SHORT COMMUNICATION

Integration of ICT in education in a post-pandemic context: a reflection

Integración de las TIC en la enseñanza en un contexto post pandemia: una reflexión

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ABSTRACT

Throughout the years, technology has been one of the main aspects of humanity that has been studied and that has undergone the greatest evolution. In terms of education, it has been seen that there is a great window of opportunity, which after the Covid-19 pandemic has been explored with greater depth and speed. The results are extremely interesting in terms of how to look at this educational intervention in technology-mediated environments. This paper explores these opportunities and gives an overview of the use of technology in education in a post-pandemic context, particularly located in the Mexican educational system, an opportunity opened thanks to the current postgraduate program in teaching offered by the National Autonomous University of Mexico (UNAM). The results obtained from an educational intervention mediated by technology showed that the inclusion of technological means is beneficial to the face-to-face practice of the master's degree student, since it increases aspects such as motivation and communication.

Keywords: Higher Secondary Education, Technology, Post pandemic, Master's Degree in Teaching for Higher Secondary Education.

RESUMEN

A través de los años, la tecnología ha sido uno de los principales aspectos de la humanidad que se han venido estudiando y que mayor evolución ha tenido. En términos de educación, se ha visto que existe una gran ventana de oportunidad, misma que tras la pandemia por Covid-19 se ha podido explorar con mayor profundidad y velocidad. Entregando resultados sumamente interesantes en cuanto a la manera de observar esta intervención educativa en entornos mediados por la tecnología. El presente trabajo explora estas oportunidades y da un panorama general sobre el uso de la tecnología en la educación en un contexto post pandemia, ubicado particularmente en la Educación Media Superior (EMS) dentro del sistema educativo mexicano, oportunidad abierta gracias al actual programa de Posgrado en docencia ofertado por la Universidad Nacional Autónoma de México. Los resultados obtenidos de una intervención educativa mediada por tecnología mostraron que el incluir medios tecnológicos es

beneficioso a la práctica presencial del estudiante de maestría, ya que aumenta aspectos como la motivación y comunicación.

Palabras clave: Educación Media Superior, Tecnología, Post pandemia, Maestría en Docencia para la Educación Media Superior.

INTRODUCTION

Although the COVID-19 pandemic has been one of the longest and most painful processes that humanity has had to face, it has also been one of the most educational. Two years after it ceased to be a health emergency, we can still encounter many of the consequences it left in its wake.

The main issue addressed is education during the pandemic and, more importantly, what happened after the pandemic; as it is at this point, we will find the lessons and paths that we need to take up again so as not to forget the progress made.

According to the Economic Commission for Latin America and the Caribbean (ECLAC, 2020), approximately 30 countries in the region wholly suspended face-to-face classes at all levels from the beginning of the school year due to the health situation, while the rest did so until the middle of the year, due to the delay of the virus in reaching their respective areas. Mexico found itself in the latter group, drastically changing how it taught classes at practically all levels, with remote and distance learning being the main options. Although this application is not new, it demanded a significant change in bringing the contents closer to the students.

This issue revealed a large number of needs that people, in this case, students and teachers, faced reality different from what they were used to; as mentioned by González and Urrutia (2022), some differences in access to the resources that were used or proposed such as the internet, to mention one example, the technical mastery required of teachers and the technological mastery necessary to access content was also of the utmost importance. All this led to a reflection on hybrid scenarios, taking what was most suitable from both scenarios and gradually returning to normal, albeit with specific improvements.

ICT and its use post-pandemic.

According to Acuña and Sánchez (2020), higher education mediated by the COVID-19 pandemic has two approaches. The first refers to a universal establishment where adapting technologies to education allows the reconstitution of face-to-face education spaces in virtual spaces. On the other hand, it re-signifies the pre-pandemic social context and does not place technology as the only proper solution. This is a more accurate approximation of the lessons previously discussed when it is mentioned that the pandemic has left several key points in the management of technology in learning.

One of the main lessons learned from this process is that technological tools have been extremely useful, not only for use in the classroom but also for student learning and for the development of skills necessary for employment outside of academic life.

In agreement with Barberà (2006), online teaching and virtuality refer to a means, not an end, since they will serve education, improving and deepening it.

As already mentioned, a critical point is not to backtrack on what has been achieved at a forced pace along the way so that regardless of the model, the school, the institution, and even the modality, the challenge for teachers is to continue using these tools. For this reason, Roca (2022) mentions that it is necessary to continue exploring new paths within knowledge that allow for self-discovery and promote development, fostering collectivity and, in turn, new ways of acquiring knowledge. For this reason, it is essential to recognize not only access to devices or connectivity but also that teachers, together with the skills they have theoretically developed, respond adequately to the needs of their students and that the students, for their part, can express these needs.

Zubieta (2022) proposes a series of dimensions necessary for teachers and institutions if the progress made during the pandemic is not to be reversed and, on the contrary, is to be consolidated. In the first instance, he mentions curriculum design and updating with a view to the various systems (face-to-face, virtual, or mixed) mediated by technology to generate collaborative learning communities, to mention one example. As for digital skills, as previously mentioned, the emphasis is on having a teaching staff trained in both disciplinary subjects and manifest digital trends such as using methodologies for digital literacy, etc. The organizational structure will allow them to be more adaptive to the emerging requirements of technological innovations. Finally, changing the current structure regarding models that govern the regulatory framework will provide different alternatives. Based on the above, a reflection on the post-pandemic use of digital tools for upper secondary education is being considered at the postgraduate level.

Brief description of MADEMS; teacher training.

According to the curriculum of the Master's Degree in Teaching for Upper Secondary Education (UNAM, 2019), MADEMS, for its acronym, is a professionalizing master's degree that seeks to train aspiring teachers or teachers who seek to improve their skills for the exercise that concerns and interests them, as well as seeking to foster growth in aspects such as research, communication, approaches, and educational methodologies for bringing knowledge closer to students.

This same curriculum proposes that students undergo theoretical and practical development over a period of four semesters, allowing for scientific and humanistic growth. It helps them understand and interpret the main characteristics of the educational population, as well as the problems it faces and experiences.

During the first semester, the aim is to create conceptual references for teaching based on scientific foundations for intervention with students, always emphasizing updating in terms of needs.

In the second semester, the construction of procedural knowledge is proposed by designing proposals for educational intervention with the student population through teaching practice that begins with a few sessions and degree tutorials.

The third semester is characterized by a greater number of group sessions, while the tutoring sessions involve working with the problems detected and their direct attention.

The fourth semester's practice evaluation is planned reflectively, with the degree seminar being an important aspect.

It is currently offered in person and online, depending on the field of knowledge.

In this way, the process not only allows for theoretical and practical training but also helps to recognize the recent problems facing education. Modules and subjects specially dedicated to the integration of technology encourage trainee teachers to develop the techniques and tools necessary for their use in real scenarios.

APPROACH

Consequently, in the post-pandemic context, upper secondary education in Latin America and Mexico has undergone a significant transformation, considerably impacting communication between students and their teachers. Given that technological mediation has changed how it is done, communication has become the fundamental pillar for student development, both academically and personally. Similarly, the urgent need for human beings to communicate has also proven challenging, as it requires channeling more transparent and mutually beneficial dialogues, speaking of the teacher and the student. This leads to another point of analysis that has also been ruled out by its very nature, for example, the educational function that social networks can have, which, despite their informal nature, present a valuable space to support social interaction, training, and collaborative learning.

Thus, the Master's Degree in Teaching in Upper Secondary Education (MADEMS) faces the task of training teachers who not only make use of these Information and Communication Technologies (ICT) in their classrooms, managing to integrate them into their day-to-day work but also benefit from learning and reflecting on their use. A lack of skills in this area can act as a limiting factor in the overall development of students in a learning environment that requires specific skills. These points should be studied in terms of how communication in virtual environments could be optimized and how the space of social networks could be better exploited so that upper secondary education not only accumulates but also evolves according to contemporary logic.

Primary reflections after the teaching work in MADEMS.

One of the main points that stands out from the work carried out is the benefit of working with ICT, which facilitated not only the trajectory within the Master's Degree itself but also as a teacher in training.

As this Master's degree was carried out in a context such as EMS, notably the College of Sciences and Humanities (CCH), it is essential to mention aspects related to the nature of this baccalaureate.

Sánchez (2022) mentions that many of the issues that the pandemic revealed for this type of school were the teachers' shortcomings and lack of training. This was because many of the students who were entering high school during this period were the result of a series of experiments and trial-and-error executions to alleviate a situation that went beyond any kind of prevention that could have been exercised at the time.

That is why the reflection was directed toward the new paths that could be taken and how to do it, in addition to whether the students could do it and whether the teachers had the tools to guide them.

Following the teaching work carried out in the context of the MADEMS Psychology course with teaching assistants in two CCH campuses, it was found that communication between students and between students and teachers is given an important value, which is crucial for the development of virtual classes, as has been seen in the reviewed literature.

Within the development that has been obtained in the training process, it is essential to mention that, during this process, not only was contact with technologies sought from a practical point of view, which allowed it to be developed as a teaching skill, but also that some of the tools provided by the teachers were of great importance for growth as a student and teacher in training.

Although it is a great challenge to carry out a postgraduate process during a pandemic and to go through it until returning to what was called the "new normal," students who participate little were not fully present and sought in some way to balance, as well as accommodate their academic life with what was happening outside, it also meant an opportunity since the opening was not only aimed at the inclusion of resources such as computers, tablets or cell phones but also how to take advantage of these elements within the virtual classroom. It was not simply a matter of turning on the computer but of ensuring that these elements had a function other than just being used in class; as Barberá (2006) mentions, they were put at the service of education. It was through this that the teaching experience within the Master's program allowed us to find proof that topics such as social networks, mentioned by Lam (2012), where the emphasis is placed on aspects such as communication between classmates and the teacher himself, as well as interaction with the contents more effectively, are the same aspects that serve as motivators inside and outside the virtual and face-to-face classroom.

CONCLUSIONS

To conclude this work, it is critical to include technology in education, particularly for developing new skills, considering aspects such as the context and the needs of the group and/or people with whom one works.

After having carried out practical work in a professionalizing master's degree, in a pandemic and post-pandemic context, it is found that students give a lot of weight to aspects such as interaction with the contents, in the same way as constant communication, a situation that supports and motivates their actions in the face-to-face classroom.

It is also important to think about teacher development for the benefit of the student. That is, it is necessary to think as a training institution about the skills that are necessary for the 21st-century teacher in an age where content management through technological tools is increasingly necessary, not just the management of the discipline.

On the other hand, it is also necessary for teachers to develop the ability to digitally literate their students, that is, to introduce their students to the desired tool so that it has the desired impact on the students and on the content that they are trying to get across to them so that the process is as fruitful as possible for both parties.

Although these findings are significant for further research and intervention, always bearing in mind that technological tools and applications mediate and guide learning, what has been discovered and developed allows for an opening toward a way of understanding the teaching profession from a perspective that helps to understand this path.

REFERENCES

1. Acuña, M. Sánchez, C. (2020). Educación Superior post pandemia. Las asimetrías de la brecha tecnológica. Revista Venezolana de Gerencia, 25 (92). pp. 1281-1286.

2. Barberà, E. (2006). Los fundamentos teóricos de la tutoría presencial y en línea: una perspectiva socio-constructivista. En J. A. Jerónimo (Ed.), Educación en red y tutoría en línea (pp. 161-180). PAPIME/Universidad Nacional Autónoma de México.

3. Comisión Económica para América Latina y el Caribe. (2020). La educación en tiempos de la pandemia de COVID-19.

4. González Juárez, G., & Urrutia Aguilar, M. E. (2022). El ambiente social tras COVID-19 en las voces del profesorado: Factores que intervienen en el desarrollo de competencias en educación media superior. En M. E. Urrutia Aguilar (Comp.), Experiencias docentes durante el confinamiento por COVID-19: Perspectivas para el fortalecimiento de la educación media superior (pp. 48-76). Universidad Nacional Autónoma de México.

5. Lam, L. (2012). An Innovate research on the usage of Facebook in the Higher Education context of Hong Kong. Electronic Journal of e-Learning, 10 (4).

6. Roca Castro, D. F. (2022). Las TIC en el proceso de enseñanza y aprendizaje en tiempos de postpandemia en los estudiantes de secundaria. Revista Polo del Conocimiento, 7(69), 2103-2112.

7. Sánchez, G. (2022). Reflexiones desde y para el aula: La educación híbrida, sus problemas y sus retos. En I. González (Dir.), Educación pospandemia (Poiética, No. 24). Colegio de Ciencias y Humanidades Naucalpan.

8. Universidad Nacional Autónoma de México. (2019). Proyecto de modificación del programa de maestría en Docencia para la Educación Media Superior. Universidad Nacional Autónoma de México.

9. Zubieta García, J. (2022). La educación media superior en México en la pospandemia: ¿Hacia dónde? Ciencia, 73(2), 85-90.

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