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Digital Culture Of University Professors And Its Influence On Initial Teacher Training

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Abstract

The disruption of human activities caused by the COVID-19 pandemic has transformed educational activities globally and, in particular, in university education, with a rapid growth in the use of ICT in the educational work of both teachers and students. The aim of the study was to determine the level of influence of the digital culture of university teachers on initial teacher training. The research approach was mixed, correlational level and non-experimental design, the sample was made up of 136 students and 17 teachers of the education program, in the fieldwork a closed questionnaire of 45 items was applied, both to teachers and students, and another of open questions only to students. Among the results, it is highlighted that more than 60% of teachers consider that their digital culture has developed at a medium or high level, in students more than 65% permanently use digital technology for academic purposes, in addition there is a positive correlation between the digital culture of the university professor and the training of the future education professional. It is concluded that the digital culture of university teachers directly influences the quality of initial training for basic education teachers.

Keywords: *digital culture, initial training, higher education, digital culture, university professor.*

1. Introduction

Education is a complex and virtuous social phenomenon that allows people to develop their lives to the fullest. Under this premise, in the technological and global context in which it is developed, each of the educational actors must learn to live mediated by technology in individuality, as well as in the collective; This forces teachers to have a digital culture according to the needs to carry out their teaching activity aimed at achieving significant learning in students.

This research work is based on several studies that emerged in the context of the digital era and in a context of disruption in teaching-learning processes that led to the implementation of virtual education in the COVID-19 pandemic. A phenomenon of global emergency that has brought with it the need and obligation of teachers to venture into the use of digital technology to fulfill their teaching action, in a heterogeneous way, but that since then has been normalized with the achievement of certain digital competencies to integrate technology in the performance of educational activities. which involves students and teaching staff of the university, and has fostered citizen commitment in the transformation of the environment and the development of

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an active citizenship, which assumes with responsibility the main challenges of the twenty-first century, such as the incursion into the use of technology and the development of digital culture in the context of higher education.
Therefore, the present research aimed to answer the question: What is the level of influence of the digital culture of university teachers on initial teacher training? The objective of this study was to determine the level of influence of the digital culture of university professors on the initial training of basic education teachers. The research hypothesis is: the digital culture of university teachers directly influences the quality of the initial training of basic education teachers in the Education program of a state university in Peru; It was tested based on the dimensions of the variables considered.

2. Literature review

This work is based on ideas and concepts related to digital culture, education based on digital culture and aspects related to teacher professional training.

2.1 Digital Culture

Digital culture or cyberculture is that which is born from the use of information and communication technologies, expressed in a set of practices, customs, habits, activities, protocols and forms of social interaction that is carried out through the use of digital technology in its different presentations. Digital culture involves having experience in using ICT to solve problems and develop digital skills, as a digital citizen of the knowledge age in the context of the global world. Along these lines, there is a clear need to reformulate and develop training and awareness programs on the impact of technology and the benefits it entails for learning (Beltrán-Sánchez et al., 2019).

The way in which people live together in an institution or organization, where computer networks are used for the process of communication, entertainment, education and the electronic market, implies having a digital culture, this culture is characterized by being **innovative:** aimed at promoting and facilitating a culture of innovation and continuous improvement, incorporating technology permanently according to the needs of the moment and the future; **transparent:** the cultivation of digital culture is open with horizontality, openness and new forms of internal and external communication making use of digital tools; **Connected:** it involves being as close as possible to users and consumers who make use of new digital channels and also internally connected to work creatively, collaboratively and productively; **flexible:** easily adaptable to an environment of permanent and evolving change; **Agile:** predisposed to speed and speed in the adoption of changes, taking it as a permanent opportunity.

A moderately developed digital culture helps to venture into new virtual scenarios in order to correctly take advantage of all the possibilities they offer; expressed in a set of shared values, norms, practices, and expectations, where people interact through networks in contemporary society (Deuze, 2006). It also makes it possible to carry out educational activities mediated by technology, collaborative work, using the possibilities offered by virtual spaces for the development of the teaching-learning process leading to academic success, through the implementation of innovative pedagogical models, which facilitate more meaningful, active, participatory, and effective learning (Torrecilla, 2018).

In the deployment of digital culture, digital literacy and the pedagogical-didactic criteria with which teachers act when it comes to effectively integrating ICT into their teaching activity converge, taking into account the implications that these technologies have for digital training (Castañeda et al., 2018; Mangisch & Mangisch, 2020). An adequate digital teaching culture is expressed from the simple description of models and frameworks of digital competencies, the

design and development of tests and evaluation instruments, through processes of accreditation of university professors in these competencies (Lázaro & Gisbert).

Digital culture is characterized by being a complex and holistic construct in which some key components are considered that have to do with technological and communicative performance and the treatment of information by teachers and students, which are perceived as digital competence. Thus, an advance in the mastery of digital skills as part of digital culture constitutes a current educational demand (Cagua et al., 2021). They facilitate the carrying out of activities in a digital context, where the teaching role is oriented towards mediation and accompaniment (help, guidance, listening) crossing the barriers of space and time in the teacher-student and student relationship with each other (Pérez & Ahedo, 2020; Tarabini, 2020).

2.2. Education and digital culture

Today, information can be accessed online without limits, anytime, anywhere; this dynamic has transformed the forms and modalities of human activities and learning. In the context of higher education, digital culture enables educational personalization that is not intended to be a mere process of individualization, but rather seeks to incorporate the freedom, control and responsibility of learners, making them participants in the coordination of learning processes to turn them into personal projects or missions that facilitate learning with meaning and personal value (Coll et al., 2020).

According to UNESCO (2018), teacher culture encompasses what and how to best teach students to improve their learning, development, and integration into society, which implies the development of their skills that facilitate the use and management of digital devices and learning, communication, and networking applications. Digital culture is made up of a spectrum of skills that facilitate the use of digital devices, communication applications and networks to access information and carry out better management of it. Teachers' digital culture is manifested in information literacy, communication and collaboration in virtual environments, the creation of digital content, the use of digital environments, and problem-solving using digital technology.

The use of this digital technology in the classroom goes far beyond a digital culture or skills-based instrumental competencies, it requires conceptual knowledge, awareness and how to use technology in the classroom and, at the same time, how to design practices in a context parameterized by strict normative beliefs and orientations about what is appropriate and not (Bard-Ketel, 2019). Therefore, the development of digital culture requires a comprehensive understanding of the personal and social impact of technology, and how it influences the optimization of students' learning process and teachers' management of teaching.

The analysis of the modalities in which university professors manage the teaching-learning process, with the use of digital resources and content, constitutes a sociocultural event, which goes beyond the merely technological and instrumental as it was conceived in its beginnings. University professors are called upon to promote self-regulation of learning, show the usefulness of digital technologies and encourage their incorporation into the teaching and learning process (Yot-Domínguez & Marcelo, 2017).

In today's education, it is essential that teachers have a digital culture developed to carry out the teaching-learning process, through the use of information and communication media such as the Internet, various platforms, email, social networks, instant messaging media, etc.; also knowing and using various computer programs for educational purposes, in addition to having a digital culture implies being endowed with a digital mentality, having flexibility and digital agility, using interactive pages for pedagogical purposes and promoting collaborative work in

permanent interaction with their peers and the teacher, through Internet browsing parameters and habits of use of resources in the digital network, Bringing out your creativity.

2.3 Vocational training

The process of professional training in the university is a constant modeling and reconstruction of educational practice, which translates into an expansion of the participation-action of the teaching action, with the student as the protagonist (Nieves, 1999). Teacher training is based on a set of training activities developed through studies and learning aimed at insertion, reintegration and permanent updating aimed at comprehensive training where the cognitive, pedagogical and professional responsibility dimensions converge.

Cognitive development, refers to the development of skills associated with theory of mind, development of knowledge or learning that the student must achieve for their insertion and performance in society, this area of training corresponds to the field of neuroscience and psychology that studies the development of cognitive skills such as memory, attention, language, perception, problem solving, or intelligence and planning. Thus, cognitive training is linked to the natural ability of human beings to adapt and integrate into their environment, and is carried out through mental operations that are based on experience and information processing to assimilate knowledge and give relevant responses to a given situation.

Pedagogical training is conceived as the permanent process of acquisition, structuring and restructuring of knowledge, skills and values for the performance of the teaching function. To this end, it is necessary to establish clear guidelines for higher education teachers, who must teach their students to learn and take initiatives, and not only to be wells of science (UNESCO, 1988). It must promote research, updating and improvement of pedagogical skills through appropriate training programs, based on the continuous innovation of curricula and teaching and learning methods that guarantee quality training.

Pedagogical training attends to different stages of teaching practice, facilitates the initiation, training, training and improvement of university students in the mastery of the contents of didactics for professional practice. These are evidenced in the use of pedagogical diagnosis, the participatory nature, the use of the system of didactic principles, the integration of individual and group work, the permanent exchange of experiences, the personification of the profession and the impact of the program taught.

Professional responsibility, the process of initial teacher training, includes areas of curricular focus, to ensure participation and learning, adapt instruction to their needs, prepare learning materials, as well as organize the evaluation process. Teachers' responsibilities should be aimed at ensuring high-quality teaching; the development of intercultural, social, behavioral, and emotional skills; such as critical thinking, empathy, teamwork, perseverance, among others (Izarra-Vielma, 2019).

From what has been described, it can be deduced that there is a need to implement teacher professional development programs and the search for conditions of practice that respect and promote the autonomy of the teaching staff as a way of seeking well-being in their daily work and at the same time ensuring quality performance, in learning to learn, who is able to look for new ways of accessing or generating knowledge.

3. Method

The present study was carried out with a mixed approach, non-experimental, descriptive and correlational design; descriptive in the sense that it identifies the variables digital culture and university professional training; On the other hand, it is correlational because it seeks to find the relationship or influence of the teacher's digital culture in initial training.

The work is guided through the sequential exploratory mixed design (DEXPLOS), which involves an initial phase of qualitative data collection and analysis followed by another where quantitative data are collected and analyzed. There are two types of design: derivative and comparative. The derivative consists of the collection and analysis of quantitative data based on qualitative results and the mixed occurs when the qualitative analysis of the data and the collection of quantitative data are connected, the final interpretation is the product of the comparison and integration of qualitative and quantitative results; while the comparative interpretation is the product of the comparison and integration of qualitative and quantitative results; while the comparative interpretation is the product of the comparison and integration of qualitative and quantitative results. , in the first phase, qualitative data are collected and analyzed to explore a phenomenon, generating a database; subsequently, in the second stage, quantitative data are collected and analyzed and another database is obtained, to then interpret them together (Hernández et al., 2014).

For the study, 992 students and 83 professors from a university in Peru were taken into account, distributed in 8 professional careers. The study sample is made up of 136 students who represent 14% of the total student population chosen through a stratified random sampling, proportional to the number of students enrolled in each professional career; while the sample of teachers is made up of 17 who represent 20% of the total population, also chosen through a stratified random sampling of proportional affixation.

The fieldwork is carried out in two phases, in the first phase the Likert questionnaire is administered to a sample of 17 teachers who carry out their academic activities in the mixed modality (face-to-face and virtual) implemented by the university and 136 students who receive classes in the subjects that make up their curriculum. While the second phase includes the application of the same questionnaire on the use of digital technology for pedagogical purposes, after a year of implementation of virtual teaching, in order to identify changes in teachers' positions on the use of digital technology in their teaching work; During this period, a semi-structured interview is also administered to the same professors for the study.

Quantitative data are processed using Minitab statistical software; then, as the study variables are ordinal level, the correlation or level of influence of digital culture and initial teacher training is carried out through Spearman's Rho correlation with 5% significance. In relation to qualitative techniques, the teachers' narratives are analyzed; through fragments of unitary text that configure basic ideas on which their experiences are based and articulated (Blanco & Barrantes, 2003). In this line, the information provided by the interviewed subjects was analyzed and interpreted from the transcription of the answers.

4. Results

4.1 Descriptive results referring to the digital culture of university professors

Regarding digital culture through activities in the dimension of experimentation, according to the answers obtained to the 15 questions asked, 41.18% of the teachers surveyed have the development of their digital culture at a high level, while 33.33% claim to have developed at a medium level; 23.92% developed their digital culture at a basic level; and only 1.57% have digital culture at a high advanced level. These results indicate that teachers are mostly accustomed to carrying out experimentation activities during teaching management in virtual education (Table 1).

In response to the items corresponding to the dimension of development and implementation in the use of digital technology, 37.65% of the teachers surveyed consider that they develop it at a medium level, while 33.73% affirm that the activities they carry out with digital technology are at a high level; 22.35% respond that they are at the basic level and the remaining 6.27%

affirm that they have a digital culture at an advanced level. Table 1. These results indicate that university professors who are part of the Faculty of Education carry out development and deployment activities in virtual teaching, with an increasing level in the use of existing resources and content on the network.

Table 1. Level of development of the digital culture of university professors by dimensions

Digital Culture	**Experimentation**		**Development and implementation**		**Transformational Leadership**	
	frequency	percentage	frequency	percentage	frequency	percentage
Basic	61	23.92%	57	22.35%	42	16.47%
Middle	85	33.33%	96	37.65%	68	26.67%
High	105	41.18%	86	33.73%	120	47.06%
Advanced	4	1.57%	16	6.27%	25	9.80%
Total	**255**	**100.00%**	**255**	**100.00%**	**255**	**100.00%**

On the development of the digital culture of teachers in the dimension of transformational leadership corresponding to the 15 questions asked; 47.06% of the teachers surveyed consider exercising this dimension at a high level, followed by 26.67% who indicate that they are at the medium level; while 16.47% have a digital culture at a basic level; and only 9.80% consider that they have an advanced transformational during their teaching activity. In this dimension, there is a much higher percentage than the previous ones, those who express their leadership praxis during the activities carried out with students and their peers in the context of virtual education (Table 1).

In summary, regarding the digital teaching culture developed by teachers who work in the different areas of training of the Education program at a State University of Peru, it is evident that the digital culture of most teachers is located between a medium and high level, in the three dimensions of analysis considered for this study. These results show a sustained acceptance and integration in the use of digital technology in the teaching-learning process.

4.2 Result referring to initial teacher training

Regarding the impact of the teacher's digital culture (through the use of digital resources in teaching) on cognitive training, the majority of students, representing 65.0% of respondents, stated that it always influences, while 31.0% indicated that it influences sometimes and 4.0% affirm that it influences sporadically. In summary, these results indicate that the use of digital technology does have a significant influence on the achievement of learning in the different areas of teacher training of the future, Table 2.

Table 2. Level of influence of the university professor's digital culture by dimensions

Digital Culture	**Cognitive development**		**Pedagogical training**		**Professional Responsibility**	
	frequency	percentage	frequency	percentage	frequency	percentage
Sporadic	88	4,0%	297	14.56%	155	7.60%
Sometimes	628	31,0%	1029	50.44%	1190	58.33%
Always	1324	65,0%	714	35.00%	695	34.07%
TOTAL	2040	100.00%	2040	100.00%	2040	100.00%

As shown in Table 2, the use of digital technology by teachers and its impact on the pedagogical training of students in the educational program, 50.44% believe that this occurs sporadically (occasionally), while 35.00% affirm that it is always aimed at the development of their

pedagogical skills; and only 14.56% affirm that this occurs sporadically. This information shows that the use of digital technology does not have a significant impact on the pedagogical training of students, which can have an impact on the level of their performance when they teach.

Regarding the professional responsibility that students can assume through the mediation of digital technology, 58.33% of students consider that it can sometimes influence, while 34.07% believe that it is essential at all times (always) for their responsible training as a professional, and only 7.60% say that it influences sporadically. Consequently, the use of digital technology has a considerable impact on strengthening the social responsibility of students in initial education (Table 2).

In summary, from the results described of the dimensions of initial teacher training at the university level, it can be deduced that the use of digital technology during the teaching-learning process that students receive through the tools provided by digital technology is not so significant. Results that show a relative acceptance of the use of digital technology by education students during their initial training; In other words, the digital culture of the teacher does not have a direct impact on the learning or academic training of the future education professional.

4.3 Correlational and inferential analysis

In hypothesis testing, the ritual of statistical significance of the computer age has been followed, both for the general hypothesis and for the specific hypotheses:

General hypothesis: the digital culture of university teachers directly influences the quality of initial teacher training in a state university in Peru.

Table 3

Correlational analysis of the study variables.

Spearman's Rho: Digital-Culture; Initial teacher training	
Correlations	
Spearman's Rho	0.634
P-Value	0.023

Spearman's Rho = 0.634, obtained, indicates that there is a direct (or moderately positive) correlation between the digital culture of university professors and the quality of professional training. While the p-value = 0.023 is lower than the significance level 0.05, the null hypothesis is rejected and the alternative is accepted. In other words, the digital culture of university professors has a direct influence on the quality of initial teacher training at a state university in Peru, with 95% confidence (Table 3).

Specific hypothesis 1: The digital culture of university professors has a significant influence on cognitive development during initial teacher training at a state university in Peru.

As shown in Table 4, Spearman's Rho = 0.551 indicates that there is a direct (moderately positive) correlation between the digital culture of university professors and cognitive development in the initial training of basic education teachers. In addition, as a p-value = 0.048 (<0.05), it is inferred that the digital culture of university teachers has a significant influence on the cognitive development of basic education teachers, with 95% confidence.

Table 4 Correlational analysis: digital culture and dimensions of vocational training.

Spearman's Rho: Digital-Culture; cognitive development

Correlations	
Spearman's Rho	0.551
P-Value	0.048
Spearman's Rho: Digital-Culture; Pedagogical training	
Correlations	
Speraman's Rho	0.433
P-Value	0.035
Rho de Spearman: Digital Culture; Professional Responsibility	
Correlations	
Sperman's Rho	0.774
P-Value	0.032

Specific hypothesis 2: The use of digital media, resources and content by university professors influences the level of pedagogical training in initial teacher training.

Spearman's Rho = 0.433 indicates that there is a moderately low positive correlation between the digital culture of university professors and the level of pedagogical training of basic education teachers in initial training. In addition, the p-value = 0.035 (< 0.05), induces the rejection of the null hypothesis and acceptance of the alternative hypothesis. In summary, the use of digital media, resources and content by university professors significantly influences the level of pedagogical training of the future education professional, at 95% confidence (Table 4).

Specific hypothesis 3: The digital culture of university professors influences the assumption of professional responsibility in initial teacher training.

As shown in Table 4, Spearman's Rho = 0.774 indicates that there is a high positive correlation between the digital culture of university teachers and the professional responsibility of teachers in basic education training. On the other hand, from the p-value = 0.034 (< 0.05), it can be inferred that the digital culture of the university professor influences the assumption of professional responsibility of basic education teachers in initial training, with a confidence level of 95%.

4.4 Interview Answers

When asked when and where they became familiar with the use of digital technology, most of the interviewees stated that they dabbled in the use of digital technology since their studies in secondary education, but they only used it for routine communication activities and to perform some academic tasks, mainly word processing and spreadsheets. But, from the pandemic caused by COVID-19, they began to use digital technology on a mandatory basis, adapting to their study and learning needs.

Regarding the frequency of Internet use, most students agree that the activities they do most frequently on the Internet are watching videos, tutorials, online classes; but what impacts them the most is following App tutorials for their assigned work, some see the repetition of classes, few watch video games, etc. movies, music, news, social media.

As for the time spent daily on the Internet outside of class hours, university students report surfing the Internet between 5 to 6 hours a day, a lower proportion than 3 to 4 hours, some are even exposed to the Internet more than 6 hours a day. There is no regulation for the use of technology, which often produces counterproductive effects on learning.

Regarding the use of academic activities with digital technology, for virtual classes, they use the university's platform implemented for virtual classes. They also state that they carry out information search activities to carry out academic tasks, referring to theoretical content of the

courses, viewing video tutorials on YouTube to solve problems, among others. They prioritize activities for learning, leaving other activities, such as online games. As for the most visited websites, most students use Google, YouTube and Wikipedia to carry out their academic activities; they also state that they use WhatsApp, Facebook, tutorials on YouTube, GeoGebra, Google Drive, Google Chrome, Google Scholar, repository of the State University, Moodle; while others also enter the Peru Educa page. My school 365 and Scielo. This information is an indicator that future teachers are accessing different Internet sites in a non-systematic way and without clear objectives.

Regarding the usefulness of information on the Internet for their activity and their location, they consider prioritizing thematic content in videos in all areas of knowledge, prioritizing some topics of mathematics, natural sciences and less frequently topics related to social sciences; they highlight the importance of some software and interactive pages, use of calculators; monographs, scientific articles, e-books, among others. In addition, they use repositories, Google Scholar, University Virtual Library.

To the question regarding the development of their digital capacity for academic purposes, most answered having access to the internet and being involved in academic practice, and looking for digital tools, and knowing more about the appropriate use of technology for educational purposes, but having the technology available and an expert in technologies who can provide training in the uses of technology for academic purposes and who solves some doubts. It is essential to make a positive use of technology, as long as we are taking advantage of all kinds of content related to education.

Finally, the answer to the question about the digital skills they need to develop considers that they lack experience in carrying out group work, such as classes, activities, exhibitions and, therefore, making use of the tools provided by technology, to become familiar with them. To this end, it is important to attend the training that is developed regarding the pedagogical use of digital technology for teaching and learning, through collaborative and cooperative interactive activities. Because it is not enough to watch tutorials on YouTube, but you must attend training courses to improve the use of ICT tools for learning theories, practices and research.

5. Discussion

At present, the possession of digital culture is the set of unavoidable practices in the performance of different activities, it is based on the changes generated by the incursion of technology and the internet in people's lives, promoting new forms of coexistence and interaction in society and emerges with novel social practices that reconfigure the performance of individual and group activities in the context of university education.

In his doctoral thesis Regil (2014), he carries out an exhaustive analysis of the digital culture of psychology students, integrating in his conclusions final notes on the object of study through contributions and proposals; Based on the results, they interpret the research approaches and the particularities of the object of study; The importance of contributing to a field of knowledge, generating data and reflections to update the interpretative framework, reviewing and renewing the category of analysis and synthesizing the proposals generated from the results of the study has been highlighted. This study not only analyzes the digital culture of teachers, but fundamentally the implications for initial teacher training; evidenced in the direct relationship between these two categories of analysis.

The results show that teachers and students show a synergy during online and synchronous activities, where most of them carry out their educational praxis mediated by digital resources and content, with an upward advance in the level of use of ICTs, the teacher carries out

increasingly efficient teaching activities to students and the exchange of information with their peers and managers in the context of virtuality. The findings of this study complement the one developed by Colorado-Castellary (2011), who states that, in a society based on knowledge through the digital, one of the essential tasks is to analyze the innovative effect of ICTs, especially with the evolution of the Internet, to carry out access, inquiry, learning and creativity activities; through digital culture. Therefore, having well-trained, supported, and valued teachers is essential to ensure quality education for all (UNESCO, 2015).

Digital culture is framed within innovative cultural activities, which has led to changes in the modalities of informing and informing; configuring the identity of "digital native" to characterize, in particular, the young generations that coincide with the birth and development of technology, and are conceived as intensive users of digital technology (Ramírez, 2012). As a deepening of this statement, the results obtained from the research show the widespread use of digital technology in the teaching activity of medium and high level teaching in the dimensions of experimentation and transformational leadership, expressed in the management of media, content and digital resources; the same that show a sustained acceptance and integration of digital technology in the teaching-learning process.

For Monteiro & Leite (2021), the digitalization of higher education institutions (HEIs), due to the impossibility of face-to-face classes and tutorials, caused by COVID-19, evidenced the need to rethink the opportunities and obstacles for the development of students' skills, as well as the uses and effects of this on personal development and social skills; through a mastery of data search and editing skills and a reduced ability to create and develop new digital solutions. In this line, most of the students and teachers of the educational program consider that the use of digital technology during the teaching-learning process through the tools provided by digital technology are very important and these technologies are mainly used to carry out their learning activities in different subjects. Institutional and communication activities, networking and peer-to-peer learning.

According to González & Párraga (2020), the Internet is today a space in which people live long hours of their lives; outside of it, there is difficulty in carrying out different activities; since the Internet not only appears in people's lives in leisure, but is also essential for daily productivity. According to this statement, referring to the use of the internet, the researchers affirm that the university already has digital resources, but these must be of better quality, such as internet speed and the widespread use of Wi-Fi, since this tool is very effective for the development of academic activities.

On the other hand, from the free opinion of the students, the implementation of the digital library and the provision of a high-speed Internet service to students must be a priority; That good training be provided to the teaching staff regarding the technological tools that will make use of the virtual classroom. They also consider the lack of digital skills and experience in carrying out activities, exhibitions and interactive work, both for teacher teaching and for student learning. This facilitates relevant learning, developing expanded, flexible, and distributed experiences around a narrative that naturalizes digital culture in terms of learning opportunities and processes (González-Patiño & Esteban-Guitart, 2021). But to fulfill this purpose, it is necessary to close the digital gaps between teachers and students, who must homogenize their skills and knowledge about the use of technologies and the changes they experience.

6. Conclusions

Based on the factual results on the digital culture of university professors and their implications for initial teacher training, the following can be highlighted:

University professors of the Education career have a heterogeneous digital culture, ranging from basic to advanced level, and students, as digital natives, also use digital media, resources and content for learning purposes in a dispersed and sometimes distorted way.

The digital culture that the university professor possesses, expressed in the integration of digital technology in the teaching-learning process; It has a significant influence on cognitive development in initial teacher training. In other words, the guidance given by the teacher for the academic use of digital technology has a significant impact on the achievement of new learning and knowledge by students. The university professor plays the role of specialist or advisor to develop the learning of the topics of the subject with an adequate integration of digital content and resources in the subject in which he or she is a specialist. Meanwhile, students have the possibility of combining theoretical and practical learning in an interactive, reflective and critical way in the development of learning content, encouraging their self-learning and strengthening their academic training.

There is a direct relationship between the didactic-pedagogical use of some technological tools by teachers in a contextualized way in the process of pedagogical training of students, thanks to the motivation they have for the use of digital technology and their innate skills for the management of digital content. The participants generated their own interactive digital content, bringing to the surface their pedagogical training received during the classes.

There is a correspondence between the use of digital resources and the responsible training of teachers, expressed in the development of their personal and social capacity, through a permanent development of attitudes, values and innovation processes in the permanent search for educational quality. It is in this line where the research shows the strengthening of initial teacher training, in accordance with the demands of the emerging and technological society, as well as the satisfaction of the needs perceived by teachers and those in the process of training, in the context of virtual education.

Achieving the objective of professional responsibility implies strengthening training in values and attitudes, for this, the teacher tries to ensure that students freely construct their own knowledge and generate in them the desire to learn, at the same time, he tries to strengthen himself in his context, starting from the needs of the group and the environment where he develops his pedagogical action and appropriating the tools of leadership and autonomy that allow him to generate and manage changes meaningful, to assume professional and social responsibility in the community and society of which he or she is a part.

The digital culture of university professors who lead the subjects in the virtual modality allows students to be motivated in their learning by using interactive programs, video tutorials and other resources to complement what they have learned. Through the integration of digital technology in a sustained way to teaching and learning, so that the future education professional develops naturally in a digital world, both in the search, management and development of digital content, as well as in the optimization of the teaching-learning process.

In summary, through this study, it was found that, in higher education, the integration of digital technology has a significant impact on the development of the ability to acquire knowledge, personal and social skills, constituting a need for sustained incorporation in the process of continuous improvement of initial teacher training. where the use of digital technology and education come into force and converge during teaching and learning activities in the classroom.

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