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# Distance education: The next step in innovation in current education and pedagogy programs

# Educación a distancia: El siguiente paso de la innovación en los programas actuales de educación y pedagogía

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**RESUMEN**

La rápida integración de las Tecnologías de la Información y la Comunicación (TIC) ha transformado fundamentalmente la educación, convirtiéndola en un componente esencial de la calidad de vida de las personas. Al proporcionar acceso a un vasto mundo de información digital y las herramientas para utilizarla de manera efectiva, esta informatización de la educación ya no es un lujo, sino una necesidad. Este cambio exige un mayor grado de alfabetización digital en toda la población, particularmente entre los estudiantes y profesionales que están moldeando la fuerza laboral actual y futura. En respuesta a esta evolución, las Instituciones de Educación Superior (IES) deben buscar de manera proactiva alternativas innovadoras para expandir su alcance educativo y promover una mayor integración cultural y social. La educación a distancia surge como una solución crucial, representando el siguiente paso lógico para que las IES redefinan cómo satisfacen las necesidades educativas y culturales de una población diversa. Este enfoque ofrece ventajas significativas, incluyendo mayor cobertura, mayor flexibilidad y una libertad ampliada para los estudiantes, haciendo que la educación sea más accesible y adaptable a las demandas del mundo moderno.

***Keywords:***

Curriculum
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**ABSTRACT**

The rapid integration of Information and Communication Technologies (ICT) has fundamentally transformed education, making it an essential component of an individual's quality of life. By providing access to a vast world of digital information and the tools to utilize it effectively, this informatization of education is no longer a luxury but a necessity. This shift demands a higher degree of digital literacy across the population, particularly among students and professionals who are shaping the current and future workforce. In response to this evolution, Higher Education Institutions (HEIs) must proactively seek out innovative alternatives to expand their educational reach and promote greater cultural and social integration. Distance education emerges as a crucial solution, representing the next logical step for HEIs to redefine how they meet the educational and cultural needs of a diverse population. This approach offers significant advantages, including greater coverage, increased flexibility, and enhanced freedom for learners, making education more accessible and adaptable to the demands of the modern world.

## INTRODUCCIÓN

Higher education institutions (HEIs) in Latin America, particularly in Mexico, are grappling with the integration of Information and Communication Technologies (ICTs) in distance education. While virtual learning environments offer increased flexibility and accessibility (Solano, 2024), many institutions face challenges in implementation due to budgetary constraints, infrastructure limitations, and the need for

digital skills training (Torres & Moreno, 2019). The adoption of ICTs in Mexican HEIs is progressing slowly, with efforts directed towards virtualizing programs (Sánchez et al., 2017). However, the region still struggles with poor internet connectivity and low educational quality in distance programs (Fainholc, 2016). To address these issues, strategies such as government policies, innovations in instructional design, and collaborations between educational institutions and technology companies are being explored (Solano, 2024). Overcoming these challenges is crucial for Latin American HEIs to leverage the potential of virtual education and meet societal educational needs. In this context, the Faculty of Educational Sciences (FACE) at the Autonomous University of Sinaloa is actively engaged in this transformation, exploring the adoption of a virtual university model. Our overarching goal is to determine the aptitudes and skill levels of students for learning in a distance education environment. We aim to achieve this by evaluating their performance, abilities, and attitudes toward using digital tools and internet resources. This research is crucial for providing a solid foundation for the implementation of virtual educational programs or the full adoption of a distance education model within the faculty.

**Sociocultural context**

The integration of Information and Communication Technologies (ICT) in higher education is transforming teaching practices and demanding new skills from educators and learners (Chumaceiro et al., 2022). This shift requires institutions to develop flexible, technology-based learning models that meet the needs of distance and non-traditional education (Loureiro et al., 2023). The transition to digital education has not been without challenges, including issues of quality, accessibility, and sustainability (Anderson & Rivera, 2020). The emergence of new learning ecologies and digital educational ecosystems necessitates a profound change in the teaching-learning process, as students now demand active, experiential, and digital learning experiences (Monsalve & Aguasanta, 2020). To address these challenges, higher education institutions must adapt their pedagogical models, focusing on principles such as quality, flexibility, and interaction (Loureiro et al., 2023). This evolution in curriculum and teaching methods is essential to meet the needs of today's digitally-oriented society (Monsalve & Aguasanta, 2020).

A significant portion of the student body is already equipped with the foundations for increasingly technical education, particularly at the higher education level (Rodriguez & Ayala, 2023). However, this sector needs further preparation to adapt to educational models like those offered by ICT in distance education, where the key aspect is not the means themselves but the new ways of accessing and managing information, and especially the construction of knowledge (Solano, 2024). These new methods will produce changes and demand new dynamics and behaviors. Although the university's primary function of educating at the highest levels and providing the best specialization alternatives according to labor market needs and professional demand has not changed, the increasingly intensive use and application of ICT in various educational fields has shifted the paradigm of location and methods of teaching and learning activities (Alemán & Huamán, 2025). This shift generates new spaces, forms, and conditions so that teachers and students no longer need to physically attend university facilities but can fulfill their commitments through the various modalities offered by distance education. Until now, the student went to the university, but now the university goes to the student (Acuña, 2024). As these new forms of education become socially accepted and profitable for the institutions themselves, they will be definitively incorporated into educational plans and programs, creating a new type of education and fostering greater collaboration so that both students and teachers can more freely share new educational experiences.

**A new curriculum for each institution and professional needs**

The curriculum for distance education, in any of its forms (virtual, online, electronic, etc.), must be constructed within the educational practice itself (Souza & Santos, 2019). It is neither fully defined nor tested for most professional areas, and the existing references are still scarce and not extensively studied to serve as examples to follow, even if they are widely recommended (Valdés, 2019). The best approach remains to build one's curriculum through practice and about the entire social and cultural context in which each institution operates (Silva et al., 2019). An important, perhaps concerning, aspect is that the technological modalities or virtual environments adopted for teaching should not divert from the objectives, nor should they diminish the quality of thought in its development process, particularly in analytical and abstract, critical, and creative thinking (Baggaley, 2020). This must be carefully maintained and reflected in the new curriculum, which should remain learner-centered but with a new focus that integrates the new conditions and needs, where ICT plays the most important and largely predominant functional role. Additionally, concerns include the qualities needed for teaching and learning, which require educators and learners to integrate new skills into the educational or learning qualities they already possess. These skills are not just related to the instrumental handling of media but also involve competencies that are formed through training, experience, and continuous updating. These competencies include cognitive, procedural, information management, and collective behavioral skills. The factors that are most theoretically accepted

in the distance education model may also be the most questioned in practice. The level of commitment that students assume when enrolling in courses is considered superior to mere administrative formality; however, uncertainty about their continued participation and adherence to established methods persists.
The fact that students know the complete syllabus of each course in advance, along with the activities it involves and the evaluation method, is considered a novelty and an advantage. However, it also raises concerns about potential fraud or the temptation to resort to easy solutions. The evaluation system is perhaps the most controversial aspect and may prove challenging for teachers or tutors from conventional systems when it comes to obtaining sufficient evidence of evaluable activity and participation. The lack of physical presence complicates the acceptance of replacing conventional exams with integrated dynamics and evidence for this purpose. Tutoring, as a factor of support and reinforcement of student confidence, plays an important role in their performance and outcomes, as well as in the planning and regulation of their activities, both mandatory and voluntary. It is recommended that a collective of tutors perform this role professionally without creating "addiction" or dependence.

**Important and necessary academic implications**

The vast amount and variety of digital information available bring with them the complexity of its management and comprehension for effective use. It is not enough for users to simply search for information—whether bibliographic or digital—they need to know how to search effectively. Moreover, finding information is not sufficient; they need to analyze and evaluate it. Simply acquiring information is also not enough; it must be processed and applied effectively to be incorporated as new knowledge. These qualities are cultivated through the daily use of digital media, but they can be accelerated in educational settings if they are integrated into teaching processes and virtual work. Mastery of information access methods, as well as its processing, is of paramount importance. These skills include various aspects of professional training, such as autonomy, cooperation, critical thinking, and technological proficiency. Without these, students would be unable to carry out the numerous tasks required to make use of the available information, in addition to accelerating the student's reasoning by providing conditions for refining their thinking (Hačatrjana, 2024).The challenges posed by institutional involvement in virtual or distance higher education systems have a strong cultural component, due to the widespread preference for in-person and classroom-based systems. One of the most significant complications undoubtedly involves equipping individuals with technological and disciplinary skills, heavily influenced by their lack of experience and confidence in themselves and the tools available. In this regard, we must uphold the "equality of access" that distance education still offers as a "functional philosophy" of this educational modality (Snezhana, 2021). Student autonomy, as a self-regulated behavior, holds key value because of its significance in shaping one's personality and way of being, which is reflected in their actions and social belonging. It reflects their ongoing state of exploration and identification with their environment. As a cognitive quality, autonomy is cultivated through what is learned, known, reasoned, and constructed, and it can be influenced by the available or lacking resources needed for its development.
In this sense, the Internet provides resources for autonomous learning, such as information, search tools, document databases, educational programs, interactive resources (both synchronous and asynchronous), group association platforms (or "social networks"), instructional resources (or "educational platforms"), and more. Educators can leverage these resources in students' daily activities, from sending information to encouraging participation in study groups. The best resources will be those that allow for individual and collective contributions, enabling students to transcend the mere fulfillment of literal or thematic instruction. As (Nilsson & Cederqvist, 2025) states, educators can offer a set of tools that facilitate understanding, reflection, and the shared construction of knowledge. Every learning environment should correspond to a level of cognitive development, especially those environments that establish new dynamics integrating cognitive processes for learning. Reflective thinking, or the practice of reflection, is one of the pillars of virtual and distance learning, where abstraction for analysis, as well as critical and creative thinking, are key pillars of the autonomous process of professional training. Without these prerequisites, learners will not achieve the levels of professional thinking required by current social and labor demands.
Additionally, autonomy is closely linked with the qualities of the learning environment itself. The effectiveness of the environment or educational system will be reflected in the ways students locate and access information and organize and process that information through analysis, confrontation, argumentation, and critique—in other words, the ways they conduct research activities. Thus, autonomy as a preferential trait or style of fulfilling responsibilities, combined with critical thinking as a procedural trait and a "hallmark" of how students fulfill their learning obligations, will be two characteristics that define the learning environment in its various aspects, implicitly involving both the educator and the didactic and instructional model that governs it.

## MATERIALES Y MÉTODOS

This Faculty (FACE) strives to keep pace with the incorporation of ICTs into the student curriculum, intending to enhance the conditions that facilitate learning in its various forms, both within and outside of the school environment. To this end, efforts are made to continue complying with the recommendations established by national curriculum evaluation bodies (CEPPE) as well as international standards. Our faculty benefits from a favorable academic context regarding the prior training of incoming students, at least those who are part of our university. During high school, students develop basic skills and competencies in the use of ICTs, and they do not rely solely on documentary training. As they enter the undergraduate program, they are considered "digital native", (Reid et al, 2023) termed those who have had to adapt to new forms of digital interaction and communication. Recently, our university (UAS) launched the "Virtual High School" as a new educational program at the regional level, a development that compels Faculties like ours (FACE) to adopt this modality in one of its five academic programs (two undergraduate and three postgraduate) that it offers.

To achieve the incorporation of the virtual modality into the educational offerings, this Faculty already has the necessary infrastructure and ICT equipment. It also has the approved "Virtual University" proposal, which will allow for the implementation of distance education by adopting the most relevant modalities (virtual, online, hybrid), with the respective curricula, to fulfill the objectives of professional training. The "emergent" paradigm of online education helps us understand the new realities expressed by approaches such as the training of autonomous and independent students capable of assuming self-management of learning in online and distance education, contributing to the exercise of critical thinking and the formation of opinión (Rangel et. al., 2020). The focus on collaborative teamwork and the characteristics of virtual campus environments facilitates many-to-many communication, independence of time and space in teaching, computer-mediated communication, and the management of interactive knowledge communication processes mediated by dialogic action between students and tutor-teachers. The use of information and communication networks in interaction processes fosters cooperative learning and enables students to build virtual environments (Mogonea-2024). A quantitative study was conducted on 171 students in the Bachelor's Degree in Educational Sciences program across three academic units located in Los Mochis, Mazatlán, and Culiacán, respectively, representing 62% of the total enrollment. The study took place in June of the current year, using a non-probabilistic or directed sample, which involves an informal selection process of subjects without being representative of a specific population (Hernández & Mendoza, 2018). The selection criteria for the subjects were determined based on the conditions that allowed the application of the survey instrument, such as a) participation in the same academic course and b) acceptance of the instrument without prior information about its objective.

## RESULTADOS Y DISCUSIÓN

Given the perceived willingness towards the potential migration to the virtual modality of the educational program, the applied survey allowed for diagnosing the level of self-recognition in the use and benefit of the Internet. Below, we present a summary of the results of this study (See Table 1):

**Table 1:** Performance as an Internet User

| Computer Usage | Never (%) | Sometimes (%) | Frequently (%) |
|---|---|---|---|
| **At School** | 13.45 | 52.05 | 34.5 |
| **Outside of School** | 0.58 | 14.04 | 85.38 |
| **For Browsing** | 0.59 | 13.61 | 85.8 |
| **For Communication** | 2.34 | 19.88 | 77.78 |
| **For research** | 0 | 8.77 | 91.23 |

Table 1 shows that while just over a third of the students use the Internet infrequently at school, the vast majority use the network frequently outside of school for browsing, communicating with others, and conducting searches. This reflects an acceptable level of digital culture, which is a necessary condition for current professional development, and exemplifies the "new technological paradigm" (Emikh & Fomina, 2023).

**Table 2:** Skills as an Internet User

| Online communication | Never (%) | Sometimes (%) | Frequently (%) | Learner (%) | Basic (%) | Intermediate (%) | Advanced (%) |
|---|---|---|---|---|---|---|---|
| **Basic Internet Resources:** | | | | | | | |
| **E-mail** | 1.18 | 18.82 | 80.0 | 2.35 | 18.85 | 29.41 | 45.29 |
| **Information Search** | 0 | 8.77 | 90.64 | 3.51 | 21.64 | 33.92 | 38.60 |
| **Downloading Files and Programs** | 7.60 | 45.61 | 45.61 | 12.87 | 27.49 | 29.82 | 24.56 |
| **File Sharing** | 4.79 | 41.92 | 52.69 | 7.19 | 23.35 | 29.34 | 32.93 |
| **Intermediate Resources:** | | | | | | | |
| **Accessing Databases** | 20.71 | 61.54 | 15.38 | 20.71 | 30.18 | 25.44 | 9.47 |
| **Subscribing to Websites** | 33.53 | 52.35 | 12.94 | 18.82 | 27.06 | 22.35 | 14.12 |
| **Purchases** | 84.21 | 11.11 | 4.68 | 35.09 | 14.04 | 11.70 | 8.77 |
| **Sending and Receiving Files** | 3.53 | 23.53 | 70.59 | 4.12 | 22.94 | 25.29 | 40.59 |
| **Advanced Resources:** | | | | | | | |
| **Using Social Media** | 4.68 | 17.54 | 76.61 | 3.51 | 15.79 | 19.30 | 52.05 |
| **Participating in Virtual Forums** | 35.29 | 55.29 | 8.24 | 24.12 | 25.29 | 21.18 | 11.18 |
| **Participating in Video Conferences** | 61.90 | 31.55 | 5.95 | 33.33 | 20.24 | 14.29 | 7.14 |
| **Participating in Platforms** | 14.62 | 62.57 | 21.64 | 18.71 | 30.41 | 22.22 | 15.79 |

Table 2 shows that there is a very acceptable level of use for basic Internet resources, particularly email and information searching, with an overall intermediate to advanced level of proficiency. Among the intermediate resources, file sharing is notably used consistently, with an advanced average level of proficiency. In contrast, other intermediate resources are used occasionally, with a basic level of application, and there is minimal interest in making online purchases. Among advanced resources, social media usage stands out with an advanced average level of proficiency, while other forms of participation, such as virtual forums and video conferences, are used occasionally and with basic proficiency.

**Table 3:** Skills for Online Learning.

| Knowledge Competencies | Elemental (%) | Intermediate (%) | Advanced (%) |
|---|---|---|---|
| **Understanding and Assimilation of Texts** | 13.69 | 69.05 | 17.26 |
| **Analysis and Synthesis of Information** | 13.77 | 65.27 | 20.96 |
| **Recognition of Teaching and Learning Problems** | 12.05 | 67.47 | 20.48 |
| **Conducting Individual Research** | 14.97 | 50.30 | 34.73 |
| **Adapting to New (Virtual) Environments** | 15.06 | 45.18 | 39.76 |
| **Generating New Ideas and Proposals** | 16.87 | 57.83 | 25.30 |

| | | | |
|---|---|---|---|
| **Communication Competencies** | | | |
| **Oral and Written Communication** | 14.46 | 44.58 | 40.96 |
| **Collective Work in a (Virtual) Environment** | 19.88 | 49.40 | 30.12 |
| **Communication with Experts** | 29.45 | 56.44 | 14.11 |
| **Information Management Competencies** | | | |
| **Information Management and Planning** | 17.47 | 65.66 | 16.87 |
| **Organizing Independently** | 20.00 | 50.91 | 29.09 |
| **Recording Work and Results in a Timely Manner** | 12.65 | 43.37 | 43.98 |
| **Attitudinal Competencies** | | | |
| **Commitment to Working and Collaborating in a Virtual** | 10.84 | 36.75 | 52.41 |
| **Environment** | 9.64 | 33.73 | 56.63 |
| **Availability and Self-Motivation in Learning** | 9.64 | 34.94 | 55.42 |
| **Belonging to and Remaining in a Group or Collective** | | | |

Table 3 shows that more than half of the students have an intermediate level in developing competencies for study and learning. They maintain an acceptable level of communication competencies and perform even better in information management competencies, especially regarding their academic output. There is a strong attitude of commitment and collaboration, with an advanced level of proficiency, demonstrating the recognized "high didactic potential" of information technology in education (Torrato et. al, 2020).

## CONCLUSIÓN

The survey instrument, structured into three blocks of items, allowed for the standardization of student self-assessment criteria regarding performance, skills, and aptitudes for learning in a virtual environment, primarily based on Internet resources. The data obtained were processed using the software for "survey design and analysis" called DYANE (Ver. 2.0), which facilitated the organization and calculation of frequencies in each block of items, allowing for the correlations presented in the above tables.

The study reflects that, in general, students possess aptitudes for online learning and sufficient readiness to adapt to distance education systems. Their current formation, both within and outside of school, demonstrates an acceptable development of knowledge, communication, and information management competencies, indicating that students are capable of transitioning to a virtual modality if it is implemented now or integrated into the current professional curriculum.

It will be the responsibility of our faculty to decide on the methods for implementing or developing this educational modality, which is already perceived as necessary. We anticipate the possibility of proposing that our educational programs in the field of education and pedagogy adopt a virtual model or join a distance education system that ensures the achieved educational quality, supported by interinstitutional agreements that coordinate actions to create conditions for each participating institution.

A crucial step in this process involves collaborative institutional networks that are already working on creating alternative environments for higher education and training human resources with this vision. Sharing experiences in this regard is essential.

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