Challenges and e-learning needs of the Andean child in times of COVID-19

Beker Maraza Vilcanqui[1] (iD), Nain Maraza Vilcanqui[2] (iD), Queke Maraza Vilcanqui[3] (iD),
Gladys Martha Flores Choque[4] (iD)

[1]*Universidad Nacional Intercultural de la Amazonía-Perú*
bmarazav@unia.edu.pe
https://orcid.org/0000-0002-0155-4094
[2]*Universidad Nacional del Altiplano-Perú*
marazanain@unap.edu.pe
https://orcid.org/0000-0002-9313-2947
[3]*Instituto de Investigación de las Culturas Andinas y Amazónicas, Perú*
milqueades@gmail.com
https://orcid.org/0000-0002-5505-0844
[4]*Instituto de Investigación de las Culturas Andinas y Amazónicas, Perú*
gladysmarthaf@gmail.com
https://orcid.org/0000-0002-9004-6170

Abstract

The present research was conducted with the purpose of determining the virtual learning needs of Andean children in times of COVID-19. The type of study was descriptive, non-experimental design; the sample consisted of 100 students from different Educational Institutions belonging to the Altiplano region of Puno. For data collection, the questionnaire was applied, which collects the virtual learning needs in times of pandemic on connectivity, technological equipment, and virtual learning. The following results were obtained: of the total average, 95% of children learned on the hill due to lack of connectivity, 90% of students used the smartphone for learning and due to lack of training on virtual environments, they were supported by family members. In conclusion, virtual learning in Andean children was unfavorable in times of COVID 19, but there are gaps to be addressed for improvement.

Key words: Virtual learning, technological equipment, Andean child, Covid.19, Altiplano region.

Resumen

El presente trabajo de investigación se realizó con el propósito de determinar las necesidades de aprendizaje virtual de los niños andinos en tiempos de COVID-19; el tipo de estudio fue descriptivo, diseño no experimental; la muestra estuvo conformado por 100 estudiantes de diferentes Instituciones Educativas pertenecientes a la región altiplánica del Puno; para la recolección de datos se aplicó el cuestionario, que recoge las necesidades de aprendizaje virtual en tiempos de pandemia sobre conectividad, equipamiento tecnológico, aprendizaje virtual; con siguientes resultados: del promedio total, nos permiten apreciar que el 95 % de niños aprendieron en el cerro por falta de conectividad, el 90 % de estudiantes usaron el teléfono celular para el aprendizaje y por falta de capacitación sobre entornos virtuales fueron apoyados por los familiares, en conclusión el aprendizaje virtual en los niños andinos fue desfavorable en tiempos de COVID 19, existen brechas que atender para su mejora.

Palabras clave: Aprendizaje virtual, equipamiento tecnológico, niño andino, Covid.19, región altiplánica

Beker Maraza Vilcanqui[1], Nain Maraza Vilcanqui[2], Queke Maraza Vilcanqui[3],
Gladys Martha Flores Choque[4]

I. INTRODUCTION

The current global trends have modified the structures and forms of operation in all instances of man's activities on planet earth, such as the COVID-19 pandemic that has reached and uncovered the reality of education in all corners of the country. The world educational system adapted to develop remotely. In some cases, a virtual education was tested, which implied in students and teachers to adapt to this scenario, management strategies, use of materials and other needs of each geographical space such as connectivity, technological equipment and installation of electrical networks, to fulfill the purpose of forming citizens in a comprehensive way.

This research aims to determine the virtual learning needs of Andean children in times of COVID-19, considering that the problem found in these geographical areas is that there are students who lack technological equipment, connectivity and training on the management of learning strategies in virtual environments as a result of the implementation of the "I learn at home" program and other forms of intervention of remote education in times of pandemic.

On planet Earth, a normality had been developing for many years with planned projects in all fields of human activity. The pandemic that occurred on the presence of The COVID-19 has affected millions of people since the SARS-CoV-2 was identified in December 2019 (Wong et al., 2021), everything has changed and so far it is an uncertainty. This new type of coronavirus, which emerged in December 2019 in Wuhan, China, an acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is the etiologic agent of (COVID-19) disease, which was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 (Özgür & Tütüncü, 2022).

The spread of the disease in the first wave was rapid and affected more than 200 countries worldwide, almost 2 years after the pandemic (Zawbaa et al., 2022). Nearly 2 years after the coronavirus pandemic, COVID-19 cases, hospitalizations and deaths are increasing in the U.S. and many other countries (Del Río et al., 2022). Throughout the pandemic, it was established that the rates of morbidity, severity of COVID-19 infection and mortality in patients with moderate to severe asthma have not exceeded or revealed significant differences compared to the general population (López et al., 2022). In short, in many countries it was not possible to control and find definitive solutions, but the population opted for many alternatives such as the use of homemade medicines in the Peruvian jungle.

The development of vaccines against COVID-19 has brought hope, as vaccination is effective in preventing SARS-CoV-2 infection and protecting against severe forms of COVID-19 disease (Silva et al., 2021) and severe acute respiratory syndrome (SARS-CoV-2) (Vaira et al., 2022). Vaccination coverage worldwide was not 100%. For this purpose, people must work hard to provide volunteers with effective and safe COVID-19 vaccination, public health should also advocate to the population who are reluctant to be vaccinated (Ekstrand et al., 2021).

In Colombia, a part of the population under study perceives that 70% of the population feels the danger of contagion, while the remaining 30% has minimized the different risks related to this pandemic disease (Rosero et al., 2020). In Colombia, the prohibitions to go to the work centers allowed the population to have imbalances in the economic, social, emotional, family and work aspects, so that the activities tend to normalize in popular sectors, the restrictions continue to remain in public and private entities.

In the rural sectors of Peru, each family lives in isolation, the precautions against becoming infected were not to be found in crowds and in contact with possible carriers, the food supply was boosted through street trade within the territory of the community, only local products were consumed, so they avoided becoming infected and nowadays the new post-pandemic normality is being lived. The role of the State in supporting the most affected families with vouchers that directly benefit the most vulnerable and low-income families (Garrido, 2020).

Migrations took place day by day from the city to the countryside, where quarantine changed everything. In other countries, the total confinement in Argentina confronted people with an unprecedented scenario in which it was necessary to reconfigure all aspects of daily life (Picón, 2020). In the United States, almost

everywhere in the world, schools and universities are closed (Fardoun et al., 2020). The main preventive measure against COVID-19 was confinement, which led to the massive closure of schools (Trujillo et al., 2020). As schools were closed, measures were put in place to deal with the situation in a given time frame (Narváes & Yépez, 2020). The crisis was felt by both students and teachers, including parents, due to the high workload that resulted from the change in response to the health emergency (Gutiérrez, 2020). The reference of the 33 countries of Latin America and the Caribbean up to July 7, 2020 shows that in the educational field, most of the measures taken are related to the suspension of classes at all levels of education (CEPAL-UNESCO, 2020).

The state entities, as well as private instances opted for different strategies such as the implementation of telework and telestudy as options for the continuity of different social functions (Romero et al., 2021). As a result, there were many changes in the educational processes, it is of utmost importance to recognize that the learning process allows students to acquire knowledge and skills inside and outside the educational environment, obtaining an adequate professional training based on their experiences (Toasa & Toasa, 2022).

In the case of Chile, schools have focused to a large extent on the development of study guides focused more on the study of content from the previous school year than on the learning of new knowledge (Cáceres, 2020), while in other countries, education migrated towards virtual environments that allowed the social isolation necessary to avoid the spread of the virus (Balderas et al., 2021). The interaction of people with technology is part of different strategies, whether for epidemiological monitoring or for the continuity of education (Ayala, 2021). The current reality has been shaped by the need to move schools to virtual spaces, which has had important consequences for the daily routines of teachers (Ibaceta & Villanueva, 2021). In short, the Internet has become an unprecedented cultural milestone (Martínez et al., 2021).

The Internet has some fundamental aspects that prioritize life as an essential element with respect to the diversity of political, health, cultural, educational, and psychological issues that are important (Novoa & Pirela, 2020). The

excessive use of ICT would not be so beneficial for the human being, so it is important to raise the correct way of using virtual environments, as it indicates that, just look back through history, to see that the use of technology in the context of learning, depending on the time, has not evolved significantly (Lecaros, 2021). In the field of education at all levels and in all geographical areas of the countries of the world, the teacher's task is to design didactic proposals in accordance with current global trends.

The formation of people is integral, and this form of intervention in remote education still needs to implement many aspects, such as the development of values, the physical distance that implies the confinement does not necessarily have to become emotional distance (Bogado & Torres, 2020). The physical distance implied by confinement does not necessarily have to become emotional distance, especially the development of processes at the initial and primary education levels, hence the importance of the teacher's presence in the classroom.

One of the most used strategies was also the narrative, which represents for today's education a learning strategy that makes it possible from each story to combine knowledge, experience and meanings to arrive at objective and intersubjective understandings of reality (Aranda, 2020). The educational institutions opted for the flipped classroom platform, a didactic methodology that activates learning outside the classroom, in order to take advantage of the time and space in the educational institution to enhance the knowledge previously acquired at home, in this sense, it reverses the roles between teacher and student (Quiroz & Cisneros, 2021).

All educational institutions took as a challenge the educational continuity in all modalities, the presentiality became virtual, thus being able to limit the social contact between subjects of education, one of the consequences that brought this modality, that the direct relationship between subjects and digital devices avoid recognizing the emotions and feelings of others (Aguilar, 2020). In general, the changes bring new improvements, as well as discomfort for change, the current teaching-learning model is not suitable for either face-to-face or distance education (Porlán, 2020).

Beker Maraza Vilcanqui[1], Nain Maraza Vilcanqui[2], Queke Maraza Vilcanqui[3],
Gladys Martha Flores Choque[4]

In many countries there are technological gaps, connectivity, management of virtual education, among others, in this case the generalized and totalitarian adaptation would occur when all agents can access the form of education through radio education as proposed for isolated cases to access the internet, it is urgent and imperative to create educational spaces, where there is citizen participation, the state and the media, formed a strong trilogy, in order to promote effective educommunication in places where there is no connectivity (Medina & Peñaherrera, 2020).

These difficult times have brought the best in the people close to us (Padilla, 2019) to generate an active education model with the help of technology, with interactive whiteboards, graphic and audiovisual materials that generate motivation to learn for students, and other applications that allow the development of skills in different subjects, such as structured tests, virtual visits and simulations to develop student experiences based on the trial-error method, which allows problem solving and the generation of skills for the 21st century (Crespo & Palaguachi, 2020). As these authors point out, the most important factor was the economic and motivational factor, and the pedagogical factor is not very relevant because it considers the technological literacy of a number of students (Esteche & Gerhard, 2020).

Since the declaration of the emergency, distance education has basically consisted of the transfer to virtual environments of the didactic materials previously developed with the purpose of supporting the face-to-face teaching institutes, and virtual education is not a substitute for face-to-face teaching (Pomares et al., 2021). In other words, virtual education was not carried out correctly; it was adapted to remote learning, close to distance education with the use of various didactic strategies for educational continuity. Higher education had problems to respond to this issues, students of public universities responded in 70%, that there is not enough capacity of coverage and support for access to Internet technology to develop virtual education sessions (Huanca et al., 2020).

The Andean child from the management of language in Peru, speaks Aymara and/or Quechua as their mother tongue, the geographical conditions where they live exclusively are in the Andes of the mountain range at more than 3000 m.a.s.l.m. In the educational field, they include single-teacher, multi-grade and multi-teacher schools, most of the schools are located in rural areas; there are children who speak Spanish as a second language, so the studies of Andean Spanish or Spanish in contact with the aboriginal languages Quechua and Aymara; in these contexts children learn to speak Spanish as a second language (Esquivel, 2019).

Children in the Andean world (Argentina) perform tasks that contribute to subsistence, ranging from washing utensils, collaborating in obtaining and preparing food, making products for sale, to taking care of younger siblings (Remorini et al., 2019). In the Peruvian territory, as in Bolivia, all members of the family contribute to the family economy.

Due to the idiosyncrasy of the Aymara and Quechua population, work has become a fundamental value, and this working capacity is used for other purposes by the capitalist system, until it resulted in the exploitation of man by man, expressed in labor trafficking or in the form of begging, servitude, among others (Dammert et al., 2020) in exchange for unfair payments or remunerations.
Who are the indigenous people and what are their problems? Although it is said that "The indigenous peoples of the Andean region constitute the great majority of the rural population," the report assumes that "It is impossible to give a precise definition separating the Andean Indians from the non-Indians with whom they coexist" (Andean Mission, 1953, p. 15) cited by Ibaceta & Villanueva (2021).

In the Peruvian highlands, there are public schools located in rural areas, mostly belonging to the Aymara culture. In current times, they inserted cultural diversity in their institutional definitions, including respect and maintenance of the culture of the native peoples in their vision, mission, regulations, and incorporating Intercultural Bilingual Education plans (Mondaca-Rojas & Gajardo-Carvajal, 2013) cited by Alvarado & Zapata (2020).

As is well known, the countries that are geographically located in the Andes, including Bolivia, Chile, Colombia, Argentina, Ecuador and Venezuela, in 1969 created the Andean Community of Nations (CAN). This institution

was essential and urgent to strengthen the response capacity of the Latin American region in general and of the CAN in particular in the face of the various problems that arose (Quispe, 2020).

2. METHODOLOGY

The reason for learning about virtual education in times of pandemic through a quantitative education with descriptive design, comprising a population of 100 students, of which comprised between first to sixth grade of primary level, specifically taken as a sample children who have been enrolled in public schools, where their residence is geographically located in the rural sector of the Peruvian highlands, for the collection of information was applied as a technique survey and survey form instrument, which were applied to collect information on technological equipment, connectivity, internet and interaction of virtual learning.

The information was collected from different parts of the highlands virtually and directly in coordination with teachers and parents who gladly collaborated in providing information. During the process of data consolidation and systematization, the data were categorized and then organized into tables and interpreted according to the objectives proposed for this research.

3. RESULTS

Table 1

Technological equipment and connectivity

Technological equipment and connectivity	YES	%	N0	%	TOTAL
Do you have a Smartphone?			05		
Do you have Internet on your cell phone?			05		
Do you have a desktop PC, laptop or tablet computer at home?					
Do you have Internet at home?					

Source: Student needs identification questionnaire for e-learning.

Most students living in rural areas of the Andean region of Peru have access to the Internet through their parents' cell phones, but coverage is not adequate, due to geographical factors, they do not receive the signal at home, and the student must communicate via cell phone in places of access (hill, pampa, ravine, road, among other places), therefore, the parent does not have the technological equipment, whether computers, laptop, tablet or other electronic equipment.

Table 2

E-learning interaction

Description	Values										
How often have you attended school in times of pandemic?	Never	%	Almost never	%	Occasionally	%	Almost always	%	Always	%
		0	05	8.3		0		33.3		58.3
How often did you	Never	%	Almost never	%	Occasionally	%	Almost always	%	Always	%

participate in your classes from home in times of pandemic?	0	05	8.3	0	33.3	58.3

How qualified were you to conduct virtual classes in times of pandemic?	No Trained	%	Little trained	%	Moderate trained	%	Very trained	%	Extremely trained	%
		91.6	05	8.3		0		0		0

Who or who supported you at home to run your virtual classes?	Dad	%	Mom	%	Older brother	%	Older sister	%	Other family member	%
				58.3		33.3		33.3		0

If you could not find an Internet signal at home, where did you hold your classes?	Near the house	%	In the pampas	%	On the hill	%	Where family	%	Other place	%
	05	8.3		0		66.6		16.6	05	8.3

What electronic device helped you learn best in times of pandemic?	Radio	%	Laptop	%	Cellular	%	Computer	%	Tablet	%
		0		0				0		0

Source: Student needs identification questionnaire for e-learning.

Regarding the question How often have you attended school in times of pandemic?

8.3% of students have never attended school, 33% have attended most of the time and 58% have always attended.

How qualified were you to conduct virtual classes in times of pandemic? 91.6% were not qualified to conduct virtual classes, while 8.3% responded that they were not very qualified, respectively.

Regarding the answer to the question "Who supported you at home to take your virtual classes? 50% of the children received support from their parents, while 58% of the students received support from their mothers, 33% of the children received support from their brothers and sisters.

If you could not find an Internet signal at home, where did you hold your classes? The answer was that 8.3% took place close to home, 66.6% took place on the hill, 16.6% where they were with their family and 8.3% in another place.

As is well known, the tool that everyone needs for all kinds of action in these times of pandemic, regarding the education of children, to the question: What electronic device helped you learn better in times of pandemic? 100% of the students accessed the virtual classes through a cell phone.

4. DISCUSSION

Undoubtedly, the pandemic has changed the way Andean children study, as well as they were inserted into the field of virtuality. As indicated by Wong et al., (2021) changes occurred since the pandemic was declared by the World Health Organization (WHO) on March 11, 2020 (Özgür & Tütüncü, 2022) in rural educational

institutions in the Altiplano region 95% have attended classes using cell phones that picked up the internet signal on the hill. As the spread of Covid 19 was rapid in 200 countries as indicated by Zawbaa et al., (2022) in Peru by the geographical space under study was not rapid, while the news spread in almost 2 years after the coronavirus pandemic, COVID-19 cases, hospitalizations and deaths are increasing in the US and many other countries, as indicated by Del Rio et al, (2022), while in the Altiplano region it was lower. At the same time, other diseases such as asthma occurred, but mortality was not significant, emphasizes Lopez et al., (2022). However, the population remained alert to prevent all kinds of diseases including acute respiratory diseases that commonly occur in the Andes of Peru.

A large part of the students are being vaccinated against Covid-19, as the only way to counteract this disease, according to Silva et al., (2021). For Vaira et al., (2022), the most effective and massive vaccines should be applied in spite of resistance in some populations, and as Ekstrand et al. (2021) argue, these are policies that were implemented in all countries and the Altiplano region, where those in charge of vaccination went out to the communities where the children live.

According to Rosero et al. (2020), in Colombia, a part of the population under study perceives that 70% of the population feels the danger of contagion, while the remaining 30% has minimized the different risks related to this pandemic disease, while in the study region, a higher percentage of the population does not feel at risk, then the actions taken in Colombia and Peru are similar. The affected population is assisted by the State, according to Garrido (2020), to support the most affected families, likewise the vulnerable population benefited from bonds that directly benefited the poor and low-income families in Peru.

Picón (2020) asserts that Argentina confronted an unprecedented scenario in which it was necessary to reconfigure all aspects of daily life. In education, a more important factor is to develop classes virtually, so the forms of parental involvement changed and was paramount during the pandemic. In the study, students are supported at home by parents and siblings. As pointed out by Fardoun et al. (2020), as in almost all over the world where schools and

universities are closed, 100% of schools in the Andes region were closed, as in the case of Peru to prevent the spread of COVID-19, which has caused the massive closure of schools (Trujillo et al., 2020). When schools were closed, measures were proposed to deal with the situation in a given time (Narváes & Yépez, 2020), so the crisis occurred both in students and teachers, even for parents, due to the high workload that came with the change in the face of the health emergency (Gutiérrez, 2020).

The reference of the 33 countries of Latin America and the Caribbean up to July 7, 2020, shows that in the educational field, most of the measures taken are related to the suspension of classes at all educational levels (ECLAC-UNESCO, 2020). As well as in the Peruvian highlands, the measures were taken by the Ministry of Education of Peru, while the directors of educational institutions proposed strategies to prevent the health and risk of students, teachers and parents in the Andean communities.

As pointed out by Romero et al., 2021, state entities as well as private instances opted for various strategies such as the implementation of telework and telestudy as options for the continuity of different social functions, when conducting the survey to students 100% of students conducted their studies by cell phone and had access to the I learn at home program implemented by the Ministry of Education of Peru. This virtual modality should allow the integral development of students suggests, since Andean children are engaged in other domestic activities, and it does not affect much socialization, but rather the way in which children are engaged in other domestic activities, so it does not affect much socialization (Toasa & Toasa, 2022).

In this regard, Andean children are engaged in other domestic activities, so it does not affect much socialization, rather the way of developing classes and technological equipment affected most families, because no parent has internet at home, computers, laptops among other tools that facilitate the student and parents the best development of educational activities, but by taking strategies as developed in the case of Chile. According to Cáceres (2020), schools have focused largely on the development of study guides focused more on the study of

Beker Maraza Vilcanqui[1], Nain Maraza Vilcanqui[2], Queke Maraza Vilcanqui[3],
Gladys Martha Flores Choque[4]

contents of the previous school year than on the learning of new knowledge.

These measures in Peru were partially applied due to lack of training of both teachers and parents in virtual learning environments, while in other countries, education migrated to virtual environments that allowed the necessary social isolation to prevent the spread of the virus (Balderas et al., 2021). Formal virtual education did not happen, only programs such as I learn at home and other forms of remote work were implemented, but rural educational institutions lack to implement virtual education. As Ayala (2021) points out, the interaction of people with technology is part of different strategies. In these times, it is necessary to adapt virtual education because they are mega global trends, these decisions would change the way teachers and students work (Ibaceta & Villanueva, 2021).

In short, the Internet has become an unprecedented cultural milestone (Martínez et al., 2021) where the great demands of today's society in general and especially in the Peruvian Altiplano region is the implementation of the Internet in all families to insert a virtual education.

For Novoa & Pirela (2020), the accompaniment in the educational field is paramount in times of pandemic, and this function was fulfilled by the parent in remote education that occurred in times of pandemic, because access to the internet allows the student to be informed of various aspects of the local, national and global situation, and the excessive use of ICT would not be so beneficial to the human being. Thus, it is important to raise the correct way to use virtual environments, as it indicates that, it is enough to look back through history to see that the use of technology in the context of learning, depending on the time, has not evolved significantly (Lecaros, 2021). For this reason, even today's society is not prepared to face this challenge, and people can have the technology and internet access, but it is important to know how to use it significantly for the benefit of people and avoid its misuse.

According to Bogado and Torres (2020), the physical distance implied by confinement does not necessarily have to become emotional distance, a statement that was not taken into account in students, teachers and parents, understanding that people are integral, confinement generated substantial changes in people, especially interpersonal practices and good living. This social function in times of pandemic was partially fulfilled in the Andean communities, families and contact between the members of the community who were isolated by groups due to strategy. One of the learning strategies that makes it possible from each account to combine knowledge, experience and meanings to arrive at objective and intersubjective understandings of reality (Aranda, 2020). These strategies only entertain even though they can implement flipped classroom platforms according to Quiroz and Cisneros (2021) and cannot replace the development of people, their interrelation, the practices of values and personal development, virtual education is a tool or modality, only to remedy, to adapt a problem of access to virtuality, in space, distance and time.

According to Aguilar (2020), the strategies adopted by educational institutions to convert face-to-face education into virtual or remote education limited social contact between educational subjects, one of the consequences of this modality being that the direct relationship between subjects and digital devices prevents them from recognizing the emotions and feelings of others, as well as Porlán (2020) emphasizes, the current teaching-learning model is not suitable for either face-to-face or distance education, due to the way in which the scenarios were not planned, since in many countries there are technological gaps in connectivity, management of virtual education, among others. An alternative proposed by Medina & Peñaherrera (2020) in radio education, it can often reach everyone, but because of the way it is disseminated, it would not educate people, but only inform them, so it is important that specialists debate and provide alternative solutions for this type of education undertaken in these times for scenarios where students are locked up at home.

The best way to carry out a virtual education as indicated by Padilla (2019), these difficult times have brought the best in people close to us, as well as to generate a model of active education with the help of technology, with interactive whiteboards, graphic and audiovisual materials that generate motivation to learn to students, and other applications that allow developing skills in different subjects, such as structured tests,

virtual tours and simulations to develop in the student experiences based on the trial-error method, which allows problem solving and the generation of skills for the XXI century (Crespo & Palaguachi, 2020). As these authors point out, the most important factor was the economic and motivational. In addition, the pedagogical factor is not very relevant to consider the technological literacy of a considerable number of students (Esteche & Gerhard, 2020). The authors' approach can be implemented as long as they are implemented in rural schools in the Andean region and have favorable conditions. These actions today were only fulfilled to address the educational emergency, as stated by Pomares et al. (2021) and Huanca et al. (2020), there are still problems in university education. If 100% of students in the study do not have internet at home, laptop and cell phone internet signal, then this population is very disadvantaged. So, this pandemic allows to know more closely the educational reality of the country, for educational agents is conducive to implement improvements and propose alternatives for urgent solutions to technological gaps, connectivity, among other components in the educational field.

According to Esquibel (2019), the Andean child speaks Aymara and/or Quechua as mother tongue, the geographical conditions where they reside exclusively are in the Andes of the mountain range at more than 3000 m.a.s.l. In this regard, the study conducted in the research are children who live in the Andes of Puno, who do not have much contact with globalization and modernity, and all speak Aymara or Quechua, live in the countryside. As Remorini et al. (2019) state, the children of the Andean world (Argentina) perform tasks that contribute to subsistence, ranging from washing utensils, collaborating in obtaining and preparing food, making products for sale, to caring for younger siblings. This reality also agrees with the population studied in Peru. The Andean child contributes to the family´s economy, and is involved from childhood in the daily activities of their parents. According to Dammert et al. (2020), the Aymara and Quechua population has made work a fundamental value, and this value is still present in the children of the Peruvian altiplano.

According to the Andean Mission (1953, p. 15,) quoted by Ibaceta & Villanueva, (2021), "The indigenous peoples of the Andean region constitute the vast majority of the rural population", and they live in the countryside and speak Aymara or Quechua, but they cannot necessarily be called indigenous, but simply Aymara or Quechua.

In the Peruvian altiplano, there are public schools located in rural sectors, mostly belonging to the Aymara culture. In current times, they have inserted cultural diversity in their institutional definitions, including respect and maintenance of the culture of the native peoples in their vision, mission, regulations, and incorporating Intercultural Bilingual Education plans (Mondaca-Rojas & Gajardo-Carvajal, 2013, cited by Alvarado & Zapata, 2020). Gajardo-Carvajal (2013, cited by Alvarado & Zapata, 2020) assert that the children that have been considered in the present research are Aymara and Quechua, specifically from public educational institutions located in rural areas.

5. CONCLUSIONS

Regarding educational continuity in times of pandemic in rural educational institutions in the Andean context of Puno, 92% of the students attended regularly, facing various difficulties regarding connectivity, technological equipment and management of remote and virtual work strategies.

The changes that occurred in the development of virtual classes, where the Andean student still did not have greater knowledge about the management of learning strategies on virtual learning environments, where 91.6% began the educational continuity without training and a minimum percentage of 8.3% said they knew how to manage virtual learning environments. The adaptation of remote education was gradually improved with the support of teachers and parents, and mainly fathers, mothers and siblings contributed to the achievement of skills in the management of virtual environments in primary school children.

The biggest problems faced in the educational continuity in the rural sector of the Andes of Peru, the lack of connectivity since families do not have internet at home, nor do they have equipment of technological tools, then they were forced to seek internet signal on the hills, where the students took advantage of interacting with

the teacher through WhatsApp. The most used device was the smartphone, and as the work tool of teachers and students, they were used in 100%, and in this way they developed the remote education initially undertaken with the program "I learn at home" and adapted to diversified learning between face-to-face and virtual.

The pandemic meant for teachers, students and parents to identify the great gaps in connectivity, access and knowledge of Information and Communication Technologies, especially educational needs to be solved in the rural sector of the Andes.

REFERENCES

[1]   Aguilar, F. del R. (2020). Del aprendizaje en escenarios presenciales al aprendizaje virtual en tiempos de pandemia. *Estudios Pedagogicos*, *46*(3), 213–223. https://doi.org/10.4067/S0718-07052020000300213

[2]   Alvarado, A., & Zapata, P. (2020). Niñez aymara a ojos de quienes les educan: percepciones sobre multiculturalidad en escuelas de Arica, Chile. *Utopia y Praxis Latinoamericana*, *25*(Extra13), 159–176. https://doi.org/10.5281/zenodo.4292722

[3]   Aranda, A. (2020). Educación en tiempos de pandemia: La narrativa como estrategia de aprendizaje. *Perspectivas. Revista de Historia, Geografía, Arte y Cultura*, *08*(15), 159–170.

[4]   Ayala, R. (2021). Zooming in on virtual education: biopolitics and student-centred learning. *Educacion Medica*, *22*(3), 177–180. https://doi.org/10.1016/j.edumed.2021.01.004

[5]   Balderas, J., Roque, R. V., López, A., Salazar, R., & Juárez, C. M. (2021). ¿Cómo cambió la enseñanza-aprendizaje de las asignaturas prácticas en el área de tecnologías de la información con la covid-19? In *RIDE Revista Iberoamericana para la Investigación y el Desarrollo Educativo* (Vol. 12, Issue 22). https://doi.org/10.23913/ride.v11i22.826

[6]   Bogado, Z. B., & Torres, M. R. (2020). Los valores en la educación en tiempos de pandemia. *Educación y Pedagogía*, *3*(1), 1–9.

https://doi.org/10.1016/j.tmaid.2020.101607%0Ahttps://doi.org/10.1016/j.ijsu.2020.02.034%0Ahttps://onlinelibrary.wiley.com/doi/abs/10.1111/cjag.12228%0Ahttps://doi.org/10.1016/j.ssci.2020.104773%0Ahttps://doi.org/10.1016/j.jinf.2020.04.011%0Ahttps://doi.o

[7]   Cáceres, I. (2020). Educación en el escenario actual de pandemia. *Utopia y Praxis Latinoamericana*, *25*(Extra 5), 11–12.

[8]   CEPAL-UNESCO. (2020). La educación en tiempos de la pandemia de Covid-19. In *CEPAL* (pp. 1–21).

[9]   Crespo, M. del C., & Palaguachi, M. C. (2020). Educacion con tecnologia en una Pandemia: Breve Analisis. *Revista Scientific*, *5*(17), 292–310. https://doi.org/https://doi.org/10.29394/Scientific.issn.2542-2987.2020.5.17.16.292-310

[10]   Dammert, M., Dammert, L., & Sarmiento, K. (2020). La trata de personas en los Andes: dinámicas socio-espaciales en las fronteras de Perú. *Íconos - Revista de Ciencias Sociales*, *XXIV*(68), 117–134. https://doi.org/10.17141/iconos.68.2020.4043

[11]   Del Río, C., Saad, O., & Preeti, M. (2022). Winter ofOmicron—The Evolving COVID-19 Pandemic. *Jama*, *375*(4r). https://doi.org/10.1136/bmj.n3104

[12]   Ekstrand, M. L., Heylen, E., Gandhi, M., Steward, W. T., Pereira, M., & Srinivasan, K. (2021). Reticencia a la vacuna contra la COVID-19 entre las PLWH en el sur de la India: implicaciones para las campañas de vacunación. *Journal of Acquired Immune Deficiency Syndromes*, *88*(5), 421–425. https://doi.org/10.1097/QAI.0000000000002803

[13]   Esquivel, J. (2019). La perífrasis de gerundio en el castellano andino de La Mar (Ayacucho). *Letras*, *90*(132), 228–243. https://doi.org/10.30920/letras.90.132.10

[14]   Esteche, E., & Gerhard, Y. (2020). Factores que inciden en la educación virtual en tiempos de pandemia (COVID-19) de los estudiantes universitarios de una universidad privada. *Revista Iberoamericana de Docentes*, 1–15. https://revistaib.com/blogrevistaib/factores-que-inciden-en-la-educacion-virtual-en-tiempos-de-pandemia-covid-19-de-

los-estudiantes-universitarios-de-una-universidad-privada%0ARevista

[15] Fardoun, H., González, C., Collazos, C. A., & Yousef, M. (2020). Estudio exploratorio en Iberoamérica sobre procesos de enseñanza-aprendizaje y propuesta de evaluación en tiempos de pandemia. *Education in the Knowledge Society*, *21*, 171–179. https://doi.org/10.14201/eks.23437

[16] Garrido, M. D. (2020). Educar en tiempos de pandemia: acentuación de las desigualdades en el sistema educativo chileno. *Caminos de Educación: Diálogos, Culturas e Diversidades*, *2*(2), 43–68. https://doi.org/10.26694/caedu.v2i2.11241

[17] Gutierrez, A. (2020). Educacion en tiempos de Crisis Sanitaria: Pandemia y Educación. *Praxis*, *16*(1), 1–10. http://dx.doi.org/10.21676/23897856.3040

[18] Huanca, J. W., Supo, F., Sucari, R., & Supo, L. A. (2020). El problema social de la educación virtual universitaria en tiempos de pandemia, Perú. *Innovaciones Educativas*, *22*(Especial), 115–128. https://doi.org/10.22458/ie.v22iespecial.3218

[19] Ibaceta, C. P., & Villanueva, C. F. (2021). Entornos virtuales de aprendizaje: variables que inciden en las prácticas pedagógicas de docentes de enseñanza básica en el contexto chileno. *Perspectiva Educacional*, *60*(3), 132–158. https://doi.org/10.4151/07189729-vol.60-iss.3-art.1235

[20] Lecaros, O. (2021). Aproximación a las pedagogías emergentes en ambientes virtuales de aprendizaje. *Revista Internacional de Pedagogía e Innovación Educativa*, *1*(2), 181–190. https://doi.org/10.51660/ripie.v1i2.50

[21] López, J. J., Contreras, E. A., Cruz, N. N., Camargo, M. A., Cabrera, E. O., Ramírez, G. I., & Vega, G. (2022). Asma y COVID-19. *Revista Alergia México*, *69*(Supl1), s15–s23. https://doi.org/10.29262/ram.v69isupl1.1009

[22] Martínez, S. F., Salazar, L. A., Cruz, J. A., & Gavilanes, A. A. (2021). Aprendizaje virtual : nutriendo el conocimiento común y personal Virtual learning : nurturing common and personal knowledge Aprendizagem virtual : nutrindo conhecimento comum e pessoal. *Reciamuc*, *5*(4), 265–273. https://doi.org/10.26820/reciamuc/5.(4).noviembre.2021.265-273

[23] Medina, V., & Peñaherrera, V. (2020). La corresponsabilidad social de los medios radiales en la educación virtual en tiempos de pandemia. *Horizontes*, *4*(15), 246–257. https://doi.org/Https://doi.org/10.33996/revistahorizontes.v4i15.112

[24] Narváes, D. A., & Yépez, J. K. (2020). Tiempos de pandemia y el papel de la familia en la educación. *Revista Huellas*, *13*, 1–16.

[25] Novoa, A., & Pirela, J. (2020). Acompañamiento desde una ética de la vida Para educar en tiempos de pandemia. *Utopía y Praxis Latinoamericana*, *25*(0), 11–24. https://doi.org/http://doi.org/10.5281/zenodo.3931040

[26] Özgür, D., & Tütüncü, E. E. (2022). Respuesta de anticuerpos después de dos dosis de la vacuna inactivada contra el SARS-CoV-2 en profesionales de la salud con y sin infección por COVID-19: un estudio observacional prospectivo. *Mikrobiyoloji Bulteni*, *56*(1), 36–48. https://doi.org/10.5578/mb.20229904

[27] Padilla, D. A. (2019). La crisis existencial en tiempos de COVID-19, y las sorprendentes soluciones de esperanza. *RIP*, 109–114.

[28] Picón, G. A. (2020). Educar en tiempos de pandemia Educate in times of pandemic. *Questión*, 1–6. https://doi.org/https://doi.org/10.24215/16696581e312

[29] Pomares, E. de J., Arencibia, L. G., & Galvizu, K. (2021). Innovación emergente para la COVID-19: taller virtual sobre el uso educativo de la plataforma Moodle. *Revista Cubana de Informática Médica*, *1*(1), e438–e438.

[30] Porlán, R. (2020). El cambio de la enseñanza y el aprendizaje en tiempos de pandemia. *Revsiat de Educación Ambiental y Sostenibilidad*, *2*(1), 1–7. http://dx.doi.org/10.25267/Rev_educ_ambient_sostenibilidad.2020.v2.i1.1502

[31] Quiroz, A. E., & Cisneros, P. F. (2021). Flipped classroom : " Una experiencia innovadora para el proceso enseñanza -

Beker Maraza Vilcanqui[1], Nain Maraza Vilcanqui[2], Queke Maraza Vilcanqui[3],
Gladys Martha Flores Choque[4]

2640

aprendizaje virtual. *Polo Del Conocimiento*, *6*(6), 1259–1278. https://doi.org/10.23857/pc.v6i6.2816

[32] Quispe, F. (2020). Las relaciones entre la Unión Europea y la Comunidad Andina de Naciones: los tratados de libre comercio. *Iberoamerican Journal of Development Studies*, *9*(2). https://doi.org/10.26754/ojs_ried/ijds.413

[33] Remorini, C., Teves, L. S., Palermo, M. L., Jacob, A., & Desperés, P. (2019). Acerca de la participación de niños y niñas en actividades de subsistencia Estudio etnográfico en unidades domésticas rurales de Salta (Argentina). *RUNA, Archivo Para Las Ciencias Del Hombre*, *40*(2), 293–312. https://doi.org/10.34096/runa.v40i2.5503

[34] Romero, R. E., Tejada, C. A., & Núñez, O. (2021). Actitudes hacia las TIC y adaptación al aprendizaje virtual en contexto COVID-19, alumnos en Chile que ingresan a la educación superior. *Perspectiva Educacional*, *60*(2), 99–120. https://doi.org/10.4151/07189729-vol.60-iss.2-art.1175

[35] Rosero, A. D., Carvajal, J. L., & Bolaños, E. F. (2020). Percepción De Riesgo Frente al Covid-19 en adolescentes escolarizados colombinos. *Revista Bolitín Redipe*, *10*(2), 201–217.

[36] Silva, A. M., Ribeiro, I., Ferreira, R., Cruz, R., Polónia, J., & Bernardes, J. (2021). Farmacovigilancia de las vacunas COVID-19 durante el embarazo y la lactancia. *Acta Médico Portuguesa*, *34*(12), 807–809. https://doi.org/10.20344/amp.16762

[37] Toasa, L. A., & Toasa, R. M. (2022). El proceso de aprendizaje virtual y su incidencia en la salud mental de los estudiantes. *Revista Científica UISRAEL*, *9*(1), 49–68. https://doi.org/10.35290/rcui.v9n1.2022.496

[38] Trujillo, F., Fernández, M., Montes, R., Segura, A., Alaminos, F. J., & Postigo, A. Y. (2020). *Panorama De La Educación En España Tras La Pandemia De Covid-19: La Opinión De La Comunidad Educativa*. https://doi.org/10.5281/zenodo-3878844

[39] Vaira, L. A., De Vito, A., Lechien, J. R., Chiesa, C. M., Mayo, M., Calvo, C., Saussez, S., Madeddu, G., Babudieri, S., Boscolo, P., Hopkins, C., & De Riu, G. (2022). La nueva aparición de pérdida del olfato y el gusto son hallazgos comunes también en pacientes con COVID-19 sintomático después de la vacunación completa. *Laryngoscope*, *132*(2), 419–421. https://doi.org/10.1002/lary.29964

[40] Wong, B. L. H., Ramsay, M. E., & Ladhani, S. N. (2021). Should children be vaccinated against COVID-19 now? *Archives of Disease in Childhood*, *106*(12), 1147–1148. https://doi.org/10.1136/archdischild-2020-321225

[41] Zawbaa, H. M., Osama, H., El-Gendy, A., Saeed, H., Harb, H. S., Madney, Y. M., Abdelrahman, M., Mohsen, M., Ali, A. M. A., Nicola, M., Elgendy, M. O., Ibrahim, I. A., & Abdelrahim, M. E. A. (2022). Efecto de la mutación y la vacunación sobre la propagación, la gravedad y la mortalidad de la enfermedad por COVID-19. *Journal of Medical Virology*, *94*(1), 197–204. https://doi.org/10.1002/jmv.27293