

Digital competencies and the impact on academic teleworking activities in the pandemic by Covid-19

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Introduction and state of the art

Within the different educational institutions, both at the basic education level and at the university level, it is proposed as part of the training and learning adaptation processes, that teachers should be able to alternatively handle the most current teaching media, which sometimes contrast with the conventional means of instruction, giving the possibility of adapting to other teaching schemes.

According to Fernández, Ordoñez, Morales and López (2019) "The different educational institutions at all levels, from Early Childhood Education to Higher Education, integrate digital competencies in their educational plans, an aspect on which this text is going to focus." (p.10).

Thus, in the context of the use of Communication and Information Technologies, academic plans must be flexible so that, in adverse circumstances, in which it is estimated that there is no possibility of fulfilling all the tasks and assignments, digital interaction channels are created, making use of telework (distance activities) as a way for assignments and deliveries of educational projects, which so merit it. This is the case of higher education, which has

had to adapt to the current reality of the COVID-19 virus pandemic, in which many universities have had to adjust their teaching plans to the demands of educational directors and managers in order to be able to give continuity to the training objectives of each subject.

As it is a public fact, the pandemic caused by the so-called COVID-19 virus has been an element that has transformed normality in all social scenarios, which also includes the space of academic training at all educational sub-levels. Thus, according to official sources, one of the measures to reduce the risk of suffering from the disease produced by this agent is social distancing, which according to the World Health Organization (WHO) (2020) counteracts this disease is prevention.

Therefore, in all regions of the world and especially in the context of Latin America, according to Hodges et al. (2020), emergency remote teaching initiatives have been launched in order to provide short-term solutions and maintain some continuity in the teaching and learning processes. Thus, the COVID-19 pandemic has directly impacted the educational systems of all countries in the region, affecting students, households, ministries, secretariats, educational centers, teachers and managers.

Thus, the need arises for instructional models to be adjusted to the requirements of non-attendance, as part of the due prevention for compliance with health protocols, which is why the clarification of teachers' criteria for the implementation of alternative schedules to daily class attendance, no longer becomes a matter of occupation for students, who must be guarantors of an online study schedule, attendance to video calls, fulfillment of homework and other assignments through virtual classrooms, among other aspects, but it is also the teachers

themselves who must provide spaces for the evaluation of their own competencies for the adequate fulfillment of distance activities. In this order, Aguilar (2016) students and teachers, especially the latter, deserve the detachment of their old teaching models, so that all the changes that are required for the fulfillment of the activities found in the vitalization of educational processes are feasible.

In this sense, many are the aspects that deserve evaluation when questioning or not the teaching processes under the approaches of educational planning in the order of telework and virtuality, according to Bohorquez et al. (2018) The criteria that present greater satisfaction are in the orientations for the use of the platform, the clarity in the delivery dates and those of evaluation, where the teacher evaluated the activities from the evaluation methods and promotes processes that seek interaction with other colleagues, the academic commitments in the learning classroom promoted the use of ICT outside the platform, there was a cordial and equitable treatment by the teacher and doubts were resolved in a timely manner.

As can be seen in the research where the author Bohorquez et al. (ob. cit.) proposed his conclusion regarding the interactions and opinions of students on virtual academic activities, it is important to mention that students always highlight as an important element the way in which the teacher or academic director exposes ideas in conversations through video calls, interactions via various platforms and applications, among others, which is why teachers deserve to have the capabilities that induce the proper monitoring of tasks and assignments in an appropriate manner.

In the words of Sangra (2001) The most important difference between face-to-face and virtual education lies in the change of medium and in the educational potential that

derives from optimizing the use of each medium. We cannot do the same thing in different media, even if our educational purposes and, therefore, the results we are pursuing are the same, but we must know beforehand that the path we must follow is different. In the acceptance of this difference in the means of communication lies the success or failure of the educational activity. (p.2)

So that, being a model with a means of alternative training that due to various circumstances may or may not be a purely virtual or semi-presential model, is when the figure and the role of the administrators of the telework space or distance tasks, where students and teachers converge through virtual classrooms or through applications designed for the same purpose, emerges significantly. Thus, Sangra (ob. cit.) notes that virtual learning environments are the place where the subjects of study are found, as well as the learning materials. Students, teachers, etc., are all part of the community. This is why,

Each student has specific needs, own interests, individual beliefs this is related to the term diversity, it is necessary to create individualized learning experiences based on pedagogy, didactics and strategies that achieve attention to diversity (Balongo & Mérida, 2016).

According to Guerrero and Dote (2011), ICTs have had a great impact on different areas of society, transforming communications, information processing and interpersonal relationships within society. Thus, teaching under new pedagogical methods with the use of computer devices should be oriented to the implementation of communication and information technologies through the use of tools such as the Internet and computer software for the various subjects, as well as the incorporation of virtual

classrooms in education plans, has been a very distorted and forgotten task in most cases.

In this regard, in the universities of the 21st century, the teacher must cease to be the controller of the student's access to information and become the student who is ultimately responsible for it" (Espinosa et al., 2018, p. 9).

In this order, one of the aspects that has had the greatest impact on the process of compliance and continuation of academic activities on a regular basis is precisely the lack of knowledge that many teachers or university professors have in accessing technical and technological resources to complete the tasks and assignments of the different academic programs. For many teachers the use of digital tools has represented an obstacle, due to the fact that face-to-face teaching was almost entirely replaced by virtual learning environments, in this sense it is worth mentioning that in Ecuador "At the national level people who use computers represent 52.4% and 36.7% of households have at least one laptop" (Cedeño Alcívar, Hernández and Morales Intriago, 2017).

Thus, according to the European Communities (2009) a competence is the "demonstrated ability to use knowledge, skills, personal, social and methodological abilities, in work or study situations or in professional and personal development; in the European Qualifications Framework, competence is described in terms of responsibility and autonomy." (p.2)

Thus, in the context of communication and information technologies (ICT) and academic planning, criteria are established that guide the precision of the capabilities possessed by a person who stands out for the possibility that he/she has to fulfill a given task. In this sense, according to

Garcia-Valcarcel (2013), the theory related to competency-based training provides training with an integrative character, bringing together three forms of knowledge: theoretical knowledge (knowledge), practical knowledge (skills and abilities) and knowing how to be (attitudes) (p.2). There are several benefits in the use of ICTs in the teaching-learning process: access to materials, increases in motivation and productivity, as well as improvements in students' understanding and performance, among others (EFE, 2016).

According to Garcia Valcarcel (2015) it can be stated that a competence is then an effective action in response to situations and problems of different types, which require the use of available resources. In order to respond to the problems posed by such situations, it is necessary to be willing to solve them with a definite intention, that is, with certain attitudes (p.2).

The specific competencies are specific to each of the disciplines, depending on the field and branch of study established for each master's degree. They are directly related to a profession, so they are intended to delimit the profile of the graduate (Ramírez and Rey, 2015).

According to specialists in the academic field, one of the main challenges of current educational systems is the development of skills and abilities that make the subject skilled for the fulfillment of academic activities that are appreciable and that are consolidated as skills and competencies for the execution of various tasks and activities in the course of time. In this order, when reference is made to the importance of the actions that people are capable of fulfilling to carry out a task, this is what is known as an aptitude for work. This aspect cannot be measured or

qualified in all subjects in the same way, but through various analyses of the criteria and conditions of the context and the person him/herself.

Lopez (2018) argues that.

Teachers are obliged to keep themselves constantly updated, using all their creativity, skills and abilities to successfully bring ICT to the classroom. The teacher's goal is to prepare the new generations for their incorporation into the world of work and relationships, and digital tools are an ally.(p.3).

For García-Valcarcel (ob. cit.)

Students of the 21st century require teachers to be updated and prepared to face the changes required by education. A much more active, constructivist and collaborative teaching methodology is required, where the sources of information and their formats are varied, stimulating thinking, incorporating the image in a meaningful way, encouraging reasoning from collaborative work and discussion of various types of information, critical analysis, etc. (p.8).

Therefore, teachers and students must acquire the competencies (personal, social and professional) that will allow them to successfully incorporate ICT in the classroom (Gozálvez et al., 2014; Sevillano and Quicios, 2012). It is important to mention what is the conceptualization of "Digital Competencies", according to ISTE (2008), are those that make them use digital media and environments to communicate and work collaboratively to support individual learning and contribute to the learning of others. Digital competencies are those that make them understand

the human, cultural and social issues related to technology (p.9).

In this regard, Law & Chow (2008) refer to the factors associated with the development of digital competencies, among which the effects of gender and age must be studied together with other contextual factors due to their incidence. All this implies the need to conduct studies that show how various contextual and personal factors affect teachers' competencies, approached from different situations and varied perspectives. Likewise, the factor of teachers' perception towards ICT integration represents one of the most significant elements in the appropriation process, since it is important to know their thinking and willingness to adhere to new educational models.

According to Ala-Mutka (2011) there are skills that can be studied in the context of the use of Information and Communication Technologies:

- Instrumental skills and knowledge, necessary for the management of digital tools, considering their interconnected, visual, dynamic nature.
- Advanced skills and knowledge, necessary to apply the instrumental abilities in digital environments, organized in progressive order, from the resolution of tasks, to the strategic application to achieve integration in the personal life of each citizen.
- Attitudinal skills and knowledge, which represent ways of thinking and motivations that move citizens to act in certain ways in digital environments.

In this regard, Ferrari (2013) summarizes digital competencies as follows:

1. Information: identify, locate, retrieve, store, organize and analyze digital information, evaluating its purpose and relevance.
2. Communication: communicate in digital environments, share resources through online tools, connect and collaborate with others through digital tools, interact and participate in communities and networks; intercultural awareness.
3. Content creation: Create and edit new content (texts, images, videos...), integrate and rework previous knowledge and content, create artistic productions, multimedia content and computer programming, know how to apply intellectual property rights and licenses.
4. Security: personal protection, data protection, digital identity protection, security use, safe and sustainable use.
5. Problem solving: identify needs and digital resources, make decisions when choosing the appropriate digital tool, according to the purpose or need, solve conceptual problems through digital media, solve technical problems, creative use of technology, update own and others' competence.

In such a way that, the competences are a fundamental aspect inside the new normality that has become to the emergence of the pandemic of the COVID-19, reason for which it has been imperative to motivate the professionals of the teaching to the incorporation of activities at a distance for the fulfillment with the tasks and academic assignments, in such a way that the present study has been raised with the general objective of determining digital skills of teachers and the impact on the use of teleworking tools for the fulfillment of academic activities in the Faculty

of Administration of the Eloy Alfaro University of Manabi, Ecuador. This due to the relevance that by the same health condition exists in the present in the academic community, so that an emerging issue is precisely the adequacy of technological knowledge of teachers to the demands of the context and social reality where the distance has been adopted as a mandatory measure of protection; without this representing the absenteeism of the training objective of each subject.

The present article was based within the quantitative paradigm, reason for which was developed a research based on the management of the tools of telework by the teachers of the Faculty of Administration of the University Eloy Alfaro. Being these the selected population to carry out the diagnosis by means of digitalized forms as part of the survey applied, in the phase of information gathering.

Inclusion Criteria

1. Teachers of both genders: Female and Male.
2. Active in the fulfillment of their duties as professors of: the School of Administration of the Eloy Alfaro University of Manabí, Ecuador.
3. Participants of virtual planning and use of Telework tools from 2020 to present.

Within the population universe were considered the seventy teachers attached to the Faculty referred to above, however, the data of the items answered by the sample have been specified, a subset of forty-one (41) teachers of the same center and the same school within the Eloy Alfaro University, which were those who voluntarily and with their own decision expressed their willingness to participate in the survey referred to, as part of the diagnosis.

Procedure: in principle, the location of the information concerning the subject was executed as well as the organization according to the date of issue of previous works and other studies consulted, so that the selection of the most important productions was made and the designation of the elements concerning the predefined criteria, which are described within a first scheme derived from the management or not that the teachers of the Faculty of Administration of the Eloy Alfaro University of Manabi, Ecuador have on the digitized didactic resources, within which are encompassed: computer software, hardware with advanced technology to generate links with students in real time, such as tablets, desktop computers, laptops, as well as the different versions of operating systems and applications that run on them.

So that in the process of determining the investigated aspects, a form was developed at first within the Microsoft Word application, which was described with a series of items, according to the general objective of this study, then within the design of Google forms, to reach the teachers of the Faculty of Management online consultation on digital skills and the impact on the activities that due to the pandemic have had to perform.

Data collection instrument used

In this sense, a data collection instrument was developed to verify the aspects related to the proposed research. Thus, the questionnaire was structured in Google Forms with a total of twelve (12) questions with closed answers (Yes/No).

A significant number of the criteria initially studied could be clarified, since a significant number of respondents indicated that they knew almost all the basic resources for the development of distance learning academic activities, because due to the current health situation, face-to-face

classes are limited in much of the academic planning within the higher education institution Eloy Alfaro University of Manabi, Ecuador.

Therefore, the results presented below correspond to the needs of the teaching population consulted, and for this reason the conclusions drawn from these results are only linked to the initial approach that there is an impact on the modification of the normal course of training activities under the face-to-face approach, because not all teachers who teach classes are in agreement with the technological adaptation, due to the fact that most of the tasks are carried out through digitalized and online activities under the real time and timeless scheme that the situation warrants.

The data resulting from the research are presented below:

As can be seen in the results obtained and shown in Table 1, the teachers have basic knowledge about turning on and off the computer equipment, with which they develop their teleworking activities on a frequent basis. Aspect that is one of the indicators for the measurement of the level of difficulty that has for the participants the use of the computer tools, in this order. None of the respondents expressed any kind of difficulty in this regard, "digital" is called the intangible context of applications, computer objects and records that are derived from the process of data that can not be touched or created physically, even when they exist, within which are included: programs, files, data, among others. When the population was consulted about this concept, 90% of them indicated that they are aware of the elements of this nature and that they are therefore used within the context of academic planning derived from the virtuality adopted in the process of confinement by the COVID-19 Virus. In this regard, only 10% of the teachers surveyed indicated that they do not

know the term or the aspects derived from it. In this context of the research, a significant number of the surveyed teachers, 95% of them, state that they have knowledge about the use of digital tools in the contextualization of the new teaching approach under the principle of virtuality, due to the measures to prevent the spread of the COVID-19 virus, in its totality, the respondents claimed to have in their work and housing means the digital tools for compliance with the academic assignments under the context of virtuality. Thus, the scenario is favorable for communications through alternative means to be carried out in a timely and efficient manner in this area.

The result of the research regarding the form of communication and the technological means used, represents another indicator in the context of digital competencies, in this order, all respondents expressed to have the level of knowledge of communications that are established through tools for video calls and online forums, using for this purpose the smartphone and the computer.

The research conducted showed that most of the respondents make use of computer applications for the design and construction of didactic and learning evaluation strategies with the students in their charge; in this sense, only 7% of the respondents stated that they do not. This aspect is important to highlight because this number of teachers expressed in the percentage that indicated that they do not make use of computer software for the planning of their activities as teachers of the subjects they are in charge of, merit adapting their functions to the virtual environment in which, at present, the assignments are being carried out, this indicator is also of utmost importance, When the teachers of the School of Administration were asked if they comply with the hours of attention through video calls to the students they are in

charge of, all of them indicated that they do, which can be interpreted as the follow-up and attention given to the students, as well as the advice on the contents they understand and the doubts or concerns they have. It is important to highlight that 98% of the respondents affirmed that they can evaluate the consolidated learning of the academic population through digital instruments, which represent tools that favor the concept of distance education, since the measurement of knowledge is a fundamental aspect for progress in the levels of instruction that are fulfilled as part of the teaching plans.

Interpretation: web-based tools are other alternatives that due to the healthy distance that has represented absenteeism from classrooms due to the COVID-19 pandemic, it is important to consult, therefore the research was conducted on the use of the advantages of social networks as channels of communication and interaction of teachers with their students resulting that in effect most teachers know how to make use for academic purposes of these tools, representing 80% while the remaining 20% represents the subset that does not know the forms of communication through this type of interaction channels with students.

At the end of the research, after processing the results, the indicators studied were: recognition and use of electronic devices, use of social networks for academic purposes, knowledge of computer tools with application to teaching, design and construction of reusable objects: recognition and use of electronic devices, use of social networks for academic purposes, knowledge of computer tools with application to teaching, design and construction of reusable objects were criteria answered, for the most part, in the affirmative by the teachers of the Faculty of Administration of the Eloy Alfaro University of Manabí - Ecuador, which is

interpreted as a positive element for the modification of the face-to-face scheme that has been adopted for decades in the higher educational institution, representing then an advantage the conditions of social distancing and confinement as a way to prevent the spread of infections with the COVID-19 virus, because as Mykhnenko (2016) refers, the importance of the application of learning technologies is now considered not only a crucial part of teaching-learning in higher education, but also a vital evidence of innovative teaching practices used as a criterion for promotion.

Thus, due to the importance for the pursuit of studies, especially at the university level, of the proper management of communication and information technologies as well as the use of digital tools, it is extremely important to specify that teachers have the skills to work in this context because "currently the absence of technological tools limits didactic innovation, with the consequence of an expository teaching and transmission of content; resorting to the use of the printed text as the only source of knowledge, in most cases with photocopies, a projection with slides that reproduces the theory, the use of blackboard and dictation (Spain & Canales, 2013). Therefore, it is concluded that, despite the resistance to change of a small group of the teachers surveyed and the lack of knowledge of some specific digital tools, in general the teachers possess the skills and competencies for the normal course of activities under the virtual approach to continue to be carried out.

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