


# Virtual education in Nicaragua: A challenge for university teachers

## La educación virtual en Nicaragua: Un reto del docente universitario

 Sergio Alberto Mejía Rivera\*  
<https://orcid.org/0009-0003-7617-8075>  
Sabana Grande, Managua / Nicaragua

**Received:** November / 24 / 2023 **Reviewed:** November / 28 / 2023 **Approved:** January / 18 / 2024

How to cite: Mejía, R. S. A. (2024). Virtual education in Nicaragua: A challenge for university teachers. *Revista Digital de Investigación y Postgrado*, 5(10), 151-159.

\* Master's in University Teaching, University of Technology and Commerce (UNITEC). Bachelor's degree in Educational Sciences with a focus on Educational Informatics, National Autonomous University of Nicaragua (UNAN). Bachelor's degree in Electronics, UNAN. Professor of Mathematics, Physics, Informatics, Electronics, Digital Circuits, University of Technology and Commerce, Nicaragua. Email: [sabanagrande2003@yahoo.es](mailto:sabanagrande2003@yahoo.es)



## Abstract

The article addresses the challenges that teachers face in higher education to enhance student knowledge through digital platforms. The importance of dedication and training for both students and teachers is emphasized, as they must foster a dynamic environment. The research was based on a quantitative methodology, surveying teachers in virtual environments to analyze skills, knowledge, and challenges. These challenges include adapting to changes in virtual education, using digital tools to create interactive materials, and training in Information and Communication Technologies (ICT). In conclusion, the need to empower student knowledge is highlighted, underscoring the importance of teachers adapting to virtual education and mastering digital tools, requiring training programs that provide them with essential skills and knowledge..

**Keywords:** Tools, Moodle Platform, Teacher Challenges and technologies.

## Resumen

El artículo examina los desafíos que enfrentan los docentes en la educación superior para potenciar el conocimiento estudiantil a través de plataformas digitales. Se destaca la necesidad de esfuerzo y capacitación tanto por parte de estudiantes como docentes, quienes deben crear un ambiente dinámico. La investigación empleó una metodología cuantitativa, encuestando a docentes de entornos virtuales para analizar habilidades, conocimientos y desafíos. Entre estos desafíos se encuentran la adaptación a cambios en la educación virtual, el manejo de herramientas digitales para crear materiales interactivos y la capacitación en tecnologías de la información y comunicación (TIC). Entre las conclusiones se destaca que es necesario empoderar el conocimiento estudiantil porque es crucial que los docentes se adapten a la educación virtual y dominen las herramientas digitales, exigiendo programas formativos que les proporcionen habilidades y conocimientos esenciales.

**Palabras claves:** Capacitación, Educación virtual, Herramientas, Plataforma Moodle, Retos del docente y tecnologías.

## Introduction

In the face of the new educational challenges we currently encounter, it becomes imperative for educators to strengthen the digital competencies we have developed thus far. However, this reinforcement should not focus solely on learning the use of tools that may quickly become obsolete and be replaced by new ones. Two key aspects must be developed in this training: active methodologies in digital contexts and the use of digital technologies for assessment.

The application of digital tools in virtual education has fostered online learning, breaking many limiting barriers of traditional education such as space, time, quantity, and coverage (Maraza, 2016).

Virtual education has a significant objective, aiming to overcome limitations with time and



distance, as well as the appropriation and utilization of technological tools and methodologies designed for digital environments—a considerable challenge for us educators to make the class dynamic and interactive, which is often lacking in traditional education. Taking into account that the majority of students nowadays possess smart devices and internet access, optimizing the learning process through the use of existing technological resources.

Palloff & Pratt (2001), two specialists in virtual education, note that their experience with online teaching has significantly changed how they approach students in a traditional classroom. They no longer focus their teaching work on oral presentations of content from books; instead, they assume that students can read this content. As a result, the class is conceived as a space to stimulate collaborative and autonomous work.

The widespread emergence of digital media and technologies used in education has led to a diverse range of terms, such as distributed education, e-learning, virtual education, online education, blended learning, and mobile learning (Verdún, 2016). This surge in technologies enriches the virtual education system.

Moodle is one of the most popular platforms, emerging as a result of collaborative efforts by developers who worked on open-source code, turning it into a user-friendly learning management system. It is a free online learning management system that enables educators to create private websites filled with dynamic courses, extending learning at any time and from anywhere, catering to the needs of both teachers and students.

In the quest to understand the new challenges that university educators face in developing their virtual classes, previous works were found, as described below:

Mentioning the authors Guaña *et al.* (2015), they assert that:

In the nineties, new technological trends emerged, such as networks, communications, the internet, among others, which gradually found a place in educational and learning processes. This marked the beginning of access to faster, more eloquent, and economical communication. In certain cases, people challenged technological boundaries. That is why, in the early 1991, Virtual Teaching-Learning Environments (VLE) offered spaces in growing computer networks as well as in digital technology" (p.7).

Building on the above, Mera & Mercado (2019), in their research article on distance learning and teaching, affirm that in virtual education:

It primarily relies on internet devices, assuming the use and exchange of information obtained between the teacher and students virtually, either via email or platforms specifically created for this purpose. Through these, students review and download class materials, submit assignments, and even collaborate with their classmates (p.5).



We also have the work conducted by [Ardini et al. \(2020\)](#), titled: "Teaching in times of coronavirus: a look at teaching work and the educational experience in virtual environments within the framework of the ASPO due to the COVID-19 pandemic." Their objective was to highlight and analyze the pedagogical practices in virtual environments developed by university educators.

## Methodology

The applied methodology consisted of a mixed approach where the competencies of UNITEC university professors were assessed. For this analysis, a sample of 30% of the teaching staff was taken. A questionnaire was designed on GoogleDrive to obtain a general understanding of the use of devices, connectivity, creation of interactive materials, and alternative instructional spaces to continue students' online studies. The implementation of technological resources was based on experience, difficulties, and preparedness.

Sampling, a method used to select components from the total population, was employed. "It consists of a set of rules, procedures, and criteria by which a set of elements from a population is selected to represent what happens in the entire population" ([Mata et al, 1997, p.19](#)). For this study, 30% of the total teaching population of UNITEC was included.

For the purposes of this research, an online questionnaire was used, defined by [Sierra \(1992, p.305\)](#) as "a set of questions prepared about the facts and aspects of interest in research, for response by the population or its sample to which the undertaken study extends." The questionnaire was administered to the sample of this research, consisting of teachers teaching in the second semester of the year 2023 in the various modalities offered by the university of technology and commerce. The aim was to collect information about the competencies they possess for developing their virtual classes, which will lead to significant changes in the teaching/learning process.

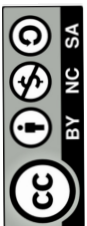
## Results and Discussion

We worked with a convenience sample, as a percentage of the population, specifically administrative staff, is not directly involved in classroom teaching. In this context, only classroom teachers who utilize technological tools and media for the development of their virtual classes were considered.

From the total population, we worked with 30% of the teaching staff who are directly involved with students in the delivery of virtual classes.

The results highlight the predominant use of laptops and smartphones by teachers for the development of their virtual classes.

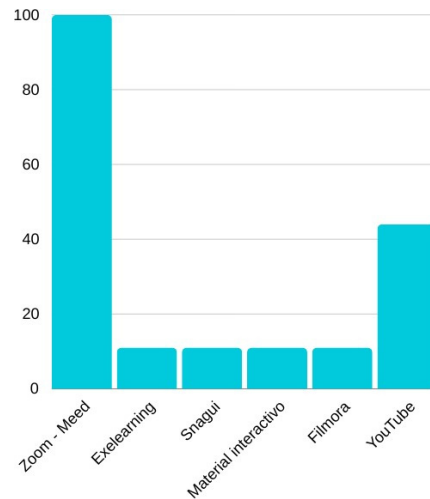
Graph 1 illustrates the usage of basic tools that teachers employ for implementing their virtual classes. Notably, 100% utilize Zoom or Meed for conducting online classes. Additionally, 44% of the staff have their own YouTube channel. However, it is observed that only 33% utilize digital



tools for creating interactive and dynamic materials for the development of their virtual classes.

### Graph 1

#### Comparative use of virtual tools at UNITEC

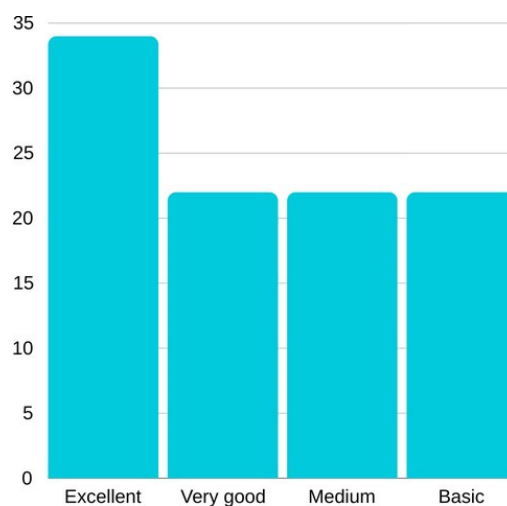


Note: Graph 1 shows the use of basic tools that teachers must use for the implementation of their virtual classes. Source: Mejía (2023).

In Graph 2, the percentage of teachers with usage and proficiency in the Moodle virtual environment is presented, reflecting that 34% have excellent mastery of this platform. Meanwhile, 44% fall between medium and very good proficiency. Additionally, 22% only handle the basics of this fundamental platform for virtual class development.

### Graph 2

#### Usage and Mastery of Moodle Platform



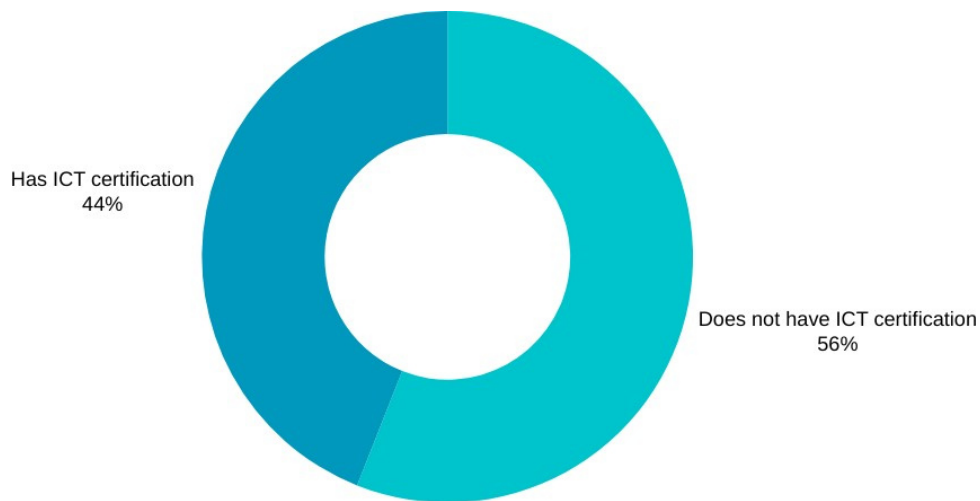
Note: Graph 2 displays the percentage of usage and mastery of the Moodle platform for scheduling virtual classes. Source: Mejía (2023)



In the new fundamental context, the first requirement is their specialization title, followed by their ICT certification, and as the third requirement, their specialization in university teaching.

Graph 3 illustrates the percentage of teachers with certification in ICT classrooms, showing that 44% possess certification while 56% do not.

**Graph 3**  
*Usage and Mastery of the Moodle Platform.*



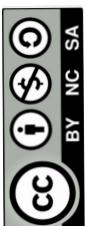
*Note:* Graph 3 shows the percentage of teachers with certification in UNITEC's ICT classrooms. Source: Mejía (2023).

In the current world, significant economic and social changes make innovation in education a key factor in academic training. Innovation involves joint actions where teacher participation is essential to confront new realities.

Technological demands are a prerequisite for social interactions to occur and to achieve a knowledge society, which requires profound structural changes in current societies (Lalangui & Valarezo, 2017).

In the case of teachers, they face challenges that require them to train in distance education, connectivity, and digital tools to create a social context that ensures the physical and emotional well-being of students (Roger, 2020). These challenges are not exclusive to novice teachers but stem from the dynamic and complex changes in the society we live in, requiring teachers, due to their social role, to update and innovate to meet educational demands (Eirín *et al.*, 2009).

It is worth noting that the initiation into teaching is the transitional stage where teachers shift from being students to educators. The initial experiences are crucial in shaping their perceptions and behaviors regarding teaching, involving intense learning characterized by trial and error, leading to the emergence of their main difficulties (Aloguín & Feixas, 2009). This period generates anxieties, stress, and concerns while consolidating teaching competencies until becoming



an autonomous professional as part of the professional development process. There is agreement that the transition from novice to expert spans three years of initiation (Aloguín & Feixas, 2009; Marcelo, 2009).

Despite this, it is not common for young individuals to consider virtual education as an option when planning their future. Therefore, it is the responsibility of us, teachers who conduct virtual classes, to encourage others not to give up and to continue working on their professional development.

In terms of organization, teachers face the demand for adapting content, methodology, and class session preparation rapidly and abruptly due to the speed with which changes had to be implemented to avoid interrupting or discontinuing the academic year. On the other hand, the organization of teaching time is complex, with virtual classes undeniably requiring a larger session time commitment from teachers.

First and foremost, seamless virtual communication allows students to contact teachers without restrictions on schedule and time. This is made possible through virtual communication tools provided by the teacher, such as WhatsApp messages, messages via virtual platforms, phone calls, among others. Regarding this, the teacher's availability becomes continuous, as stated by Rizo (2020, p.35):

Distance teacher-student communication implies a closeness of the student to their familiar and traditional environment. Even if not physically the same, it provides the student with the assurance of the teacher's attention to their challenges and progress in an attentive and responsible manner.

This entails "a cultural transformation in the university experience" (BID, 2020, p.7), involving assertive teacher-student communication as a fundamental pillar for the success of the transition to virtual modality.

In light of the above, each and every student must be fully willing to participate and integrate into both academic and non-academic activities facilitated by the teacher. In my experience, simple activities such as initial greetings, open-ended questions about their mood, recent daily activities, or information about the health status of their family members can represent a significant approach to the student.

## Conclusions

The application of digital tools in virtual education has promoted online learning, breaking many limiting barriers of traditional education such as space, time, quantity, and coverage.

Virtual education must overcome limitations with time and distance.

Teachers must appropriate and leverage technological tools and methodologies designed for

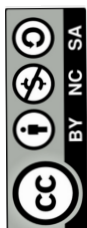


digital environments, presenting a significant challenge for us teachers to make the class dynamic and interactive, aspects that are often lacking in traditional education.

In the new educational context, a professional aspiring to be a university teacher must possess three fundamental aspects: first, their specialization title; second, their ICT certification; and as a third requirement, their specialization in university teaching.

## References

- Aloguín, A., y Feixas, M. (2009). La incorporación y acogida en la escuela infantil y primaria en Cataluña: Percepciones de maestros, tutores y directores. *Revista de currículum y formación del profesorado*, 13(1), 141-155. <https://www.redalyc.org/pdf/567/56711733011.pdf>.
- Ardini, C., Herrera, M. M., González Angeletti, V., y Secco, N. E. (2020). Docencia en tiempos de coronavirus: una mirada al trabajo docente y la experiencia educativa en entornos virtuales en el marco del ASPO por la pandemia COVID-19. *Publicación Digital. Mutual Conexión*. Facultad de Ciencias de la Comunicación Universidad Nacional de Córdoba. Córdoba, Argentina. 2020. <https://rdu.unc.edu.ar/handle/11086/15887>
- BID. (2020). *La educación superior en tiempos de COVID-19*. Washington DC: Banco Interamericano de Desarrollo. <https://publications.iadb.org/es/la-educacion-superior-en-tiempos-de-covid-19-aportes-de-la-segunda-reunion-del-dialogo-virtual-con>
- Eirín, N. R., García, R., H.M., y Montero, M. L. (2009). Profesores principiante e iniciación profesional. Estudio exploratorio. *Revista de currículum y formación del profesorado*, 13(1), 101-115. <https://recyt.fecyt.es/index.php/profesorado/issue/view/2356>.
- Guaña, E., Llumiquinga, S. y Ortiz, K. (2015). Caracterización de entornos virtuales de enseñanza aprendizaje (EVEA) en la educación virtual. *Ciencias Holguín*, 21(4), 1-16. <http://www.redalyc.org/articulo.oa?id=181542152006>
- Lalangui, J., & Valarezo, J. (2017). El aprendizaje, la era del conocimiento y las TICs ante la realidad Universitaria Ecuatoriana. *Atenas*, 2 (38). pp. 51-65. <http://atenas.mes.edu.cu>
- Maraza, B. (2016) Hacia un aprendizaje personalizado en ambientes virtuales. *Campus Virtuales*, 5(1), 20-29. <http://uajournals.com/ojs/index.php/campusvirtuales/article/view/111>
- Marcelo, C. (2009). Los comienzos de la docencia: un profesorado con buenos principios. Profesorado. *Revista de currículum y formación del profesorado*, 13(1), 1-25. <https://recyt.fecyt.es/index.php/profesorado/article/view/41898>.
- Mata, M. C. y Macassi, S. (1997). Cómo elaborar muestras para los sondeos de audiencias. *Cuadernos de investigación No 5*. ALER, Quito.





- Mera, M. A. y Mercado, B. J. (2019). Educación a distancia: un reto para la educación superior en el siglo XXI. *Revista dominio de las ciencias*, 5(4), 357-376. <https://dialnet.unirioja.es/servlet/articulo?codigo=7152645>
- Palloff, R. M.; Pratt, K. (2003). *The Virtual Student. A Profile and Guide to Working with Online Learners*. San Francisco, EE.UU.: Jossey-Bass.
- Rizo, R. M. (2020). Rol del docente y estudiante en la educación virtual. *Revista Multi-ensayos* 6(12). <https://camjol.info/index.php/multiensayos/article/download/10117/11796?inline=1>
- Roger, M. (2020). Aulas virtuales: Una alternativa para la educación en tiempos de pandemia. *Revista de Educación a Distancia*, 23(1), 1-12. <file:///C:/Users/Hp/Downloads/El%20aula%20virtual%20en%20la%20educaci%C3%B3n%20a%20distancia%20durante%20la%20pandemia%20de%20COVID-19.pdf>
- Verdún, N. (2016). Educación virtual y sus configuraciones emergentes: Notas acerca del elearning, b-learning y m-learning. *Háblame de TIC*, 3, 67-88. [https://www.uv.mx/blogs/brecha-digital/files/2015/05/HdT3\\_Verd%C3%83%C2%BA\\_n.pdf](https://www.uv.mx/blogs/brecha-digital/files/2015/05/HdT3_Verd%C3%83%C2%BA_n.pdf)

