student learns to gather and refine data from reality. – It contributes to improving oral and written communication skills.

4. Conclusions

Taking into account the teaching model developed by the teachers and the outstanding learning styles of the students, a set of strategies are proposed that will support the teaching-learning process to promote digital distance education within the Bachelor's Degree in Administration.

The design and development of appropriate strategies will allow the construction of significant knowledge in students, since their participation in the classes will be greater, by getting involved they will adapt a new way of working capable of permeating in all areas.

Once the strategies have been defined, it is necessary to integrate them into a Web page for the exclusive use of students and teachers of the course, in which both parties can interact asynchronously and use them according to the needs of each subject.

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