ICT in a Pandemic: Learning Experiences

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Abstract

This article aims to understand how ICTs were used during the pandemic at the University, describing the learning experiences of teachers and their students. For the development of the research, it was carried out under a qualitative-quantitative approach, with test techniques based on criteria and snowball, involving twelve teachers and four students from the University of Guayaquil. The methodology was carried out in three parts: first with the quantitative approach under a descriptive cross-sectional design, the qualitative approach with a phenomenological - hermeneutical method and the conclusions where the results are integrated. Quantitatively, 82% were obtained where the teachers indicated that the change to online classes was not easy, 76% of the teachers indicated that they were trained in the use of technologies and 80% indicated that they theoretically use the PACIE methodology. Qualitatively, the results revolved around three edges: The accompaniment of the student is necessary for the appropriation of technologies, the university, after a process of inspection and digital improvement, is prepared for the virtual modality and; teachers need to experience virtuality from a student perspective.

Keywords

TIC; pandemic; mixed approach; PACIE methodology; virtuality.

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Item Description | Article description

This article shows the results derived from the research process on the work of ICT in times of pandemic of the University of Guayaquil, taking into consideration the learning experiences of teachers and students under a quali-quantitative approach.

Introduction

Just two years ago, educational contexts changed, due to the pandemic crisis generated by COVID-19, a viral disease that causes respiratory problems through a totally imperceptible virus; It is known that a person is a carrier when he has an approximate of 15 days of incubation and at this point his immune system is already weakened, the main mode of contagion is by direct contact and for this reason in a matter of days the whole world was affected World Health Organization (WHO, 2021). In this sense, the aforementioned situations generated mandatory restrictions due to the precautionary measures of the government to ensure the health of citizens, which resulted in the closure of educational institutions and the suspension of school activities worldwide.

Given this, the Economic Commission for Latin America and the Caribbean (ECLAC) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) published the COVID-19 report entitled "Education in times of the COVID-19 pandemic" where they analyze the educational challenges resulting from the pandemic (ECLAC-UNESCO, 2020). In the aforementioned document they indicated that, although the world was under health alert, there was a need to establish the continuity of learning through non-face-to-face means with different forms of adaptation and prioritization.

Faced with this situation, several countries migrated their face-to-face educational activities to virtual ones and used different procedures to generate orientations for them; in this way, the (Ministry of Education of Ecuador, 2020) established a virtual model for 2020-2021,

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whose purpose was to serve as a learning tool, thus guaranteeing the continuity of the educational system.

For this reason, at the university level, this modality was implemented through guidelines for the virtualization of face-to-face classes, an example of this was the University of Guayaquil, which carried out previous interventions to achieve the implementation of a digital method, since it did not have a system that allowed virtual education (El Universo, 2021). In this sense, when implementing the virtual modality, staff were trained on the use of web tools, videoconferences and Moodle platforms under Presence-Scope-Interaction-E-learning (PACIE) methodology; In the same way, the dynamics were accompanied by unforeseen connectivity, planning, guidelines and reduction of enrolled students.

The pandemic transformed the previously known reality and brought with it many changes, especially in education, technology became the protagonist through interactivity and interconnectivity, thus enabling the educational process. However, in the contributions of the second meeting of the virtual dialogue with rectors of leading universities in Latin America, it was indicated that during this process of educational change it was determined that teachers were poorly trained for teleeducation and as for the knowledge of the students, it was determined that they were overloaded with activities due to the lack of knowledge of the management of a virtual pedagogy by teachers (Vicentini, 2020).

The aforementioned provides a broad foundation for research, therefore, through the study it is intended to understand how ICT was used during the pandemic at the University, describing the learning experiences of teachers and their students.

Conceptual References

Learning and knowledge technologies

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Information and communication technologies have emerged as a result of advances in technology in the implementation of hardware and software in the areas of computing, telecommunications and electronics (Cruz-Pérez et al., 2019). In this way, the fusion of the aforementioned technologies gave way to the creation of various materials, resource storage sites, data retrieval and editing of information in a variety of spaces and formats.

In addition to this, in the field of education (Vaillant, 2013) he mentions that the implementation of ICT in Latin America should be promoted from educational policies, and the initial process should be considered as a support strategy in teaching-learning, thus increasing student productivity. In that order, the aforementioned authors propose that ICT should be applied in five areas: pedagogy, socio-ethical-legal elements, school management and professional development, in this sense teachers are able to take advantage of technology responding to the necessary skills; to maximize the use of tools and deepen educational digital content.

On the other hand, (Swig, 2015) shows that ICT in Latin America is underestimated and underutilized, especially in the classroom, because teachers have little mastery in the use of educational technologies that optimize learning. Therefore, the teaching process must be the protagonist of rethinking the relevance of a correct application of ICT, to integrate them into education, that is, to change perceptions about how technologies are used and their uses (Hernández, Orrego, and Quiñones, 2018).

According to the learning structures, it is important to mention that the methodologies that rely on ICT are those that take advantage of digital tools, to achieve student autonomy in the didactics of self-knowledge and in this way, they feel motivated to continue learning the rest of their lives (Pablos and Jiménez, 2007). In this context, the methodologies have the necessary relevance to improve the educational environment, knowing how to choose the different

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scenarios that are validated by the institution and the activities they need; therefore, the teacher must articulate technological tools to educational practices emphasizing communication, interaction, sharing and exchange information (Cortés, Cardona, & Parra, 2012).

These drastic but necessary changes have altered pre-established theories and generated challenges, especially in education, since the migration towards virtuality was a matter of obligation; where both teachers and students went through a sudden change, so the use of ICT was necessary and decisive not to slow down the teaching-learning process. Given this reality, (Palominos and Martínez, 2020) point out that handling information about technologies does not imply that you have the knowledge to teach through them, implying that it does not imply the student's ability to learn, that is, it is not enough to know technologies if it cannot be taught in the context necessary for the student to learn.

Virtual Learning

The sudden confinement resulting from the pandemic forced a process of adaptation, a new way of leading life, giving rise to the creation of diverse scenarios where the use of technology took center stage and began to transform physical spaces that over time were replaced by virtual spaces. In this sense, the virtuality associated with learning began to make its way as a training strategy whose intention was to solve the geographical limits of the students, of the so-called center of knowledge, in this way the necessary improvement can be obtained to approach the knowledge society.

In this context, online learning is also called network learning, virtual modality, the well-known e-learning, among others; It usually refers to training that uses the network as an information distribution technology, whether this network is open or closed. In this regard, (Schell, 2001) explains that the blocks that are studied in a virtual training, are designed with the

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objective that the instruction and evaluations are carried out with the resources that are accessible in the network.

In this sense, (Cabero and Gisbert, 2005) mention that network training has distinctive characteristics, it includes learning mediated by digital devices, browsers that allow access to information, diversity of communication promotion tools, flexible-individualized-collaborative learning, interactivity, among others. In this way, it can be expressed that the so-called network training refers to distance education based on the infinity of resources found in the network, which facilitates the communicative and interaction processes between teachers and students with some synchronous and asynchronous communication tools (Cabero, 2004).

As often happens with technologies, when they are incorporated into the educational field, they are granted a series of strengths and weaknesses that must be recognized and that have been given by different perceptions until the reality of the research. According to Cabero (2004) among the advantages of virtual learning can be mentioned that they show an infinite volume of information available to students, information is flexible regardless of space and time, facilitates student autonomy, offers various synchronous and asynchronous tools, facilitates collaborative training, favors interactivity, among others; In the same way, it mentions among the drawbacks of virtual learning the requirement of planning with different working time for teachers, in addition to the need to possess skills for autonomous learning, the imposition of loneliness, the existence of poorly trained teachers, the assumption of authentication problems and digital divide, among others.

It is important to consider that practice and experience will improve virtual processes as training is acquired and expanded together with the motivation to learn more about virtuality, developing virtual environments and as this modality becomes more common, you will learn from mistakes and improve even more. That is why, for network learning to be meaningful, it is

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valid to cite, on the one hand, principles that guarantee appropriate practices that constitute a reference for the achievement of significant training actions; On the other hand, a reflective process must be carried out on how networked learning evolves.

PACIE Methodology

When considering ICT for the development of educational processes, several implementation designs of some platforms for virtual classrooms have emerged, considering Moodle as an easy-to-use model for its efficient design; Therefore, easy access to virtual tools has led to a shift from traditional face-to-face education to virtuality without any methodological addition. There is an organizational methodology through virtual classrooms that aims to improve the teaching-learning process, so that it is a motivating and comfortable space for academic development called PACIE (Presence, scope, training, interaction, e-learning), this methodology was created by Eng. Pedro Camacho Founder of the Foundation for the Technological Update of Latin America (FATLA), whose purpose is to learn to easily manage educational processes under the change of modality, guiding these processes through the network implementing face-to-face didactic resources with digital resources (Camacho, 2007).

The acronym of the methodology, you learn about the process of Presence, which is given by the need for students to enter the virtual classroom, considering the use of a corporate image, maintain the same style between titles, texts, colors and images, without forgetting the use of attractive resources found on the web. With respect to the following process, the Scope is given by establishing a clear intentionality on which activities the student should perform, considering communication, support and interaction.

For its part, the Training process is where the promotion of self-learning in the virtual classroom is carried out, with the intention of enriching deep knowledge, as indicated (Hidalgo, 2010) at this stage the teacher emerges as a mediator promoting collaborative work so that in this

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way students acquire the experience of how they learn better, know each other in order to be autonomous; In addition, five stages are carried out in the Training: research, planning, creation and evaluation.

The Interaction process develops learning by doing, generating participation among all students in the virtual classroom; They are the protagonists of the educational process generating cooperation, motivation and friendship among them so that they achieve the construction of knowledge, allowing each one to appropriate them. Subsequently, in the e-learning process, the macro-curricular processes are considered, that is, it is associated with the virtual field unlike the previous processes that are associated only with the virtual classroom, as well as the virtual educational complex in its organizational part (Oñates, 2009).

Methodology

To carry out this study, a quali-quantitative approach was used, that is, a holistic and integrated approach, using both quantitative and qualitative methods, which will allow comprehensive conclusions and convergence of results (Pereira Pérez, 2011). For the collection of information, a sampling based on criteria and the snowball technique were used to identify the key informants, thus involving 15 teachers and 15 students from the University of Guayaquil.

In this sense, the methodology was carried out in three parts: the first corresponding to the quantitative approach developed by a descriptive transversal design, then the qualitative approach with a phenomenological-hermeneutic method and the last part correspond to the conclusions where they show the results obtained according to the construction of reality.

From the quantitative point of view, an instrument questionnaire was used, consisting of 28 items with Likert scale organized in three dimensions: Change of modality to online classes, ICT Knowledge and PACIE Methodology; This instrument had a content validity through the

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judgment of 3 experts in the area of technology, and in terms of its reliability, a pilot test was carried out and based on the results a Cronbach's alpha of 0.913 was obtained, indicating an excellent level of confidence.

With respect to the qualitative scope, the script of in-depth interview and focused testimony through video calls and Microsoft forms was used, to subsequently proceed to the analysis plan proposed by (González de Flores and Hernández Gil, 2011) which consisted of the phases of description, categorization and interpretation of the information; in turn, within each of these phases the sequence of steps proposed by (Martínez Miguelez, 2006) was used since each phase is made up of different mental activities.

Results

By virtue of the context of the study, the deconstruction of reality, its intentionality and methodology, an extensive accumulation of results were obtained in the proposed phases, so the most relevant results obtained in the study will be presented. In this sense, in the quantitative field as already mentioned, three dimensions were used in the construction of the instrument, therefore, the most important items will be shown by dimensions. For the qualitative approach, phenomenological and hermeneutic methods were taken into account and under this structure the interviews with social actors were coded, resulting in two categories of analysis called virtual methodology and virtuality in the university. The results from the quantitative perspective are presented below.

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Table 1.

Relevant items of the dimension " *Change of modality to online classes* "

	Totally agree		I agree		Indifferent		Disagree		Strongly disagree	
	f	%	f	%	f	%	f	%	f	%
3. It was easy to change from face-to-face to virtual classes	0	0,00%	1	6,67%	0	0,00%	3	20,00%	11	73,33%
7. Students were comfortable with the change in methodology	1	6,67%	3	20,00%	0	0,00%	1	6,67%	10	66,67%
12. The strategies used during the zoom classes were effective	0	0,00%	5	33,33%	1	6,67%	5	33,33%	4	26,67%

Source: Authors.

As can be seen in Table 1, the results of three indicators of the dimension "*Change of modality to online classes*" are shown; Thus, in item 3 referred to if the change from face-to-face to virtual classes was simple, 73.33% of respondents indicated that they strongly disagreed, 20% disagreed and only 6.67% agreed that the change was simple.

In this context, in the study conducted by (Sandoval, 2020) 84.6% of respondents indicated that it was difficult to adapt to the new teaching role with the teaching-learning processes in their educational context where they operate; As can be seen, the impact that the new modality had on the institutions that ALS.

On the other hand, in item 7, with the affirmation of whether they consider that the students were comfortable with the change of methodology, 66.7% indicated that they were in total disagreement with said statement, 6.67% in disagreement, 20% in agreement and another 6.67% in total agreement; based on this, we can observe that the majority perceives that for students the change towards virtuality was also an impact.

In this sense, (Sosa, Salinas, & De Benito, 2018) indicate that in the face of the changes that occur in the incorporation of technologies in education, teaching practice must be configured and reconfigured in the face of the demands of the context, therefore the impact caused on teachers by the change of modality from face-to-face to virtual, being a complex situation that made them rethink the meaning and form of the educational process.

In addition to this, in item 12 regarding whether they considered that the strategies in classes dictated by zoom were effective, 26.67% strongly agreed, 33.33% agreed, 6.67% answered indifferently, another 33.33% disagreed. As can be seen, the majority of responses had a negative tendency towards the effectiveness of the classes, coinciding with the study of (Cea, and others, 2020) where they point out that the type of strategies used in online education does not contribute positively to the teaching and learning process, since only by just observing and / or listening without having the challenge of interacting, And even more so knowing that content can be obtained in different places on the web, students could take it as a waste of time.

Table 2.

Relevant items of the dimension "ICT knowledge"

	Totally agree		I agree		Indifferent		Disagree		Strongly disagree	
	f	%	f	%	f	%	f	%	f	%
1. Trained in the use of ICT	5	33,33%	6	40,00%	1	6,67%	3	20,00%	0	0,00%
2. Possesses knowledge about ICT at a medium-high level	2	13,33%	5	33,33%	4	26,67%	4	26,67%	0	0,00%
10. Use external digital tools linked to Moodle, such as Educaplay, Mentimeter Liveworsheets, iVoox, Kahoot, Canva among others	1	6,67%	4	26,67%	1	6,67%	5	33,33%	4	26,67%

Source: Authors.

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With regard to the dimension "ICT knowledge", Table 2 shows the most relevant results obtained; thus, item 1 shows the results on teacher training in the use of ICT, 40% indicated they agreed, 33.33% indicated they strongly agreed, 6.67% were indifferent and 20% indicated they disagreed. In this sense, it is shown that most teachers indicated that they were trained in the use of ICT, in accordance with the study (Ferrada, et al., 2021) where 70% of teachers said they had received training in the use of ICT; This is considered common for the university professor to handle the use of technologies because it is part of his knowledge in his professional profile.

In this context, (Schiavo, 2007) indicates that if the teacher knows how to use technologies, he can accelerate the processes and reduce the time of dedication, considering that by having the teacher with technological support they contribute to promote new educational processes, with students who become protagonists of their own learning.

On the other hand, in item 2, faced with the affirmation of having a medium-high level of knowledge about ICT, 33.33% indicated that they agreed, 13.33% strongly agreed, 26.67% indifferent and another 26.67% disagreed. As perceived, the trend of responses is positive with respect to having an adequate level in the use of ICT, (Flores, De Alba, & Caicedo, 2020) mention that teachers should receive updates on the use of ICT for communicative platforms, thus developing knowledge of strategies and skills so that students can build meaningful learning.

Regarding item 10, on external digital tools to link on the Moodle platform, mentioning some known in the educational field such as Educaplay, Mentimeter, Liveworsheets, iVoox, Kahoot, Canva, among others; 33.33% indicated that they disagreed with its use, 26.67% strongly disagreed, 6.67% indifferent, 26.67% agreed and another 6.67% strongly agreed. As you can see, there is a negative trend in the answers about educational tools different from those of the Moodle platform established by the university.

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In this sense, (González, García, Erazo, & Erazo, 2020) indicated in their study that it is necessary for the teacher to train and self-train with topics related to online learning, especially in what has to do with the creation of virtual educational resources; Therefore, the authors mentioned indicate a proposal with a variety of programs, platforms and free applications such as those mentioned in the questionnaire, which allow the generation of resources that facilitate online education.

Table 3.

Relevant items of the dimension "PACIE Methodology"

	Totally agree		I agree		Indifferent		Disagree		Strongly disagree	
	f	%	f	%	f	%	f	%	f	%
18. Master the steps of creating virtual classrooms	3	20,00%	4	26,67%	3	20,00%	5	33,33%	0	0,00%
22. Has clear knowledge on how to improve classrooms with the PACIE methodology	3	20,00%	3	20,00%	3	20,00%	6	40,00%	0	0,00%
26. Know each of the processes of the PACIE methodology to integrate them into planning	3	20,00%	4	26,67%	3	20,00%	5	33,33%	0	0,00%

Source: Authors.

As shown in Table 3, the most relevant results on the dimension "PACIE Methodology" used in the university are presented; Item 18 shows the statement about mastering the steps of creating virtual classrooms 33.3% disagree, 25% indifferent, another 26.67% indicated they agree and 20% strongly agreed. In this sense, there is a positive trend on the steps to create the classrooms; however, an indifferent percentage is observed that can affect such results.

In this way, (De Luca, 2020) indicates that when teaching in virtual classrooms, the need arises for how the institutional platform is used, its tools and how to make the pertinent changes

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to it, since if the teacher does not handle this information, the techno-centric look of the educational proposal is reduced.

Regarding item 22, corresponding to the statement on clear knowledge of how to improve virtual classrooms with the PACIE methodology, 41.7% said they disagreed, 25% answered indifferently, 16.7% agreed and the other 16.7% strongly agreed. In this context, the answers given by teachers show a negative trend to this item, indicating that they do not clearly manage how to improve the classroom according to the PACIE methodology.

In addition to this, in item 26 according to knowing the processes of the PACIE methodology to integrate them into planning, 33.3% indicated disagreement, 25% were indifferent, another 25% indicated agreement and 16.7% strongly agreed. In this way, in the results provided there is a positive trend with respect to the theoretical scope of the PACIE methodology to incorporate them into teaching planning.

In this way, the authors (Basantes, Naranjo, Ojeda, 2018) mention that if the teacher clearly manages how the virtual classroom with the PACIE methodology improves the academic, technological, pedagogical and communicational organization of the teaching and learning process. Likewise, they indicate that the application of the PACIE methodology with respect to its incorporation into planning, potentiates curricular programs, collaborative learning, thus promoting the quality and warmth product of student interaction.

After performing the analysis relevant to the descriptive design of the quantitative approach, the phenomenological understanding and hermeneutic interpretation of the qualitative approach is presented through the categorization and triangulation of the testimonies obtained; In this sense, a summary of the two most relevant categories constructed with their subcategories will be presented.

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Figure 1.

Most important emerging categories of the study

Source: Authors.

In the category of "Virtual Methodology" it was intended to interpret what the social actors defined as a methodology in this educational modality, highlighting its most relevant characteristics, among them that virtual education is not different from any other educational modality, whose effectiveness depends on the student and the decisions he makes, coupling his time to academic activity and, Of course, the personal interest of each one. This is reflected in the testimony of Professor M.J. when he states: "... I think for the students this was a challenge, because it became a matter of responsibility and desire to learn, regardless of the way you start studying." The above assumes that the student must be honest in virtuality, since it will be the only way to achieve learning, otherwise he will only end up self-deceiving, as V.G. in his reflection:

> Of course, if you are sincere you have to be sincere with the modality of study, and know that the defect is not presented to the teacher but to oneself, because you can be excellent in a virtual class, and pass your subject with 100, with your perfect points, but when you go to practice you have nothing because you always relied on help, In

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someone you had next to you and told you, when you work on a platform you must read and do the activities yourself, because if it is useless. (para. 1)

In addition to the above, it is necessary to add that in virtuality the methodology implies not only the responsibility and work of the students, but also that the teacher adopts a role of companion and guide (Borges, 2007) consequently, the students become agents of their own formation, while the teaching action is oriented to mediate, Facilitate learning and solve questions in an environment where everyone teaches and learns.

As for the subcategory "characteristics of a non-traditional methodology", when addressing the issue of virtual education with the social actors of this research, different interpretations were generated, each of them had their own perception of the phenomenon, in this sense, we can speak of a relativistic ontology in which multiple versions of reality are produced, that are socially constructed. This perspective is assumed by the constructionist partner, for which there is no objective truth waiting to be discovered, as indicated by Sandín (2003) truth and meaning emerge from the interaction with our reality, since there is no meaning in the mind, that is, it is not discovered, but constructed. In this context, the social construction of that truth and those meanings to which the author refers can be observed in the following testimony, in which the teacher P.H. expressed what virtual education means for him:

Having to go home and try to carry out a teaching and learning process from there, led us to many reflections, the virtual modality is a use of resources that are hosted on the web that allow the promotion of innovative activities; if it develops as it should be, centered on the student, and the teacher must show off those resources. (para. 6)

This consideration is highlighted by (Sangrá, 2001) who comments that the characteristics of working on platforms, emphasizes the opportunities and materials available to teachers and students; The teacher must teach how to balance the interaction of students and the sources of

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information that accumulate knowledge progressively and thus develop the necessary skills. In this regard, the teacher C.A. comments the following:

> I believe that the use of technologies is the same as any other educational resource, it depends on how the teacher teaches its application, without bringing out the cut and paste as something everyday, promoting the connection to other digital tools such as creating live cards or contests in kahoot, is a matter of investigating and motivating. (para. 7)

When observing the testimony of C.A. there are countless reading materials in which it was stated that teachers asked for continuous training in the field, as (Prensky, 2011) explains that using technologies is the task of students, teachers if they want to can learn to use them, what is really important is how students can and should use technology to improve their own learning. For this reason, in virtuality, the teacher, rather than handling technology extensively, must focus and become an expert in his role as a pedagogue, using appropriate strategies to show students how to take advantage of technological resources.

In this context, (Ola, 2020) indicates that the pandemic has shown a different vision of technology in the educational field, making it vital to know and appropriate it; Hence, after these months of trial and error, the subjects could be modified for the virtual modality promoting a true autonomous and meaningful learning with all the free digital tools that already existed and were rediscovered during the pandemic such as the classroom, virtual whiteboards, Zoom, Kahoot games, Genially and others.

With respect to the subcategory "studying in a technological world" when talking about the educational methodology in virtuality, the authors (Duart and Sangrá, 2000) affirm that it revolves around the student, and his conception as that person who has his own criteria being independent and autonomous, indicating what has been repeated on several occasions, students are the protagonists and owners of their learning process that is regulated at the pace they need.

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Repeatedly. The social actors mentioned a key aspect of the student in virtuality "The student is responsible for his own learning", because virtuality offers many freedoms that can only be controlled by being responsible. In this regard, the student S.P. mentions:

> I think that everything was trial and error, first they sent individual activities and as it did not work, then they were group and with time to do them, then as I had some freedom of delivery and sometimes I did not have the internet, I left it for the end and everything accumulated, I failed my responsibility, but also my colleagues sometimes did not understand, It was a bit tangled the truth. ((para. 4)

According to the above, the student presents certain doubts regarding how to do things, theoretically authors such as (Lira, 2005) indicate the characteristics of students in virtual education is to take responsibility for their educational process, the protagonism in the construction of learning, academic maturity, mastery of technological tools and others. However, (Aguilar, 2020) mentions that in times of pandemic the learning generated has been precarious since the contents were deepened, without monitoring the students' competences, the use of group work on the platforms did not contribute to the consolidation of learning, coupled with the fact that many students did not show adequate spaces for their classes or did not have electronic devices or internet for them. In this context, the following reflection of Professor M.J. is of utmost importance:

> Virtual learning is supposed to give a leading role to students, who must build knowledge through collaborative learning, but this rarely happened, the level of anxiety and stress generated by confinement, I think it made them feel lost from what was happening, well and if you add to this that teachers reduced the contents, What I gave stipulated for two classes I gave in ten to make a scale, the depth of content was not the same

Despite the above, it is relevant to show the sense and meaning of technology in the educational field without dismissing that it depends on the perception of each teacher or student as indicated (Aguilar Gordón, 2011), technology in education can be seen from 3 reflections: from the subjective appreciation of technological action, from the objective description of the

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technological process and; from the results achieved. For his part, R.R. student of the first semester, when consulted in relation to this topic, adds:

> Using virtual classes as part of my academic load is something interesting because despite presenting little knowledge of these media and web tools, I have had to learn how to handle these technologies, and what better way than in the academic activities that are taught to us because that is where you can see what difficulties we present and how to improve them. (para. 15)

As observed, the perception of this student is different, perhaps the disposition to technologies, not having a previous experience in the university; In relation to this, (Roquet García, 2008) mentions that for the virtual student this modality can be more flexible, since everyone can decide which route to take to obtain knowledge, according to their time and their own interests, in this way they will have more freedom and autonomy when learning.

On the other hand, when referring to the category of "Virtuality in the university" some doubts arose about what should be done and the changes it brought, the accelerated growth of the pandemic made universities that had not established this modality learn on the fly and virtuality today has permeated the entire society, as commented by the teacher F.T.

> Technology is an existing reality in all areas of daily life, social networks are number one for everyone, but in these months we realize that this is not knowing technology, with the pandemic we forced ourselves to immerse ourselves in true educational technology, perhaps, we all had to learn something. (para. 8)

In that sense, the conditions that led to transform the teaching process, the unexpected change of educational modality by radically moving to virtuality, it is important to reflect on where university education is heading when immersing itself in virtual education. In this regard M.J. Responds:

> All this issue of the virtual in the university points to encourage them to set up their classrooms, not suddenly as when the pandemic began, but to give love to the virtual classroom, to use in a comprehensive way the PACIE methodology, I for example have a virtual classroom that has two years rolling, two years improving its content,

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And of course I think I'm already in the capacity of the next leap to propose a curricular change. (para. 1)

And towards that reality is where the university is heading, to new curricular programs from virtuality, it may need more motivation now that face-to-face is resuming, to study the elements of the methodology with calm and depth. Therefore, a greater boom is visualized when developing content, training, new strategies and resources that allow having a compendium of technological elements for the development of the corresponding subjects.

With respect to the subcategory "starting in virtuality" a basic element that emerged in the narratives of the social actors regarding the virtual dynamics of the university is shown, and refers to whether the virtual modality is convenient for students, based on his experience with the virtual classroom the teacher M.J. commented the following:

> ... I told them that I thought the possibility of that asynchronous interaction seemed to me a very great comfort, there were groups where they were all aware of what was there the next day, because they are very active groups, and each one contributed, and each one added something, look at this, look at that, and there were other groups that did not, that were limited to what was asked of them and did not even generate interaction. One does not know if they really learned, it will always depend a lot on how the students adapted to this new scenario. (para. 5)

When interpreting this, we must remember that planning how to generate interaction in a virtual classroom is the most important thing for learning success, since it is the strategy for students to participate in the activities, where they are motivated and feel the accompaniment thus having new expectations and not get bored of the environment. Given the previous testimony, (Aguilar, 2020) indicates in his study that virtual education during the pandemic did not allow to achieve meaningful learning or student autonomy; In addition to this, middle-class Latin American families lived precariously educational policies in this digital age, the abrupt confinement led to isolation with a virtual reality with symbolic languages breaking a conception of space-time.

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That is why the perception of virtual education changes in a scenario that was not prepared for this as the testimony of F.B. who comments "I felt it was the same face-to-face class, but by video call, but I was intimidated to ask if I did not understand, I did not want everyone to see that it was me". On the other hand, a relevant aspect that emerged from the voices of social actors, specifically students, was the fact that they accept virtual education to a certain extent, since they claim to need the face-to-face accompaniment of the teacher at some point, as indicated by S.P.: "I like to work in the virtual classroom, but I need to see the teacher and debate with him, If they leave me alone with the activities I don't know what I would do, even in the video call it's strange."

Based on the previous testimonies, (Tennuto, Klinoff, & Boan, 2003) indicates that virtuality creates a new training environment with organizational structures that need teachers and students to have favorable attitudes to interact with technological resources; Recalling that the pandemic replaced the classroom with environments adapted for educational development such as dormitories, living room, living room, study room and others; In addition to the interactive family evolution that this brought, it depended on the attitude that both teachers and students added to it.

From the subcategory of "Student perception of interaction" In the new educational scenario, virtuality, through forms of social interaction, is the main protagonist because the relationship between technology and the construction of social processes is inseparable from the dynamics of life and is evident in different historical moments (Briggs & Burke, 2002). This interaction is carried out through the virtual activities that the teacher performs, in which the student can socialize. That is why V.G. comments on the experiences he has had:

> Well, we did things apart from the classes by video calls, we worked once with the livework with cards to fill with what we learned, they put the link as at the beginning,

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because many of us got lost looking in the classroom ... We also did exams in the virtual classroom, of course there is the advantage that one can have a photo, but there were questions that did not necessarily have to be investigated but that had to have the immediate answer because there was a lapse of time, you had to prepare first. (para. 4)

This testimony of V.G. makes us see that of so many resources that exist in the network as well as those presented in the Moodle platform I only observe that two different resources were used to the video calls by zoom, in this sense, (Orihuela, 2012) explains that the option of students to access these resources, must be integrated with the objectives and didactic strategies of each subject, Because through technology you can learn better and faster, as well as understand and interpret the way in which the appropriation of technology transforms culture.

In this way, (Coll and Colomina, 1990) emphasize that the interactions between students have a definitive impact on the achievement of some educational objectives, taking into consideration the aspects that are given by the cognitive functioning and the social aspect of the students. In this sense (Onrubia, Colomina, and Engel, 2008) explain that to have a correct interaction should be considered a good planning that includes: 1) the characteristics of the tasks to be presented; (2) the use of groups; and 3) teacher behavior; These variables interact with each other in complex ways to achieve the significance of the interaction.

As pointed out by the cited authors, it can be interpreted that teaching strategies in virtuality are important for the student to integrate and interact in academic activities. However, this interaction must occur spontaneously. In this context, S.P. also thinks "I thought it was good that they placed a minimum limit of three participations, because if not then they did not participate" and R.R. highlights what was exposed by commenting "the demotivating thing was that some colleagues were as if they felt obliged to participate and leave it for the last moment".

In this context, in virtual environments there is a lack of socialization, coexistence, this reality sometimes prevents the management of emotions, either due to the low management of

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technologies or the lack of resources; as indicated (Zizek et al., 2008) when one is in an isolated virtual space, the reconnection with reality is abrupt, this is due to the fact that social contact is given by confrontations and mediations, not observing this mechanism in virtuality impacts its production.

Final Thoughts

In consideration of the educational changes that have been evident since the beginning of the pandemic, the new virtual modality that began to be developed has become a challenge for teachers who initially resisted change, having as a challenge to achieve fast and effective strategies that motivate by generating adequate digital resources to their students. In addition to this, the life and professional expectations of students have now changed, now they are given to the new pedagogical content and the university must address the concerns they have and adapt to their needs.

Based on the above, it is important to mention that the mixed approach used in this research allowed to analyze, understand and interpret from different foci the university institutional reality, in the one sense with the data obtained through the questionnaire and on the other, the qualitative data obtained through interviews, observations and testimonies. as well as the management of other visions that were not estimated at the beginning of the investigation and that were fundamental to finalize.

From the quantitative point of view, when performing the descriptive analysis it was evidenced through frequency tables, that, in the dimension of change of modality to online classes, 82% of the teachers indicated that it was not a simple change, the strategies used were not efficient, the physical and network media were not suitable for an adequate development and the students did not feel comfortable throughout the process of changing modality.

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Regarding the dimension of ICT knowledge, 76% of teachers indicated that they were trained in the use of technologies, indicating medium-high levels of technological mastery, as well as the necessary tools for optimal educational development; However, in the present dimension a disturbing percentage was observed with respect to the use of educational digital tools, which would be interesting to expand in another investigation.

In the last dimension of the quantitative approach, corresponding to the PACIE methodology adopted by the university, divided results were observed, 80% indicated that they theoretically handled the methodology however they also indicated that, in practice, to edit and apply in the classroom such theoretical knowledge do not have the clarity for it. It is important to highlight that the PACIE methodology has an infinite number of benefits that allow achieving the objectives of the teaching and learning process, highlighting values of responsibility, commitment and self-learning, only if applied gradually and reflectively.

On the other hand, for the qualitative interpretation of the constructed reality, through immersion in it, categorization and theorization were carried out according to the analyzed testimonies, obtaining qualitative findings that revolve around three edges: The accompaniment of the student is necessary to appropriate the technologies, this was identified in the testimonies where the students indicate their impact associated with loneliness, They needed more support to adapt and understand the technology and the process of building their own learning.

The next finding evidenced was that the university after a long process of inspection and digital improvement, is prepared to continue a process of virtual or semi-virtual education according to the decisions made as an institution, since they established work guidelines with PACIE platform and methodology, which when used properly could change the vision of student teachers; It is of great relevance to highlight that in this finding, a crossing of information was obtained with what was obtained in the quantitative field.

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The last finding that emerged from the research process was that teachers need to live virtuality from a student perspective, in the triangulation of this finding it was evident that most teachers have not gone through an adequate virtual experience, since when you observe a PACIE methodology as applied in FATLA, who analyze your profile to build your virtual classroom, perhaps their vision of how virtuality should feel, change.

As a final interpretation, it can be recalled that the changes experienced in the educational field at the beginning of the pandemic were complicated, either due to lack of knowledge to function in virtual environments, the need to adapt as a requirement to continue and indisputably accept immediate ICT training was a challenge. Based on the experiences emanating from the testimonies, it is perceived that despite the abrupt changes a spark began, a process began to spread generating more concerns that must be resolved, the methodologies associated with virtuality came to break barriers not only of space-time but also sensory.

In this sense, it is not yet known where education is heading after this technological immersion, but it was evident that a previous design is necessary, with greater tranquility, with spaces to enjoy and learn from the process from the teaching and student point of view, in this way, the gears work properly, since the proper use of the methodology in virtuality from teaching and from students, It may be whatever it takes to change the vision of virtuality.

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