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Article

Necessary or unnecessary digital literacy in university teacher training caused by COVID-19: Experiences of CESCIJUC teachers

La alfabetización digital necesaria o innecesaria en la formación del docente universitario ocasionada por el COVID-19: Experiencias de docentes de CESCIJUC

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Abstract

The distance modality was the only way to continue with the educational cycle, due to the health contingency, I rethink whether university teachers should also know and manage the new digital applications, to turn them into teaching tools and environments that favor the learning process, a This process is called digital literacy; For this, a quantitative-qualitative research was carried out with an analytical and descriptive approach at Centro de Estudios Superiores en Ciencias Jurídicas y Criminológicas (Cescijuc), to teachers who study the Master in Pedagogy of the Niños Héroes campus in Mexico City, Only those who taught at a higher level were selected, being 152, the objectives of this research work are to know if they have a level of digital literacy and how the situation of continuing

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classes at a distance affected them; As a result, the educational institution does not require any knowledge in digital applications and tools from its teachers, it was found that an important factor is the older the teacher, the less is its use and knowledge, coupled with the little interest in learning them because they do not see the need to use them in a face-to-face modality, now it must be considered as part of the teaching profile.

Key words: digital literacy, contingency, digital skills, teacher training

Resumen

La modalidad a distancia fue la única forma de continuar con el ciclo educativo, por la contingencia sanitaria, replanteo si los docentes universitarios también deben conocer y manejar las nuevas aplicaciones digitales, para convertirlos en herramientas y entornos didácticos que favorezcan el proceso de aprendizaje, a este proceso se le llama alfabetización digital; para lo cual se hizo una investigación cuantitativo-cualitativo con un enfoque analítico y descriptivo en el Centro de Estudios Superiores en Ciencias Jurídicas y Criminológicas (Cescijuc), a profesores que estudian la Maestría en Pedagogía del plantel Niños Héroes en la Ciudad de México, se seleccionaron solo los que imparten clase a nivel superior siendo 152, los objetivos de este trabajo de investigación son conocer si poseen un nivel de alfabetización digital y como les afecto la situación de dar continuidad a las clases en la distancia; resultado la institución educativa no exige ningún conocimiento en aplicaciones y herramientas digitales a sus profesores, se encontró que un factor importante es a mayor edad del docente menor es su uso y conocimiento, aunado al poco interés en aprenderlas por no ver la necesidad de usarlas en una modalidad presencial, ahora se debe considerar como parte del perfil docente.

Palabras clave: alfabetización digital, contingencia, habilidades digitales, formación docente

Introduction

Currently teaching throughout the country has had a great transformation in a short period of time from March 19, 2020 originated by the pandemic teaching function in these times of pandemic has not been easy, since they had to change the way of teaching classes in the classroom mode to move to the use of technology continuing at a distance, Although it is mentioned that

teachers must have a series of digital skills according to the United Nations Educational, Scientific and Cultural Organization (UNESCO) as technological literacy and attitude towards information and communication technologies (ICT), these elements are important in a teacher who teaches at the higher level, to know how to use these digital skills in their teaching given its importance both labor and social; It is necessary that teachers know not only how to use the computer but also its applications and tools, higher education institutions have left this situation very free, since it is not a requirement in their teaching profile, in the trainings are not always mandatory, but it is important that they begin to generate programs for the training of new teachers, who are digitally literate. The assimilation of technology varies in each teacher, given their attitude towards change and their knowledge of it; at the time the literacy process meant a social change, a great challenge and aimed to move towards equal opportunities, based on the principle of openness and accessibility to knowledge: Therefore, the so-called technological or digital literacy, should be constituted as another change of attitude that promotes not only to know how to use it, but also to manage innovation to rethink the school structure (Trujillo et al, 2011); in itself must comply with being useful for the model of life that corresponds to its group and community, which in the beginning was called functional literacy (Contreras, 2001).

Gutiérrez (2003) considers technological literacy as an integrated and complex process involving people, ideas, devices and organization to analyze problems and design, propose, implement, evaluate and arbitrate solutions to those problems related to any aspect of learning. Rondón (2011) refers to multiple literacy as a complex variant supported by electronic and digital supports in comparison with printed materials. Shapiro & Hudhese (1996 cited in Bawden, 2002) structure digital literacy in dimensions: I) tool literacy, knowledge and use of information technology tools including the handling of hardware, software, programs and multimedia; II) resource literacy, knowledge of the forms and methods of access to computer resources, especially the Internet; III) socio-structural literacy understanding of the social situation and the production of information; IV) research literacy, use of the Internet for research and academic work; V) publication literacy, ability to

disseminate and publish information; VI) emerging technologies literacy, ability to understand innovations and consequently make better decisions regarding new technologies; VII) critical literacy, ability to efficiently evaluate the benefits and disadvantages of ICTs.

Given the misinterpretation of digital literacy, this is reduced to information or computer literacy, which sees the technological part, is to take control of the computer, to have some certainty about the terms and their meanings, is to know what can and cannot be done with a computer (Morgan, 1998), which is why certain sectors of teachers refuse to use it in their classes or with their students. Digital literacy is already a basic requirement both in learning and in working life; it has ceased to be a luxury or a fad to become a vital necessity (González & Chaires, 2012). However, the implementation processes of ICT and digital literacy are slow in their results, given many determinants such as: the resistance to change presented by certain sectors of educators, the lack of budget by universities to implement training programs; the lack of human resources for a successful implementation. Díaz, Padilla and Morán (2009) point out that the introduction of ICT in education does not in itself guarantee inclusion or social equity, nor does it improve quality or educational innovation; Luna (2010) states that the level of ignorance of new technologies prevents people from accessing the benefits of ICT, 80% of Mexicans are digitally illiterate, only between 10 and 15% of the population regularly uses ICT tools and benefits, due to high costs, lack of infrastructure and lack of learning in them.

Marqués (2008) observed that the motivation of teachers to achieve a positive attitude towards innovation with ICT can increase as their didactic instrumental training increases, since they discover effective models in the use of ICT, which they can reproduce without difficulty in their context, really supporting their teaching work; the basic digital teaching skills that they should have are: I) basic knowledge of the computer system (which is hardware, software, internet, social networks, blogs, etc.); II) basic management in the use of computer administration, (management of files, folders, installation of programs and applications and antivirus); III) use of applications (such as word processing, spreadsheet, presentations and databases); IV) knowing how to search and select information

on the internet; V) use of email, VI) generation, capture and processing of digital images such as text scanning; VII) preparation of multimedia documents.

According to Adell (2006), although educational institutions invest in ICT so that they become part of the integration in the learning media that teachers can use, it was observed that it is a process that takes 3 to 5 years to give measurable results, due to the slow assimilation process, which he proposed to divide into phases: 1st phase is the access phase, which consists of learning the basic use of ICT, which takes at least a year; 2nd phase is the adoption phase, where they use computers to do the same as they did without them, (they use the cannon and PowerPoint replacing the whiteboard), which has nothing of didactic innovation; 3rd phase the adaptation phase, technology is integrated into traditional practices, but increasing productivity, which is seen in the pace at which students produce their school work and research; 4th phase: appropriation, when they experiment with new ways of working didactically, opening up to possibilities that would not be possible without technology, such as virtual tours (where they take a GPS and a digital camera, elaborate and edit the material to present it on some internet site); 5th phase: innovation, using technology in ways that had not been used before, such as generating applications that simulate dissections of certain parts of the human body, or of an animal, without having to do it physically for medical and veterinary students.

When a university adopts a set of standards to determine how to integrate technology into its programs to initiate digital literacy, it is important that the teacher education area participate in the planning process, taking into account its own conditions, culture and context.

Materials and methods

In this project we chose to conduct it within the framework of the quantitative-qualitative paradigm with an analytical and descriptive approach, following Fernandez, Garcia and Perez (2014) on a mixed methodology, combining the quantitative-qualitative parts of the research to obtain more information and contrast in different ways,

the population size was established as 250 first, second and third semester students of the Master's Degree in Pedagogy of CESCIJUC from 6 groups corresponding to the 2019 to 2020 cycles of the Niños Héroes campus, located in the colonia Doctores in the Cuauhtémoc district of Mexico City, for the study a margin of error of 5% with a confidence level of 95% was used, The sample of152 teachers who teach at the higher level in CESCIJUC was selected, taking Medina et al. (2013) suggests that a methodology that integrates a quantitative-qualitative vision based on a questionnaire serves to optimize validity and reliability, Therefore, to collect the information, a questionnaire was used electronically through the *Google Forms* application that was applied from April 5 to May 15, 2020, whose items were closed (with a predetermined response) and open (to leave a personal wording of the interviewee), the first stage of the questionnaire are general data such as age, sex, teaching seniority and marital status; The second part refers to their formal or informal training; the third part is to know their management of applications and/or digital tools such as Microsoft Office (including Word, Excel, PowerPoint and Access), the management of communication tools such as emails, instant messaging, social networking, videoconferencing and educational platform, while knowing which is the most used; the fourth part is how the continuity of their class was given and how much it affected them, especially the part of the online classes; the information was analyzed from May 17 to 25 of this year.

Results

In the first part of the project, general data was collected: 52% are women and 48% men. Their marital status 53% married, 35% single and 12% divorced. In terms of age, 24% are teachers between 25 and 35 years old, 46% are between 35 and 45 years old, 16% are between 45 and 55 years old and 14% are older than 55 years old,

Seniority of teachers 1 to 5 years 16%, 5 to 10 years 30%, 10 to 15 years 26%, more than 15 years 28%.

In the second part, we inquired about their digital training: 100% mentioned that the educational institution does not require any digital training, knowledge or skills.

If they have taken any formal course, 68% have not taken any course, while 32% mentioned that they have taken a course and even have a certificate.

On how recently the course was taken 70% are more than 3 years old, 16% two years old and 14% one year or less

In the form in which they learned informally 50% by the support of a friend, 35% are self-taught and 15% are both.

In the third part, their level of knowledge of certain digital applications and tools was reviewed, with Microsoft Office applications being the first to be reviewed.

Table 1

Microsoft Office Management (before the contingency)

Application	**None**	**basic**	**Medium**	**Advanced**
Word	8%	68%	17%	
Excel	12%	77%	8%	
PowerPoint	4%		13%	
Access		8%		0%

As for the relationship between age and level of management, there is a high correlation between age and management of digital applications, where teachers between 25 to 35 years old are those who best manage and know them, while teachers over 55 years old are the ones who know how to use them the least.

Use of digital tools and applications to support teaching in communication, videoconferencing and digital platforms.

Table 2:

Use of communication tools and applications, videoconferencing and platform for teaching (before the contingency)

Tool/ Application	Yes	No
E-mail address	75%	
Social networks	55%	45%
WhatsApp	72%	28%
Videoconference	12%	88%
Educational platform	11%	89%

The 47% have used some tool and/or application to support teaching, the most used personal emails are *Yahoo* and *Gmail*; the social network they use the most is *Facebook,* the videoconferencing application they use is *Zoom* and the educational platform they use is *Google Classroom.*

Table 3

use of communication and videoconferencing tools and applications for non-educational activities (before the contingency)

Application	Laboral		Social		Entertainment	
	yes	No	yes	no	yes	no
Mail	85%				20%	
Social network	30%			20%	75%	
WhatsApp	84%	16%	85%			20%
Videoconference	10%		12%	88%	9%	91%

It also indicates that they use them for other activities such as work (which does not include education) or social activities, 52% use

these applications for work, 54% for social activities and 46% for entertainment.

In the fourth part, how did the change of scenario from face-to-face to distance affect 90% of them, if it took them by surprise, and 10% not so much, since they said they had experience in the virtual modality?

In terms of Internet connectivity, 40% had to invest in a better Internet connection, 60% continued with the one they had.

It was necessary to invest in a technological device, 35% had to upgrade their equipment, 20% bought another equipment and 45% continued with the one they had.

Of those who needed to purchase other equipment, 45% were a webcam, 20% a laptop, 22% a scanner, 13% a smartphone.

For those who answered yes, the institution told them which application to use for online classes was *BigBlueButton; for those who* answered no, it was because they had to do other activities such as: making tests, wall newspaper and articles related to a subject they were teaching.

Of those who had an online class, they were asked

100% of online classes are asynchronous, recorded and reviewed before uploading to the platform for student review.

72% had to set up a place to record or teach the class, while 28% did not.

67% had to adjust schedules to teach or record the class, 33% were not affected.

How did you learn to use the application to teach online classes, 75% of them were through trial and error experience, 15% with the explanation given by the institution understood how to use it, 10% still have a lot of problems to record and send

If I had known that in order to continue teaching I would need to have certain skills in the use of applications and digital tools, I would have learned to use them. 85% answered yes, 15% said that they already knew how to use them adequately.

Discussion

The teachers of the institution who teach at the higher education level and who are between 25 and 45 years old represent 70% have some digital literacy derived from their work, or because they had to make the transition, but those aged 45 or older had training processes in which these digital applications were not necessary or did not exist, although some had knowledge they did not give any relevance because they considered it somewhat unnecessary, either by disinterest, lack of information or perception of little utility, from this perspective we can find an important differentiation between the level of appropriation that teachers have according to their age. It is important to point out that although a good part of the teachers make use of daily digital communication media, access social networks, search and track information, they are still not able to consolidate their processes of digital knowledge construction, since training and daily use of these are necessary for their empowerment as users; From this perspective, teachers who have managed to have a limited use of the technological tools within their reach, because although they make basic use of them, they do not manage, due to lack of knowledge, lack of training, lack of knowledge about the capabilities of these and factors specific to their professional life, to develop and exploit these tools to the fullest.

It is important to note that there is a marked difference between the perception that teachers have in the use of digital media for communication and leisure purposes in relation to the potential that these may have in the development of their teaching activity, if we observe the results of the applied instrument, we find that most teachers make use of social networks and messaging applications, which have the possibility in conjunction with some others such as office or Google to develop academic activities, however only a daily personal communicative use of these is made; for a small portion of teachers these elements can even be considered as distractions in the academic development of their students.

It is therefore necessary to build from higher education centers, training programs and even digital literacy programs that allow their teachers the knowledge and appropriation of the tools that allow

them to develop their classes in a more accessible way and with the possibility of expanding the knowledge environments to digital spaces that otherwise might be inaccessible to students.

Digital literacy programs will be of little use if the authorities and academic areas do not provide access to technological resources, and if they do not have the time and support necessary to apply the knowledge and skills that teachers have acquired in their training process, for which a training model based on the particular needs of each university and the time availability of the teacher can work.

University teachers must be prepared to support their students to benefit from technology, given that, although there are authors who claim that ICTs have replaced the teacher, the teacher becomes central in the teaching process if he/she is conceived as a literacy agent, who creates new situations for students to appropriate new knowledge useful to develop in the digital environment both at school and at work. Universities, both face-to-face and mixed, must have teachers with technological resources and skills, who are able to teach the contents of their subjects, also using the concepts and skills related to technology.

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