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# Virtuality in university teaching-learning versus COVID-19

Virtualidade no ensino-aprendizagem universitário em face da COVID-19

La virtualidad en la enseñanza-aprendizaje universitaria frente al COVID-19


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**Abstract:** The research aimed to analyze the use of virtual resources in teaching-learning in times of pandemic at the Daniel Alcides Carrion National University. The methodology used was of qualitative approach through field work to explain the behaviors assumed in the processes of learning management by students and teachers. The information was collected through various techniques such as observation of virtual classes, documentary analysis, and focus groups with students, unstructured interviews and, in depth, with experts in the subject that allowed us to conduct the discussion and triangulation. The results allowed us to affirm that students recognize the importance of technology and the use of ICTs for their professional training; in addition, students and teachers have been demonstrating high levels of value, responsibility and commitment to their learning.

**Keywords:** Teaching, Learning, Information technologies, Communication technologies.

**Resumo:** O objetivo da pesquisa foi analisar a utilização de recursos virtuais no ensino-aprendizagem em tempos de pandemia na Universidade Nacional Daniel Alcides Carrión, cuja metodologia utilizada foi uma abordagem qualitativa, trabalho de campo para explicar os comportamentos assumidos nos processos de gestão da aprendizagem por alunos e professores. A informação recolhida foi efectuada através de técnicas diversas, como observação de aulas virtuais, análise documental, grupos focais com alunos, entrevistas não estruturadas e em profundidade com especialistas na temática que nos permitiram realizar a discussão e triangulação. Os resultados encontrados permitem

afirmar que os alunos reconhecem a importância da tecnologia e do uso da ict para sua formação profissional e que alunos e professores vêm demonstrando elevados níveis de valor, responsabilidade e comprometimento com sua aprendizagem.

**Palavras-chave:** Ensino, Aprendizagem, Tecnologias da informação, Tecnologias da comunicação.

**Resumen:** La investigación tuvo por finalidad analizar el uso de recursos virtuales en la enseñanza-aprendizaje en época de pandemia en la Universidad Nacional Daniel Alcides Carrión, cuya metodología empleada fue de enfoque cualitativo, de trabajo de campo para explicar los comportamientos asumidos en los procesos de la gestión del aprendizaje por parte de estudiantes y docentes. La información recogida se realizó bajo diversas técnicas, como la observación de clases virtuales, análisis documental, focos groups con estudiantes, entrevistas no estructuradas y a profundidad con expertos en la temática que nos permitieron realizar la discusión y triangulación. Los resultados encontrados nos permiten afirmar que los estudiantes reconocen la importancia de la tecnología y del uso de las tic para su formación profesional y que estudiantes y docentes vienen demostrando altos niveles de valor, responsabilidad y compromiso con sus aprendizajes.

**Palabras clave:** Enseñanza, Aprendizaje, Tecnologías de la información, Tecnologías de la comunicación.

## INTRODUCTION

The global health crisis, a product of the covid-19, has placed humanity before a challenge never seen before and has highlighted the fragility of man in the face of nature. Peru is no stranger to such a difficult situation that affects other activities that make coexistence possible, one of which, the most important, is education.

This new scenario implies a different behavior from that of university teachers, in terms of mastering ICTs and managing virtual environments. For more than twenty years dedicated to teaching at the Faculty of Communication Sciences of the Daniel Alcides Carrión National University, the presence of the teacher in the classroom was the common denominator for theoretical and practical teaching. Although in the last two years the Classroom was used as a digital support platform, the educational praxis was based on teacher-student interaction from the classroom.

This situation presents a great challenge for the actors in the educational process: the teacher and the student. In times of pandemic, digital education becomes a lifeline to guarantee the objectives and the right to education; moreover, it awakens from the lethargy in which Peru was in terms of digital education. The question that arises is how does the use of virtual resources affect teaching-learning in times of pandemic among university students?

The research demands an exhaustive involvement with the object of study; therefore, the qualitative approach was assumed, which allows to understand the phenomena and to deepen the interpretation of the data. From the epistemology of qualitative research, we will approach the phenomenological method which is the most recommended when the researcher has not had contact with the phenomenon to be studied.

## LITERATURE REVIEW

In the literature, there are many definitions of ontology, the most quoted being that of Gruber (1993) who refers to it as a formal, explicit specification of a shared conceptualization; conceptualization is understood as an abstract and simple vision of the world to be represented, a representation of knowledge based on objects, concepts and entities that exist in the area of study. For his part, the philosopher of society, John Searle, called subjective ontology the trait that characterizes social facts and stressed that subjectivity is a condition for the existence of entities and the mental capacity of subjects to provoke actions (Fotion, 2019).

The goal of the research was to analyze and explain the use of virtual resources in teaching-learning during the pandemic.

The unexpected transition from face-to-face to virtual higher education commits teachers to take up the challenge by testing their training and responsibility. In this regard, a study with 50 teachers identified the priority skills that should be possessed for virtual work; the study showed that the ability to follow the student and timely feedback are the first to be considered (Bossolasco & Chiecher, 2015). Regarding students' competences, Cano & Domínguez (2018) carried out a research with 125 randomly selected university students, the result was that 92% of them have a high degree of skills for the acquisition and selection of information in digital media; while 8% show that they are not qualified for it.

The search for international literature allowed finding the work of Veytia & Leyva (2017) regarding the use of the Moodle platform in the teaching-learning process for the subject of Literary Appreciation I; the authors determined that the forum is the technological resource with the greatest impact, since it allows the asynchronous exchange of opinions and arguments between teachers and students; it also shows how students increased their literary reading habits. These results coincide with Barrera and Lugo (2020) when they state that the academic forum and the online evaluation achieve better results in the students' average grades and allow them a better interactivity in collaborative works and, on the teacher's side, it allows constant feedback, as well as the monitoring of academic progress.

Both Montagud & Gandia's (2014) and Pastor et al., (2018) studies sought to understand the impact of the Virtual Learning Environment (VLE) on academic satisfaction and performance. The first, said that the EVA not only facilitates learning, but increases academic performance and motivation in the student, also incorporates methodologies and evaluation systems in the development of skills and competencies that can be extended to any subject. Meanwhile, the second author presented a proposal of e-learning design patterns to create online courses used in EVA, which implies that it could be incorporated into any web platform such as Moodle or Blackboard or others; adopting a pedagogical component that complements the teaching-learning strategies.

The national literature presents the research of Melgar et al. (2019), who determined the relationship between educational technologies, social skills, and decision making in university students; the study points out that a significant relationship exists and determines the importance of social skills in decision making. In the same context, we find the research on immersive learning by Ayala et al. (2020) to insert the student in a virtual world similar to reality; they emphasize the need to employ a methodology that allows the student to understand how knowledge is created during the teaching-learning process. They concluded that immersive learning has been a success since it has achieved significant learning.

Regarding digital teaching skills, always at a national level, the works of both Saboya & Lazo (2017) and Rojas et al. (2019) were of valuable contribution; the former discovered the knowledge and practice in the management of social networks as a collaborative teaching resource through a transversal research of descriptive type and quantitative approach carried out to 100 teachers from a private university. While the second one, it was proposed to know the effectiveness of the application of the Digital Literacy Module in the digital competences through the quasi-experimental design with 22 teachers from Huánuco. From them, it is clear that 42.9% of teachers use social networks for personal use and 19% use them for entertainment, which shows the inadequate use of this resource. However, the second study confirms that the Digital Literacy Module contributed efficiently in developing digital competencies.

Finally, in the context of didactic trends in virtual education for higher education, there is the work of Pando (2018) who interpreted some of the trends given by different authors. His study was based on the documentary review of interpretation and analysis. The results showed that the tendency of technological didactics can be developed through the currents of behaviorism and connectivism.

Since the 1980s, technology has abruptly changed people's daily lives, forms of communication and education. A new theory of learning called connectivism arises, its author George Siemens supports it by pointing out that individual knowledge depends on a system of networks that supplies information to an organization which in turn returns new information, the growth cycle of knowledge continues when the individual accesses the system again (Siemens, 2004). In addition, the use of digital resources allows students to obtain new content, identify credible content and differentiate between opposing data. Knowing how and where to find valuable information is the new vision provided by this theory (Fiore, 2018).

Connectivist theory appeals to the ability to weave connections from diverse sources and maintain them to make way for continuous learning and, as this information is integrated, a new climate of thought is born. This permanent updating and acquisition of knowledge is not necessarily for the student; it is also to enrich a new database (Duke et al., 2013). The contribution of connectivism lies in the search to fill gaps and inaccuracies left by the classic theories of learning, which, according to Siemens, have

their Achilles heel in the relationship that should exist between increased knowledge and the speed in which it is provided (Siemens & Conole, 2011).

## THE CONNECTIVISM

There are several antecedents to connectivism, among them, the School of Gestalt that considers the learning process as a time of acquisition and development of new knowledge or the transformation of the old (Wertheimer & Riezler, 1914). It supposes an active role of the student in his learning, for example, putting him creativity and interest to explore unknown environments. The School of the Gestalt and the connectivism coincide in the need to reform and adjust permanently the learning network (Sánchez et al., 2019). Some Gestalt School laws such as similarity and proximity are also laws that reflect the particularity of the human mind to make connections and associations (Rock & Palmer, 1990).

The main characteristic of the virtual learning proposal is the constancy in the interconnection between the student and his environment, including social networks such as Facebook, Instagram, among others (Maldonado, 2017). According to Rivera et al. (2017), there are very marked differences between traditional distance education and digital learning or e-learning, for example, e-learning will be possible only through the Internet and the use of ICT.

In this theoretical perspective of learning, it is necessary to make some differences between the previous proposals to the new connectivist proposal; for example, the Constructivist Theory of Learning defines learning as a process of construction that is consolidated through the contact between the apprentice and the social environment and, consequently, the modification of their mental structures. In the same line, Learning by Discovery appears to refer to an unintentional learning and the setting of challenges to the learner in order to modify his or her interests. In addition, it proposes as a basic condition the permanent teacher-student dialogue for the achievement of learning (Bruner, 2001).

The theoretical contributions of Vygotsky and Ausubel are significant for understanding the complexity of learning and how to achieve it. The first one, Vygotsky (1932-1978), defends the idea of the competence and the social environment for the achievement of learning; in the zone of close development, he coincides with the connectivism when he refers that the capacity to increase knowledge is more important than what is already known (Siemens, 2006). In his time, Ausubel (1964) defined learning as the process through which meanings are attributed from the understanding that the new has to be linked with the old and in that transformation more complex knowledge is acquired.

The contribution of the construction of meaning in learning has derived in the evolution of cognitivism towards a curriculum based on the student (Abrío & Bermúdez, 2017) who exercises a leading role during learning, since it is he who elaborates and structures this process as he

gives meaning to the new knowledge acquired. Cognitivists focus on the identification of the learner's mental processes as a condition for learning. It is not enough to observe, it is necessary to pay attention to the capacity of the student to organize his internal world as a response to the experience (Fontana, 1981). In addition, Bloom incorporates three types of skills or forms of learning that he calls domains: cognitive (thinking), affective (feeling) and psychomotor (doing) (Bloom et al., 1956).

As it can be inferred, before nor now the theoreticians and specialists have agreed in defining the concept of learning; the constructivists emphasize the importance of the conscience, the free will and the social environment for the consolidation of this. In addition, they believe that learning occurs by thinking and reflecting on the new information obtained in the environment and the discussion. Rogers (1969) assumes this position and affirms that each person develops in a world of constant and changing experiences in which he is the center. Therefore, it is important that teachers induce the student to create and give meaning to things through analysis and the gradual construction of knowledge, this as a result of a conscious and permanent mental process. Spaces for deliberation such as forums, seminars, group work and the development of projects are key to developing learning.

In terms of Prieto (2008), the competencies are intended to show that the person is able to perform tasks with a certain degree of preparation and sufficiency. In this regard, Tobon et al. (2010) point out that they are integral actions to identify, interpret and solve problems in an appropriate manner, putting into practice the knowledge of knowing, doing and being. In the university environment, competencies constitute a series of attributes in terms of knowledge and its application. According to Cano (2008), the main characteristic of the competence is the one that corresponds to the articulation of knowledge in the conceptual, procedural and attitudinal aspects. These stages of university training in education, now in times of pandemic, are developed through connectivity and digital resources.

The theoretical range puts in controversy the nature of knowledge and although the reasons of each author were sustained with scientific rigor, who do we believe, what does it constitute and how is the truth validated? From the teaching point of view, how do we make students acquire knowledge? It is clear that the strategies and the use of technological resources chosen to provide teaching are nothing more than answers to the beliefs and assumptions of the teacher regarding the nature of knowledge. From this, it follows that the ways of teaching in higher education obey to one's own beliefs and to the consensus agreed upon in each academic environment. The question now is how do we know what we know? What makes us believe that something is true? Questions that are epistemological in nature (Hofer & Pintrich, 1997).

## METHODOLOGY

From the classification of the types of research, the work is located in the field, as it aims to describe and explain the attitude and behavior assumed by the object of study at a given time. Having defined the idea of research and the desire to find results in the research process, the qualitative approach fits in with the objective pursued by the study.

The purpose of the researcher is to collect the greatest amount of information and data from the students themselves who have assumed this experience, consequence of the world pandemic, from their own optics, language and expressions (Cook & Reichart, 1979; Fernandez and Diaz, 2002). According to Creswell (1998), qualitative analysis resembles a spiral through which various facets of the same phenomenon are aired.

### *Study scenario*

The research space is located in the Faculty of Communication Sciences of the National University Daniel Alcides Carrión (UNDAC), located in the Pasco region at 4380 m.a.s.l.; it has a frigid climate all year round, varying at the edge of the forest; most of the population is dedicated to mining activities. UNDAC has 11 faculties and more than 21 professional careers, with a student density that exceeds 7,000 students in its headquarters and branches. Its geographical location allows it to receive students from the central highlands and jungle, including Lima and other places in the country. For the particular case of the study, the central headquarters located in the district of Yanacancha-Cerro de Pasco and the branch of La Merced, located in Chanchamayo-Junín, have been taken as a scenario. The object of this study is made up of students from the Faculty of Communication Sciences at both the headquarters and the branch, young people whose ages fluctuate between 18 and 20 years.

The observation from the qualitative research goes beyond the simple vision from the sense of sight; it supposes an exploration and description of all the elements that constitute the unit of study, analyzing and understanding the role that the actors play and giving meaning to the situations that are given with the passage of time. The purpose of this technique is to enter into the personal and private life of the individual in order to obtain information about his or her daily life, while at the same time understanding his or her emotions, attitudes and behaviors with respect to certain events (Cicourel, 1982). The researcher explores and tracks the data that are most important for the purposes of the investigation; this instrument allows us to know people by decoding what they want to say (Taylor & Bogdan, 1990).

It corresponds to the analysis, review and evaluation of the documents that allow us to discover and understand how the teaching-learning process through virtuality turned out to be positive or negative. This type of analysis demands the collection and systematization of the student entrance tests for the current academic year; evaluation by



competencies, the registration of grades and other evidence that allows for the measurement of learning progress or not, which is the subject of this research.

The study is holistic, i.e., of the whole and not of the part of the problem posed; it is naturalistic insofar as the data will be auscultated from the very environment in which the students operate and discover its context as their learning routine. It is also interpretative, since the supreme goal is to understand and make sense of the undiscovered phenomenon from the meanings of the attitudes and behaviors of the unit of analysis.

The data collection was carried out in two stages: 1) the initial immersion, which was already carried out during the elaboration of the present project through the involvement of the researcher with the environment to be studied. At the same time, the contributors of the information were identified and committed; for this case, students from the Pasco headquarters and the Chanchamayo branch of the School of Communication Sciences-UNDAC and 2) the deep immersion, which involves the collection of information through unstructured observation, in-depth interviews with open-ended questions to receive verbal and non-verbal information virtually (through the meet) as audiovisual evidence, as well as written interviews to be answered by the participants through virtuality.

According to specialists, the method of analysis can be as simple as using a sheet of paper divided into two parts: side 1, for descriptive annotations and side 2, for interpretative annotations. On the other hand, technology now supports this exercise from the application of software that allows to process texts and audiovisual material. Although information collection involves an inductive process to explore, discover and, if necessary, generate theories, in this section, it is up to the researcher to analyze results and draw conclusions in order to gradually understand the phenomenon being studied.

Of all the information obtained, the one that was most useful for the purposes of the research was selected, such as the transcription of the interviews, the audio and video review, and the statements of the focus groups, up to the review of the documents obtained. The first action consists of exploring the data obtained; giving them a structure to assimilate and systematize the experiences described by the researchers. To find concepts and discover patterns that are repeated in the field work; furthermore, to try to understand the context in depth and to reconstruct the arguments and events narrated.

The ethical aspect was centered on the contribution of suggestions and recommendations from the actors themselves who, inserted in an involuntary way in the new teaching-learning process now based on virtuality, have had to assume other positions, correct attitudes and behaviors to face the challenge.

**Table 1**  
Categories, subcategories and categorization matrix.

### *Participants*

The study is made up of students from the Faculty of Communication Sciences; from both the Headquarters and the Branch, young people whose ages fluctuate between 18 and 20 years. Children of mining parents and business entrepreneurs, in the case of Pasco students; while those of the Branch come from families dedicated to agriculture and livestock. All of them, attached to the School of Communication Sciences of the Daniel Alcides Carrión University.

### *Techniques and instruments for data collection*

**Observation:** Observation from qualitative research goes beyond the simple view from the sense of sight; It involves an exploration and description of all the elements that make up the unit of study, analyzing and understanding the role played by the actors and giving meaning to the situations that occur over time. In addition, an attempt will be made to identify the problems raised in this new teaching-learning process through virtuality and, if possible, to generate a hypothesis for later studies.

**In-depth interviews:** The purpose of this technique is to enter into the personal and private life of the individual in order to obtain information from her daily life; at the time of understanding and understanding his emotions, attitudes and behaviors, regarding certain events. (Cicourel, 1982). The researcher, is exploring and tracking the data that are most important for the purposes pursued by the research; This instrument allows people to know by decoding what they want to say (Taylor & Bogdan, 1990). In this scenario, there is no question and answer booklet, a script is formulated regarding general topics that will gradually be addressed in the interaction. In this sense, whoever asks will appeal to personal contact and the trust achieved during the interconnectivity between teacher and student.

### *Process*

Two were the moments to specify the data collection; the first, the initial immersion, which was already executed during the preparation of this project through the involvement of the researcher with the environment to be studied. At the same time, the contributors of

the information were identified and committed; for the case, students from the Pasco headquarters and the Chanchamayo branch of the Faculty of Communication Sciences-Undac. The second moment corresponds to deep immersion, the same one that involves collecting information through unstructured observation, in-depth interviews with open questions to receive verbal and non-verbal information in a virtual way (through the meet), such as audiovisual evidence; as well as written interviews to be answered by the participants through virtuality. Also, the meeting of focus groups has been considered, always using interconnectivity, for discussion and analysis of the phenomenon from the participant's own perspective, using open and semi-structured questions. In this data acquisition process, the information that has been obtained from the students' own evaluations during this new experience was considered, with respect to previous years in face-to-face education. Both the entrance tests and the qualifications obtained from the conceptual, procedural and attitudinal competencies are important documents to take into account in this analysis.

## RESULTS

With regard to the objective of analyzing and explaining the use of ICT in the learning process in times of pandemic, the information collected allows the analysis of the use of virtual resources in the learning process, where students have shown that their participation is done through PCs (15%), laptops (35%), cell phones (50%) demonstrating that students lack technological resources to perform virtual or remote processes, in addition to connectivity.

However, the total of students consider that electronic devices, both laptops and cell phones, are the digital tools that have allowed them to continue their virtual studies in order not to lose the academic year; but these are limited by the problem of connectivity. Bossolasco & Chiecher (2015) considered that the unexpected move from face-to-face to virtual higher education commits teachers to take up the challenge by testing their training and responsibility; and, for students, the need to identify the priority skills they must possess for work via virtual training, for example, monitoring and feedback.

With respect to the objective of analyzing and explaining the learning process in times of pandemic, students consider the Classroom platform to be the most appropriate and optimal for virtual teaching due to the variety of uses it incorporates into the system such as attendance registration, class sessions and educational materials. It also allows students to enter assignments and learn about evaluation results in real time. On the other hand, they admit that the use of the Classroom for several hours means a greater consumption of the Internet; but they recognize that the platform is more practical than the Zoom and has forced them to change some habits such as being more disciplined and punctual in the delivery of tasks.

Another important finding is referred to the importance of the forum as an educational tool to promote debate and support of various points of view around a question or issue generated by the teacher. Likewise, they give the exhibition work the moment to interact and exchange new information, as a contribution of each of its members, and the demand to give more time to the research to share new knowledge between the members of a group and these, in turn, to other groups. All teachers should apply the forum as a study strategy.

## DISCUSSION

The importance of the research by Cano & Domínguez (2018) who found that 92% of participants have a high degree of skills for the acquisition and selection of information in digital media, highlighting the importance of handling information technologies in learning in higher education. This is reinforced by the work of Morales, Infante & Gallardo (2019), who established that 60% of teachers use didactic and technological resources that help strengthen digital competencies; likewise, the work of Hernández, Orrego & Quiñones (2018) explains the importance of ICTs in the teaching process that leads to a reflective, constructivist and evaluative domain.

For Carbajal (interviewed expert), before we had a traditional teacher-student education where the first was the protagonist, now it is the opposite; we are in an interactive class, where the student is the protagonist and the teacher is the facilitator of that knowledge. Today we can understand how it was a classroom, we called it synchronous, where we were synchronized with the student and now we can make it asynchronous, that is, through videos or work via Classroom. This modality has allowed the transformation of education, now we can see that the students investigate, navigate through cyberspace and have all the knowledge; at the same time it has become a challenge for the teacher as he or she has to continue investigating. So today nobody owns the truth, even the student now challenges and discusses the teacher with the new information acquired. This is the advantage of ICT, before the teacher gave his knowledge and the student was the passive object that believed in it, this has changed because now it investigates, analyzes, refutes and criticizes.

The work of Veytia & Leyva (2017) on the use of the Moodle platform determined that the forums are technological resources with greater impact, since it allows the asynchronous exchange of opinions between teachers and students; but this asynchronous work required the availability of resources and the management of digital skills that allow the proper use of various applications for the fulfillment of the tasks assigned by teachers. Barrera & Lugo (2020) also state that the academic forum and online evaluation achieve better results and allow better interactivity in collaborative work.

The study referring to the use of virtual platforms in a Colombian public university of Prada et al. (2019) concluded that teachers consider

it a useful tool for the process; but they consider difficulties in the feedback due to the lack of coincidence in the times. The students consider their activities saturated and see limitations in their use due to the connectivity conditions; however, they highlight the importance of this digital resource for the support and strengthening of autonomous learning.

From the findings in the study, it was evidenced that the students, being located in different zones of Pasco (Yanacancha, Chaupimarca, Chacallán, Huallay, Paragsha, Huariaca) and of Chanchamayo (San Ramón, La Merced, Villa Rica, Perené), present difficulties in the service of Internet; for example, the variation by the subject of the height and the climatic changes, both factors influence so that the quality is optimal or deficient. In spite of the circumstances and factors of influence, most of the students consider that the service of the internet is of good quality; as long as there is no rain, hail or snow.

For Cuyubamba (expert consulted), the pandemic has forced both students and teachers to increase the knowledge of platforms and other digital resources such as the cell phone that has now become essential, from this device can make messages on WhatsApp to participate in a video conference. However, from my own study program, I believe that not all of us are 100% capable of handling the new technology; although we have been trained to use Classroom, I believe that there are other platforms that we must also handle and have as an application. It also depends on us to be updated.

In this regard, Silva's work (2017) with students from the University of Chile showed that students access and know the various digital resources in a different way; at the same time, they assume that they learn on their own initiative or with related subjects; however, they admit that they do not learn how to teach with ICTs during their training. On the other hand, Orozco & Garcia (2017) state that students are still not prepared to face the new challenges of learning, besides the use of adequate resources is a condition for interaction and autonomous learning.

For Carbajal (expert), the teacher is creative, handles the pedagogy, many have reinvented themselves and are prepared to handle the digital platform, a tool that has become the support of the educational process; however, we have a disadvantage in Peru: the technology offers a very low bandwidth, communications fall at the least expected time. In addition, not all students have the economic capacity to pay for an internet service that allows them to be connected to the Classroom several hours a day and for a whole week.

The studies of Montagud & Gandia (2014) and Pastor et al. (2018) that evaluate the Virtual Learning Environment-EVA in satisfaction and academic performance. The first stated that the EVA not only facilitates learning, but increases academic performance and motivation in the student, incorporating methodologies and evaluation systems in the development of skills and abilities, also proposes a proposal for e-learning design patterns to create online courses used in EVA, which can be implemented in Moodle or Blackboard or others.

Both for Savoy & Lazo (2017) and for Rojas et al. (2019), social networks are collaborative teaching resources since 42.9% of teachers use social networks for personal use and 19% use them for entertainment, which shows the inadequate use of this resource and where students should be oriented towards the use of resources such as the forum to develop hard and soft skills. Likewise et al. (2019) refer that 47% or limited percentages put at risk the different applications of the Classroom in learning. Also Pando (2018), in his study of documentary review, showed that the trend of technological didactics can develop various currents to achieve learning.

If we consider that connectivism seeks the ability to interlace connections from diverse sources and maintain them in order to make the transition to continuous learning, it is necessary to constantly update and acquire knowledge to enrich a new database (Duke, Harper and Johnston, 2013). It must also be considered that there must be a relationship between the increase of knowledge and the speed in which it is provided (Siemens & Conole, 2011).

Cuyubamba (expert) stated that the topic of competencies requires that the student must work in a collaborative or cooperative manner; it also allows students to work in teams to achieve common goals and objectives, so each one does his or her part. For this reason, in my courses, I have encouraged collaborative work because it allows me, on the one hand, to get students involved in the entire learning process, researching, reading, studying, meeting with each other and, on the other hand, it makes it easier for the teacher to evaluate work that corresponds to five or six students and not one by one, with the understanding that each one has participated and done his or her part. Of course, it also has its disadvantages because if in the classroom model not everyone participated, in the virtual model, how to know if everyone is contributing in the same way, there we would have to see what other evaluation strategy to use.

Considering the Gestalt, the learning processes allow the acquisition and development of new knowledge or the transformation of the old ones (Wertheimer & Riezler, 1914), being fundamental the active role of the student in his learning. Hence, the proposal of virtual learning is the interconnection between the student and his environment, including social networks such as Facebook, Instagram, among others (Maldonado, 2017). Moreover, according to Rivera, Alonso and Sancho (2017), it will be possible only through the Internet and the use of ICT with the autonomy acquired by students; the birth of educational communities between teachers and students and the pedagogical resource of asynchronous education.

According to Piaget (1954), learning is a process of construction that is consolidated through contact between the learner and the social environment and, consequently, the modification of their mental structures. Bruner (1966) refers to an unintentional learning and the setting of challenges to the apprentice in an attempt to modify his or her interests, being a basic condition the permanent teacher-student dialogue

for the achievement of learning (Bruner, 2001). Likewise, Vygotsky (1932-1978) defends the idea of competence and social environment for the achievement of learning, coinciding with connectivism when he refers to the capacity to increase knowledge is more important than what is already known (Siemens, 2006).

For Gamarra (expert), not everyone knows what the meaning of evaluation by competencies is; many follow the traditional summative form of grades, concerned with the partial grade at the end of each unit; that is not working by competencies. Evaluating by competencies calls for working by performances, and those performances are not evaluated at the end but by processes; this is a difficulty of our educational system, and more so at the higher level where this innovation should be advocated, and we still do not understand very well the work by competencies, which involves capacities and abilities; that is, pedagogical processes that are combined to achieve an objective, but the final purpose is the achievement of performances.

Cuyubamba (expert) also affirmed that evaluation is a very complicated subject through this virtual or digital modality, because what it is about is to evaluate in the very field of the future professional to know how the student is achieving those competences; then what we are doing is to reduce in the subject of theoretical knowledge and to focus more on the practices. However, we are not achieving this evaluation by competencies as it should be as in the classroom modality; but in other aspects, such as in the theoretical courses, it has helped to increase the student's research capacity, their ability to analyze information, even their ability to manage ICT, which are also competencies achieved by the student.

## CONCLUSION

It should be considered that, since the eighties, technological changes modified the daily life of people, the forms of communication and education, emerging the connectivism affirming that knowledge depends on a system of networks and with a growth cycle of permanent knowledge accessing the system (Siemens, 2004) and allowing the use of digital resources to obtain new contents (Fiore, 2018) considering that knowledge is distributed through a network of connections and it will be enough to have the capacity to build and to transfer these networks to reach the learnings (Downes, 2007) and to see, perceive and exchange information thanks to its position.

Finally, we must consider that Prieto (2008) states that the competencies are intended to show that the person is able to perform tasks with a certain degree of preparation and sufficiency (Tobon et al. 2010) which are the integral actions that allow the interpretation and resolution of problems in an ideal way and, therefore, Cano (2008) points out that the main characteristic of the competency is the one that corresponds to the articulation of knowledge in the conceptual, procedural and attitudinal aspects. These stages of university training in

education, now in times of pandemic, are developed through connectivity and digital resources.

This perspective, at present, will allow the impact of ICTs in the university to be evaluated, showing how technological resources set the guidelines for the apprehension of knowledge in students; as a consequence of their usefulness in the process (Ricardo & Iriarte, 2017).

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