MENDIVE
REVISTA DE EDUCACIÓN

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Original article

Retaking the classrooms in rural populations during the pandemic: a case study on the Ecuadorian coast

Reanudando clases en poblaciones rurales durante la pandemia: estudio de caso en el litoral ecuatoriano

Retomada das aulas em populações rurais durante a pandemia: um estudo de caso na costa equatoriana

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ABSTRACT
The article aims to describe the practices that emerged during the COVID-19 pandemic to resume classes in a rural school on the Ecuadorian coast. The research focuses on a case study of elementary school students of Natural Sciences in Jipijapa canton. The focus of the study is qualitative-ethnographic, exploratory, and descriptive. Data was collected over six months through in-depth interviews, focus groups, collaborative mapping, and field observation. The findings show that the Ecuadorian education system lacks contingency plans that address interruptions in educational processes. This is further relevant for rural territories, where internet access and mobility are particularly restricted. It is also clear that the contents for the teaching of Natural Sciences elude information from the students' context, which avoids situational education and limits the possibilities of achieving meaningful learning. The study concludes that the national education system requires contingency plans to address future crises, sufficient data to characterize students according to the context in which they exist, and content to facilitate situational learning.

Keywords: crisis management; meaningful learning; pandemic; return to class; rural education.

RESUMEN
El objetivo del artículo es describir las prácticas que surgieron durante la pandemia por COVID-19, para reanudar clases en una escuela rural del litoral ecuatoriano. La investigación se centra en un estudio de caso de estudiantes de primaria básica de Ciencias Naturales en el cantón Jipijapa. El enfoque del estudio es cualitativo-etnográfico, de tipo exploratorio y descriptivo. Los datos se recolectaron en un lapso de seis meses, mediante entrevistas a profundidad, estudios focales, mapeo colaborativo y observación de campo. Los hallazgos ponen en evidencia que

el sistema de educación ecuatoriano carece de planes de contingencia que aborden interrupciones de los procesos educativos. Esto es más relevante para territorios rurales, donde el acceso a internet y la movilidad son particularmente restringidos. Se evidencia también que los contenidos para la enseñanza de Ciencias Naturales eluden información del contexto de los estudiantes, lo cual evita la educación situacional y limita las posibilidades de lograr aprendizajes significativos. El estudio concluye que el sistema nacional de educación requiere planes de contingencia parar abordar crisis futuras, datos suficientes para caracterizar a los estudiantes de acuerdo con el contexto en que existen y contenidos que faciliten una formación situacional.

Palabras clave: aprendizaje significativo; educación rural; gestión de crisis; pandemia; retorno a clases.

RESUMO
O objetivo do artigo é descrever as práticas que surgiram durante a pandemia de COVID-19, para retomar as aulas em uma escola rural na costa equatoriana. A pesquisa se concentra em um estudo de caso com alunos do ensino fundamental básico de Ciências Naturais no cantão de Jipijapa. O foco do estudo é qualitativo-etnográfico, exploratório e descritivo. Os dados foram coletados ao longo de seis meses, por meio de entrevistas em profundidade, estudos focais, mapeamento colaborativo e observação de campo. Os resultados mostram que o sistema educacional equatoriano carece de planos de contingência que abordem as interrupções nos processos educacionais. Isso é mais relevante para territórios rurais, onde o acesso à internet e a mobilidade são particularmente restritos. Fica evidente também que os conteúdos para o ensino de Ciências Naturais eludem informações do contexto dos alunos, o que evita a educação situacional e limita as possibilidades de se alcançar uma aprendizagem significativa. O estudo conclui que o sistema educacional nacional requer planos de contingência para enfrentar crises futuras, dados suficientes para caracterizar os alunos de acordo com o contexto em que estão inseridos e conteúdos que facilitem o treinamento situacional.

Palavras-chave: aprendizagem significativa; educação rural; gerenciamento de crise; pandemia; voltar às aulas.

INTRODUCTION

The objective of the article is to describe the practices that emerged during social distancing due to the COVID-19 pandemic, to resume the teaching and learning processes of elementary school students from a rural school in Jipijapa, in the coastal region of Ecuador. The COVID-19 pandemic has posed distinctive challenges to rural schools in developing countries, sparking the interest of researchers, governments, and supranational agencies. In April 2020, the Economic Commission for Latin America and the Caribbean [1](ECLAC) had already reported the massive closure of face-to-face educational activities in Latin America, in order to prevent the spread of the virus and mitigate its impact. In the second half of 2021, a significant proportion of schools in the region remain closed to face-to-face classes.

The COVID-19 pandemic is a health, economic and social catastrophe that requires interpretation from multiple perspectives; however, little has been analyzed about how this pandemic has changed and will continue to alter the course of history. This is also relevant in the dimension of education; particularly, regarding the socio cognitive inequalities that could result from teaching practices

during social distancing. According to the United Nations Children's Fund [2](Unicef), the prolonged closure of basic education centers would be exacerbating not only cognitive inequalities, but also problems of malnutrition, violence and teenage pregnancy.

Describing the practices that emerged during the pandemic for the teaching and learning of elementary school students in rural areas is important, because the process exposes vulnerabilities and inequities in the education system. In addition, the COVID-19 pandemic transformed the context and social dynamics around the world; however, transformations in the rural sector have received little attention in the recent literature. The pandemic tested the contingency plans of the governing education structure. In the meantime, identifying opportunities for improvements that allow a better response to a future crisis is one of the purposes of this study. This is relevant, not only in a pandemic context, but in any disaster situation; even more so, in the case of the Ecuadorian coast, a region prone to natural disasters. This is also important in the framework of Sustainable Development Goal 4 2030 [3](SDG), as it highlights the risks that the interruption of educational services poses to the achievement of inclusive and equitable quality education.

The deficiencies of the education system made it easier for the COVID-19 pandemic to deepen the inequalities between the populations of urban and rural areas in terms of access. In rural territories, many children and youth of school age were forced to abandon their education, not only due to internet connectivity problems, but also because of the need to work in agricultural crops or to look for jobs, generally informal to deal with financial emergencies.

To resume education processes, educational institutions reconfigured their teaching and learning methodologies and channels to telematic means. This included distance classes, via internet, in synchronous and asynchronous modalities. This educational alternative produced privileges for some and disadvantages for others, especially low-income students (Valero-Cedeño *et al.*, 2020).

In this regard, Silva (2014) points out that meaningful learning in the area of natural sciences has a lot to do with the natural environment, since the illustration of science is generated from scientific paradigms. In addition, when there is no relationship between science and the environment from which it arises, the deployment of innovative learning that makes it possible to have up-to-date knowledge where the student can participate in their own learning is limited. Meaningful learning is a cognitive process that is activated by relating new knowledge to pre-existing experiences and knowledge. This process configures the knowledge that is produced with the new information. Significant knowledge helps the student to understand everyday situations in his life.

However, as Mellado-Hernández & Chaucono-Catrinao (2015) have observed, despite the fact that the debate on the importance of context in natural science learning is not new, in rural areas many teachers continue to apply traditional behavioral teaching methods and decontextualized learning, where the dialogue of knowledge with their students is not promoted. This practice contrasts with the notion of meaningfulness of learning, which demands that teachers monological limit and unidirectional practices and, instead, adopt dialogical and situational classes, so that students actively participate and externalize the meanings captured. Likewise, this demands the use of different educational materials to stimulate a space for exchange and continuous reflective contrast.

Stimulating the development of critical and reflective thinking in students is also one of the challenges of meaningful teaching and learning. In the case of the natural sciences, critical and reflective thinking demands a dynamic and creative environment. The natural environment is an example of a situational class, since it opens paths to new pedagogical practices, thus contributing to the teaching-learning process and allowing the significance of learning to be assessed and, subsequently, the effectiveness of the applied curricular planning.

The resumption of classes during the COVID-19 pandemic brought with it the challenges of meaning, development of critical and reflective thinking, and situational learning. Virtual teaching was the option for students with internet access, in most cases, from urban areas. However, students residing in rural areas had access to virtual education as another barrier to meaningful learning.

Similarly, the distance education alternatives imposed by the pandemic, including virtual education, took teachers by surprise. Few were trained to teach remotely (Garay-Núñez, 2021). Teachers and students had to adapt to these modalities hastily, which caused the deepening of cognitive gaps, not only because of the barriers to internet access, but also because teachers and students adapted at different speeds to an improvised study system.

The distance also made it impossible to opportunely address aspects such as emotions, feelings and experiences, which are elementary in the pedagogical processes. Thus, the challenge of deepening communication between teachers, students and their parents or representatives arose (Garay Núñez, 2021). This suggests that the teaching processes, beyond qualifying and evaluating, require rethinking the mechanisms of communication and interaction between the actors involved.

In this context of uncertainty and insufficient evidence-based instructions to allow the successful resumption of classes, the teachers put their creativity and ingenuity to the test. Regarding the didactic challenges in the rural context, Ribadeneira-Cuñez (2020) suggests that the lack of creativity for situational training can generate apathy and demotivation in students, which has historically been related to poor academic performance. Motivation thus emerges as another of the barriers that had to be addressed when resuming classes during the pandemic in the rural context.

From the perspective of students in rural areas of Argentina, Annessi & Acosta (2021) identified that the mechanism of resumption of education during the pandemic was also mediated by the rainy periods. When mobility was less likely, teachers and parents or student representatives used mobile devices to exchange content and explanations. This highlights the role of parents or student representatives in the resumption of classes during the pandemic. The pandemic has demanded a greater involvement of the representatives, which has not always been possible, especially in households in which the economic income of the parents is mediated by their mobility capacity.

The previous paragraphs constitute the cognitive platform from which the daily practices that emerged to resume classes during the pandemic in the rural context are investigated. The research uses a methodological approach of case study of a rural school in Ecuador. The daily teaching and learning practices of Natural Sciences are studied, from the COVID-19 pandemic, among a group of elementary school students. This methodological decision, in addition to achieving descriptions of the transformation in daily practices, allows us to observe the role of the context in the curricular plans and models of the national education system.

The objective of this study is to describe the daily teaching-learning practices in the rural context of the Ecuadorian coast during the COVID-19 pandemic.

MATERIALS AND METHODS

This research is a case study of the basic education school "Isidro Ayora Ecuador", in a rural population of Jipijapa, in Manabí, Ecuador. According to Yin (2017), the case study is appropriate when a phenomenon is examined in its context of everyday life, over which the researcher has no control. We sought to describe the practices that teachers and students adopted for the teaching and learning of Natural Sciences during the pandemic. This case study is of interest, as it reveals shortcomings related to rural education.

Specifically, it allows us to observe the inconvenience, on the part of the authority of the education system, of standardizing teaching processes and disregarding the different contexts in which meaningful learning is attempted. This is possibly more revealing in the dimension of natural sciences (Lorca-Marín & Alvarado, 2020), since the contents tend to underestimate the awareness of nature that children who grow up in rural ecosystems may have.

For data collection, a combination of qualitative ethnographic methods was used. Ethnographic techniques introduce readers to the culture and ecosystem in which the study takes place and help interpret the points of view of those who intervene in the observed phenomenon (Pozas *et al.*, 2016). For the study, participatory observation methods were applied with students, parents and teachers; collaborative mapping of teachers' daily routes for distribution of study material; in-depth interviews with teachers and school authorities; analysis of press content and focus groups with teachers. In addition, the informed consent of the participants was requested to present the evidence in this study. The raw data was in the form of field notes, photographs, map tracings reflecting the routes the teachers traveled, and audio recordings of in-depth interviews and focus groups.

The analysis began by identifying the keywords that were used most frequently in the interviews. This procedure, used in studies such as those by Galati & Bigliardi (2019) and Khan & Wood (2015) to identify emerging themes in a text, is favorable for this study, as it allows identifying the most relevant concepts from the voices of the actors Involved in the teaching of natural sciences in the rural context during the COVID-19 pandemic. Using a Visual Basic macro in Microsoft Word and the Wyatt (2018) script, the concepts that the interviewees mentioned most frequently were identified. These concepts are: parents, teachers, learning, table, homes, records, experience, knowledge, connectivity, nature and plants.

These concepts were iteratively triangulated with data from interviews, focus groups, maps, and photographs, until patterns were identified and the results organized in ways that built a coherent story. Finally, the evidence for the arguments takes the form of textual fragments from interviews, photographs, and map drawings, which are intertwined with the presentation of the arguments.

RESULTS

The improvised response of the Ecuadorian Education System to the pandemic

The pandemic evidenced the absence, or inability, if any, of contingency plans in the Ecuadorian education system. Ecuador

suspended face-to-face education in March 2020, after the first cases of corona virus were reported in the country. The sudden and unplanned closure of schools forced authorities, teachers, students and parents alike to improvise to avoid the interruption of teaching-learning processes. This challenge has been even greater in the low-income rural context, where internet access is limited and therefore the notion of virtual classes is a pipe dream. Added to this is the discontinuity of the school feeding program, which put greater pressure on the economy of the poorest households with school-age children. In this regard, the digital communication medium Swiss Info specified: "39% of households that received school meals before the pandemic currently do not have access to it, the NGO denounced in a report in which it also mentions that 80-90 % of minors in low-income households watch classes by cell phone" (Press release: "Ecuador faced with the dilemma of returning to school after 15 months of virtual classes", June 6, 2021).

In the "Isidro Ayora Ecuador" basic education school, like most rural schools in the country, the proportion of students with internet access is limited. Those who manage to connect to the virtual world generally do so through the mobile phones of their parents or representatives. This is problematic, in that, in rural areas of Ecuador, mobile telephony exists mostly through the prepaid system (Estupiñan, 2019), so access to data and the internet in this context is usually limited and expensive.

Distance education via telematic constituted the "plan B" of the Ecuadorian education system and managed to partially solve the access to classes of urban students, who make up the majority of the country's student population. However, students from rural territories, which make up approximately 25% of the student population (Vivanco-Saraguro, 2020), were inserted in a kind of progressive widening of the existing gaps in access to the education system.

The pedagogical files of the Ministry of Education: plan C?

As an alternative to access to education via telematic, for those students with limited internet access, the pedagogical files of the Ministry of Education emerged as an alternative solution. According to the website of this ministry [4]"The pedagogical files are content, more specifically, documents with clear and precise activities that make teaching more attractive for students."

These files are available for free download by teachers and the contents are available for all subjects and school years of the Ecuadorian system. In addition, the cards are designed to work indistinctly online or in person. However, as stated in the previous section, the "Isidro Ayora Ecuador" basic education school operates in a rural context and, therefore, the use of the cards by its students has been possible only through the physical distribution of these, carried out by the teachers. Figure 1 reflects the moment in which a teacher delivered the pedagogical cards to her students and provided instructions on their use.

Fig. 1- Teacher distributing pedagogical cards in rural areas (photo of the authors)

Additionally, for its management, the file is not self-explanatory, but rather depends on the self-sufficiency of the student or the instruction of the teacher or whoever acts in his place in the territory. This implies that, for the students of the "Isidro Ayora Ecuador" school, the management of the file depended

on the periodic presence of the teachers. However, despite occasional visits from them to hand out and explain the use of the cards, the students were unenthusiastic about using them. One of the teachers stated:

> …In order to comply with the guidelines of the Ministry of Education, when we noticed that the students were not connecting via the Internet, we had to implement alternative ways of reaching their homes. This was difficult because there are students who live long distances from the school. In the beginning, we took the cards once a week. To do this, we prepared our cards and delivered them to the students' homes. During the visit, we assigned tasks for the whole week and explained what was not clear... (Focus group with teachers from the "Isidro Ayora Ecuador" school, June 10, 2021).

The fear of catching COVID-19, both among teachers and parents and student representatives, also restricted the pedagogical value that the cards could have. The latter looked with particular mistrust at teachers who lived in urban centers, as it was there where the chances of contagion were greater. This often caused the interaction between teachers and students to be rushed and insufficient to convey relevant instructions on the cards. However, there were also groups of students, usually neighbors, who organized themselves to receive the teacher and share more instructional time, as can be seen in figure 2. In an attempt to compensate for the limited time of interaction with the students, the teachers reported having tried to engage the parents or representatives of the students in monitoring tasks and assistance in the use of the cards. However, the evaluations reflected that these efforts were insufficient. One of the teachers who participated in the focus groups stated:

> …One of the obstacles was that, when taking the card, there were fearful parents and students. They were scared, they looked at us, they knew that we came from cities and they were afraid to receive us. There were also students who did not want to leave their houses; but little by little we tried to calm them down and guide them. We always maintained bio safety measures, but it was a very big challenge to get ahead with student learning... (Focus group with teachers from the "Isidro Ayora Ecuador" school, June 12, 2021).

Fig. 2- Teacher giving instructions on the use of the pedagogical sheet in the La Curia community, July 9, 2021 (photo of the authors)

Parents and student representatives played the mediating role of learning during the pandemic. This was problematic, as some stated that the contents of the pedagogical sheets were challenging for them. In addition, the exhaustion due to their daily tasks imposed an additional difficulty. However, parents contacted teachers, generally via WhatsApp mobile application, to clear up doubts and help their children learn. Also, this way of interaction allowed teachers to assess learning. Some of the

parents interviewed in this study reported having considered withdrawing their children from the education system during the pandemic; but they recognized that teachers played a key role in the decision to keep their children studying. A teacher stated: "…I carried out the evaluations by telephone. He told the parents, through WhatsApp messages or text messages, to locate themselves in the places where they got a signal. For us, being able to evaluate the children was very difficult, but we managed to get an idea of what they had learned…" (Focus group with teachers from the "Isidro Ayora Ecuador" school, June 12, 2021).

In short, the use of pedagogical cards as an alternative for student learning in rural areas was far from achieving the conventional learning objectives that were proposed before the pandemic. In the same way, the attempt to involve the parents or representatives in the handling of the files was insufficient for teaching. The mother of one of the students expressed that the study contents were complex and not very understandable. This added to the lack of connectivity, either via the internet, by telephone or in person during the visits to deliver the cards, prevented parents and representatives from asking and clarifying their doubts in a timely manner. These limitations must be considered in the design of future contingency plans.

The daily life of rural teachers during the pandemic

The pandemic transformed the way of rural education operates in a distinctive way. While the prevailing educational processes, typical of the urban dimension, adopted virtuality and work from home for their daily operations, rural teachers increased the time and travel distance necessary to fulfill their roles. The need to travel to the students' homes revealed shortcomings in the information available to the national education system at its multiple scales. In the same way, as the pandemic highlighted the lack of contingency plans, it also revealed that the data available on the actors and interest groups in the education system are insufficient to organize actions to address emerging challenges. Regarding the decision to go to the students' homes, a teacher mentioned:

> …The decision to go out to the students' homes is made in conjunction with the entire faculty. We knew that many students did not have connectivity, so the only alternative was to go find the students to bring them the cards and give them instructions on what we were going to evaluate. Our obligation as teachers was to reach them and try to guide their families to help them achieve the expected learning... (Focus group with teachers from the "Isidro Ayora Ecuador" school, June 10, 2021).

Moving to the students' homes required, first, a collaborative exercise between teachers, students and parents to map the routes and create instructions that facilitate transit. Getting around in rural areas often involves traveling without a clearly defined home address. Instead, hand-drawn maps with landmarks and directions are often used. Upon reaching the communities where the students resided, the mapping process was refined. Figure 3 is a graphic representation of the communities where several of the students of the "Isidro Ayora Ecuador" school reside.

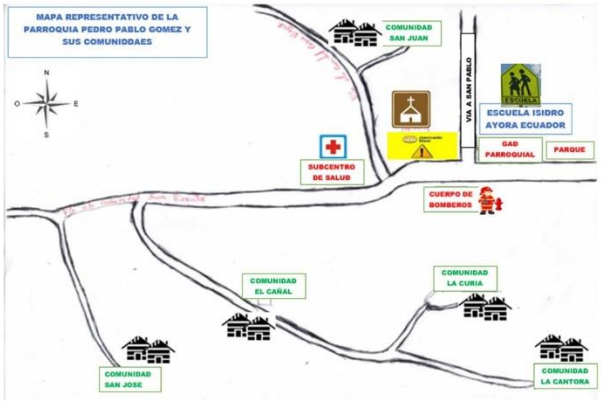

Fig. 3- Freehand map drawn collaboratively between teachers, students and their parents (own elaboration)

The paths along which the teachers traveled to the students' homes are mostly rudimentary, similar to what can be seen in figure 4. Despite moving around in private vehicles, some sections can be covered only on foot. At the beginning of the pandemic, to locate the location of the students' homes, the teachers traveled on foot. In this regard, a teacher stated:

> …the children's names and addresses are found in the school records, but there are no maps indicating the route to reach them. So, to get to places we didn't know, which were often far away, we asked local parents for directions so they could guide us. In addition, although we went by car, we also had to walk to reach the students, give them the pedagogical sheet and be able to explain what they had to do... (Focus group with teachers from the "Isidro Ayora Ecuador" school, June 13, 2021).

Fig. 4- Road to the San Juan community, June 11, 2021 (photo by the authors)

Despite the context of the pandemic, the students were not always available at home to receive the cards and instructions from the teachers. When at home, the students were often alone, in the company of their other siblings, and occasionally with an adult while their parents worked. It was also found that the parents of the "Isidro Ayora Ecuador" school are mainly engaged in agricultural activities and animal husbandry. Parental occupation information was also not available in student records. On the other hand, it is normal for older children to accompany their parents in their daily tasks, which imposed a degree of uncertainty on the teachers, about the possibility of delivering the cards and giving the corresponding instructions. In this regard, one of the teachers participating in the focus groups stated:

> …when we arrived at their homes, we found students alone or in the care of their siblings, or in the company of some other relative, because the parents work in agricultural activities… …in some cases, the students also accompanied the parents to carry out farm chores, especially older children. Not finding the parents was a negative aspect because we needed the parents to support the learning... ...sometimes we had to leave the files with the neighbors... (Focus group

with teachers from the Isidro Ayora School, Ecuador, June 13, 2021).

Finally, the start of the rainy season made it impossible to access students' homes by vehicle, which was possible using the so-called summer roads. These roads are passable only during the dry seasons. This meant that the teachers had to travel through muddy paths, in which more than one reported having slipped.

Through the description of the daily practices of rural school teachers during the COVID-19 pandemic, inadvertent shortcomings in the education system have been revealed. The study uses the Natural Sciences subject as a methodological resource to explore the challenges that arose from the pandemic. Among the shortcomings we have the scarce information that the education system has on the precise location of the students' domicile; secondly, the lack of knowledge that the education system has about the occupation of the students' parents; third, the impracticality of the pedagogical sheets for this context, as they require the mediation of parents or guardians for explanation and follow-up; Lastly, this section has revealed the challenges students face in moving from home to school.

The rural environment as a laboratory of Natural Sciences

The teachers observed that some students of the "Isidro Ayora Ecuador" school present a practical knowledge of natural sciences, as well as a reflexive understanding of some contents of the subject. This became evident during the teachers' visits to distribute the pedagogical cards among the students. When topics related to the daily life of their environments were addressed, the students were motivated to present their perspectives. This occurs more frequently among students who stated that they help their parents with agricultural work and animal husbandry. Figure 5 shows two school students helping their father with herding tasks.

Fig. 5- Students grazing near the "La Curia" community, June 17, 2021 (photo by the authors)

However, this was a spontaneous finding rather than a systematic analysis. This suggests that new studies are required to help identify the effect that environmental variables have on the learning process. When teachers were asked how they were evaluating learning during the pandemic, the answers once again revealed the degree of improvisation with which the education system operates. Some students were able to connect to the Zoom platform for their end-of-course assessments; others did it by phone, through the Whatsapp application. These evaluations were made individually to each student. For periodic evaluations, when possible, they were done as a conversation during the distribution and explanation of the use of the cards.

In short, during the pandemic, the teachers of the "Isidro Ayora Ecuador" school improvised in the ways of evaluating knowledge. The teachers agreed that the students presented a low performance and that they had not addressed the entire study program. However, in the Natural Sciences, the studied presented better results. When asked about the possible reasons, one of them explained: "…they know a lot about food and medicinal plants, which was important in this time of the pandemic. Medicinal plants were widely used by them to cure their ailments during the days of social

distancing. They also differentiate ornamental plants from other plants…" (Focus group with teachers from the "Isidro Ayora Ecuador" school, June 13, 2021).

The findings of this section propose that the knowledge that students share in their cultures and family nuclei is unused in the curricular meshes of the subjects. These aspects are important when designing pedagogical strategies, while ignoring them could be widening existing inequalities in terms of access to knowledge between urban and rural communities.

DISCUSSION

The article has exposed the most recurrent practices that emerged during the COVID-19 pandemic to resume classes in the rural context of the Ecuadorian coast. These practices include the adoption of pedagogical sheets and the distribution of these with their instructions "at home" by teachers. Likewise, this change in daily practices demanded a new role for the parents or representatives of the students. The case of basic elementary students of Natural Sciences from a rural school in Jipijapa canton was studied. The investigation showed that the national education system lacked contingency plans that would allow them to deal with interruptions of the educational process in cases of crisis. In line with that indicated by Valero Cedeño *et al.* (2020), this lack is even more prominent in the rural context, where the challenges of mobility and internet access are more accentuated.

The lack of foresight of the national education system put the desire to resume classes in the hands of teachers who, in the case of the rural school in this study, were not trained or familiar with remote education practices. As Ribadeneira Cuñez (2020) has suggested, this improvisation process required ingenious and contextualized initiatives to minimize the possibility that parents and student representatives would withdraw them from the national education system during the pandemic.

The study suggests that, in a context of uncertainty due to the lack of contingency plans, improvisation is the constant. In the context of this study, the focus on the improvised practices of teachers, students and representatives highlighted the need to address the following aspects:

1) The contextualization of education in which the development of critical thinking and meaningful learning are privileged. The case addressed in this study suggests that the national education system ignores situational awareness in its curricular plans.

2) The challenges of mobility and virtual connectivity. Virtual education and the use of pedagogical files were insufficient to promote meaningful learning among rural students on the Ecuadorian coast. In addition, the use of cards requires the mobilization ability of the teachers and the mediation of the representatives or parents of the students.

3) The insufficient information that the national education system contains about students.

The findings of this study have theoretical and practical relevance. On the theoretical side, it has been identified that non-situational education generates cognitive gaps between students from different territories. On the practical side, the study provides useful information to produce contingency plans to address future crises capable of interrupting teaching and learning practices in rural areas. The findings also have relevance for future research. It is necessary to have exhaustive databases that tend to a more individualized and pertinent education in the context of each student.

BIBLIOGRAPHIC REFERENCES

Annessi, G. J., & Acosta, J. I. (2021). La educación rural en tiempos de COVID-19. Experiencias de continuidad pedagógica en las escuelas primarias de Maipú, provincia de Buenos Aires, Argentina. *Revista Iberoamericana de Educación*, *86*(1), 43-59. Disponible en: https://doi.org/10.35362/rie8614145

Estupiñan, A. V. (2019). Análisis de la Situación Actual del Servicio Público de Telefonía Fija frente al Servicio de Telefonía Móvil en el Ecuador. *INGENIO*, *1*(2), 31-54. Disponible en: https://revistadigital.uce.edu.ec/index.php/INGENIO/article/view/1628

Galati, F., & Bigliardi, B. (2019). Industry 4.0: Emerging themes and future research avenues using a text mining approach. *Computers in Industry*, *109*, 100-113. Disponible en: https://doi.org/10.1016/j.compind.2019.04.018

Garay Núñez, J. R. (2021). Representaciones sociales de las competencias docentes en entornos virtuales de aprendizaje en tiempos de pandemia. *Dilemas contemporáneos: Educación, Política y Valores*, *8*(2). Disponible en: https://doi.org/10.46377/dilemas.v8i2.2551

Khan, G. F., & Wood, J. (2015). Information technology management domain: Emerging themes and keyword analysis. *Scientometrics*, *105*(2), 959972. Disponible en: https://doi.org/10.1007/s11192-015-1712-5

Lorca Marín, A. A., & Renata Alvarado, D. A. (2020). El contexto en el aprendizaje de las ciencias, ¿de quién y para qué? En C. A. Monge Madriz (Ed.), *Libro de Memorias XII Festival Internacional de Matemáticas* (pp. 30-37).

Mellado Hernández, M. E., & Chaucono Catrinao, J. C. (2015). Creencias pedagógicas del profesorado de una escuela rural en el contexto mapuche. *Actualidades Investigativas en Educación*, *15*(3). Disponible en: https://doi.org/10.15517/aie.v15i3.20924

Pozas, M. de los A., Estrada Saavedra, M., Colegio de México, & Centro de Estudios Sociológicos. (2016). *Disonancias y resonancias conceptuales: Investigaciones en teoría social y su función en la observación empírica*. Colegio de Mexico. ISBN: 978-607-628-122-2. Disponible en: https://www.jstor.org/stable/10.2307/j.ctt21h4z74

Ribadeneira Cuñez, F. M. (2020). Estrategias didácticas en el proceso educativo de la zona rural. *Revista Conrado*, *16*(72), 242-247. Disponible en: http://scielo.sld.cu/pdf/rc/v16n72/1990-8644-rc-16-72 -242.pdf

Silva, A. (2014). El aprendizaje significativo vivencial en las Ciencias Naturales. *Revista Electrónica EduSol*, *14*(49), 1-13. Disponible en: http://www.redalyc.org/articulo.oa?id=475747190001

Valero-Cedeño, N., Castillo, A., Rodríguez, R., Padilla, M., & Cabrera, M. (2020). Retos de la educación virtual en el proceso enseñanza aprendizaje durante la pandemia de COVID-19. *Dom. Cien.*, *6*(4), 1201-1220. Disponible en: https://doi.org/10.23857/dc.v6i4.1530

Vivanco-Saraguro, A. (2020). Teleducación en tiempos de COVID-19: Brechas de desigualdad. *CienciAmérica*, *9*(2), 166. Disponible en: https://doi.org/10.33210/ca.v9i2.307

Wyatt, A. (2018, junio 26). *Generating a Count of Word Occurrences (Microsoft Word)*. Disponible en: https://word.tips.net/T001833_Generating_a_Count_of_Word_Occurrences.html

Yin, R. K. (2017). *Case study research and applications: Design and methods*. SAGE Publications Inc. Disponible en: https://us.sagepub.com/en-us/cab/case-study-research-and-applications/book250150

[1]Special report "Latin America and the Caribbean in the face of the COVID-19 pandemic: economic and social effects", available at https://www.cepal.org/es/publicaciones/45337-america-latina-caribe-la-pandemia-covid-19-economic-social-effects
[2]Declaration against the prolonged school closure, available at https://www.unicef.org/peru/declaracion/frente-al-prolongado-cierre-escuela
[3]Available at https://es.unesco.org/themes/liderar-ods-4-educacion-2030
[4]Available at https://elyex.com/fichas-pedagogicas-del-ministerio-de-educacion-descarga-2-2/

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