



**Category: Applied Research in Health and Medicine**

**REVIEW**

## **Incidence of virtual education in front of covid-19 in the tilipulo neighborhood during the school year 2020- 2021**

### **Incidencia de la educación virtual frente al covid-19 del barrio tilipulo en el año lectivo 2020- 2021**

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#### **ABSTRACT**

##### **Introduction**

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, had a profound impact on various aspects of society, including education. In this context, virtual education acquired greater relevance as a solution for the continuity of learning at all educational levels. This study focused on the Tilipulo neighborhood in Latacunga to analyze the advantages, limitations and realities of virtual education in the face of the pandemic.

##### **Development**

The research identified that, although virtual education allowed students to continue their education, this modality presented multiple challenges, especially in rural areas. In Tilipulo, limited internet connectivity, scarcity of technological devices and lack of knowledge in the use of digital platforms hindered meaningful learning. These conditions exacerbated the education gap and led to high dropout rates. Despite the limitations, it was noted that virtual education helped to protect the health of students and their families, preventing the spread of the virus.

##### **Conclusions**

Virtual education, although vital in the health crisis, failed to match the standards of face-to-face education due to structural and technological limitations. It was concluded that it is necessary to implement strategies to improve digital infrastructure, train teachers and students, and adapt teaching methods to local conditions. These efforts are essential to ensure inclusive and equitable education, especially in vulnerable communities such as Tilipulo.

**Keywords:** COVID-19; virtual education; digital divide; school dropout; rural connectivity.

**RESUMEN****Introducción**

La pandemia del COVID-19, causada por el virus SARS-CoV-2, impactó profundamente en diversos aspectos de la sociedad, incluyendo la educación. En este contexto, la educación virtual adquirió mayor relevancia como una solución para la continuidad del aprendizaje en todos los niveles educativos. Este estudio se centró en el barrio Tilipulo, en Latacunga, para analizar las ventajas, limitaciones y realidades de la educación virtual frente a la pandemia.

**Desarrollo**

La investigación identificó que, aunque la educación virtual permitió a los estudiantes continuar con su formación, esta modalidad presentó múltiples retos, especialmente en zonas rurales. En Tilipulo, la limitada conectividad a internet, la escasez de dispositivos tecnológicos y el desconocimiento en el uso de plataformas digitales dificultaron el aprendizaje significativo. Estas condiciones exacerbaron la brecha educativa y propiciaron altas tasas de deserción escolar. A pesar de las limitaciones, se destacó que la educación virtual ayudó a proteger la salud de los estudiantes y sus familias, evitando la propagación del virus.

**Conclusiones**

La educación virtual, aunque vital en la crisis sanitaria, no logró igualar los estándares de la educación presencial debido a limitaciones estructurales y tecnológicas. Se concluyó que es necesario implementar estrategias para mejorar la infraestructura digital, capacitar a docentes y estudiantes, y adaptar los métodos de enseñanza a las condiciones locales. Estos esfuerzos son esenciales para garantizar una educación inclusiva y equitativa, especialmente en comunidades vulnerables como Tilipulo.

**Palabras clave:** COVID-19; educación virtual; brecha digital; deserción escolar; conectividad rural.

**INTRODUCTION**

The health crisis caused by the SARS-CoV-2 virus pandemic, which causes the COVID-19 disease, has affected society globally in many ways; given the circumstances described above, it is interesting to analyze the aspects that have affected and continue to affect the population. In this case, virtual education has become more relevant and important since it allows the continuity of education at all levels by young students, especially in the Tilipulo neighborhood of the city of Latacunga, which will be the subject of study to determine the reality of virtual education in front of Covid-19 in the sector.

The reasons that led to the virtual education against COVID-19 in the Tilipulo neighborhood focus on the positive and negative aspects that virtual education has brought to students who have been welcomed for COVID-19 to this mode of study. At the same time, it will allow us to obtain valuable lessons about the situation in which today the educational community is faced with the SARS-CoV-2 pandemic while knowing the relationship or not of those students who had to leave their studies.

The present study tends to be feasible since the necessary resources are available, in addition to the support, guidance, and advice of the teachers of the “Ana Páez” Educational Unit for the realization and achievement of the present investigation, as well as the use of technological and virtual means, and the due biosecurity measures.

**DEVELOPMENT**

For the development of this research, the following concepts are considered as fundamental:

**Pandemic**

A pandemic occurs when a new virus strain, capable of infecting humans, is efficiently transmitted, generates several outbreaks in at least one country, and spreads to other countries with disease patterns

that indicate that morbidity and mortality may be severe. The concept, anchored to microbial theory, is limited to determining the presence of an infectious agent and its ability to spread across national borders (Kaffure, 2010, p.56).

Based on the above text, the pandemic is characterized by causing an outbreak that will spread to several countries beyond the borders of the country of origin concerning an infectious agent such as a virus and its ability to spread.

#### Viruses

Viruses are a form of existence of matter and are the smallest infectious agents known today; they transfer nucleic acid from one cell to another, multiply, and cause disease to microorganisms, plants, animals, and man. They are not only harmful, they are also used in the production of vaccines and mass immunization of populations against viral diseases; in addition, they constitute genetic models for research (Delgado Ortiz María & Hernández Mujica, 2015, pp.1-2).

Viruses are understood as infectious agents that multiply and cause diseases in plants, animals, and people; thus, they are not only harmful because they help create vaccines or antivirals to be used in the world population to counteract diseases.

#### SARS-CoV-2

It is a new type of coronavirus that can affect people. It was first detected in December 2019 in Wuhan City, Hubei Province, China. It produces only mild respiratory symptoms in 80% of cases (Trilla, Peri, Violan, Pascual, & Rubinat, 2012, para.3).

The Covid-19 disease is caused by the new coronavirus known as SARS-CoV-2. “WHO first became aware of the existence of this new virus on 31 December 2019, when it was informed of a cluster of cases of viral pneumonia that had been reported in Wuhan in China” (World Health Organization, 2020, para.1). Based on the above quote, Covid-19 is the disease that is caused by the SARS-CoV-2 virus that upon contact with humans attaches to the lungs developing respiratory complications that if not treated in time can lead to death.

#### Virtual education

“Distance Education is the way to incorporate the didactic results of real classrooms to contexts in which it is not possible to physically gather participants in a teaching/learning process, providing possibilities of online teaching, with the same quality and impact, as if they were in a face-to-face classroom” (Romero, 2013, p.16).

#### E-learning and the reality of virtual education

It is concerned with using information and communication technologies (ICT), specifically Internet tools and resources, to teach knowledge. It consists of renewing, collecting, searching, and contrasting information to be transformed into knowledge, whose main purpose is to provide and favor distance training and instruction (Espinoza, 2018,p.202).

E-learning propitiates the use of technology as a means for virtual learning, so it is said that, under this assumption, the Internet will transform traditional education into a distance, interactive, and interconnected education, which generates learning, transforming people. “Specifically, that the Internet allows the teacher to plan class activities under its cover, that it supports the development of projects, that it is a great tool for research or that it favors multi- and interdisciplinary learning” (Göller, 2012, p.146).

#### M-Learning

M-learning or mobile learning has been fundamental in virtual education since in homes that do not have a computer, the mobile phone, known as a “cell phone,” has allowed students to access virtual classes, generating significant learning in them.

Any learning occurs when the learner is not in a fixed and predetermined location or takes advantage of the learning opportunities offered by mobile technologies (Malley, 2017, para.7).

In the wake of the coronavirus pandemic, the difficulty of bringing the Internet into the classroom has impeded the growth of pedagogical models in keeping with the times. “We believe that the improvement of technological tools for education is indispensable for its development and transformation, especially in a context of unforeseen situations such as the one presented today with COVID-19” (García, 2020, para.4).

## CONCLUSIONS

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, profoundly transformed various aspects of society, including education. Virtual education has become a key tool in guaranteeing the continuity of the educational process, especially in critical contexts such as the Tilipulo neighborhood in the city of Latacunga. However, this modality evidenced multiple technological and socioeconomic challenges that limit its effectiveness.

One of the main findings is the existing digital divide, marked by the lack of access to the Internet and technological devices, particularly in rural areas. Only a small percentage of households have the necessary resources to support virtual education, which has led to high student dropout rates. In addition, unstable connectivity and a lack of knowledge about digital platforms have hindered meaningful learning.

Despite these challenges, virtual education has shown important advantages, such as protecting the health of students and their families by preventing the spread of the virus. However, this modality still does not guarantee the same level of learning as face-to-face education due to limitations in technological infrastructure, teacher preparation, and methodologies adapted to the virtual environment.

The study identified the need to strengthen students' and teachers' technological and pedagogical capacities. It is essential to implement strategies that include universal access to the Internet, training in technological tools, and the design of content adapted to local realities.

In conclusion, virtual education, although indispensable in times of crisis, still faces multiple challenges in consolidating itself as an effective and equitable alternative. A joint effort is needed between governments, educational institutions, and communities to overcome these limitations and guarantee quality education in all contexts, especially in vulnerable sectors such as the Tilipulo neighborhood. This approach will make it possible not only to improve learning but also to close the inequality gaps that the pandemic has exposed in a more evident way.

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#### **FINANCING**

None.

#### **CONFLICT OF INTEREST**

None.