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Digital Divide and its Impact on Ecuadorian Educational Equity: A Review from Current Pedagogy

Ronald Lligüin Ochoa

https://orcid.org/0009-0001-3802-2585

lliguinronaldug@gmail.com

Universidad de Guayaquil

Estudiante pedagogía de las ciencias experimentales de la informática

Emilia Garcia Perdomo

https://orcid.org/0009-0002-7159-8364

garciapem001@gmail.com

Universidad de Guayaquil

Estudiante pedagogía de las ciencias experimentales de la informática

Abstract

The post-pandemic (COVID-19) period highlighted inequalities in access to digital education, deepening the digital gap that already existed in contexts like ours, Guayaquil, Ecuador. This project aims, in addition to analyzing the influence of the digital divide on educational equity, to propose a solution that can be implemented in the educational field. We will focus on our Guayaquil context through a systematic bibliographic review of literature published between 2015 and 2024, based on academic data (Scielo, Redalyc, Dialnet, SpringerLink) and reports from international organizations (UNESCO, ECLAC). The results identify structural factors, such as limited technological infrastructure and insufficient teacher training, and sociocultural factors. Strategies based on connectivist, constructivist, and socio-critical approaches, aligned with the Ecuadorian national curriculum, are proposed to promote digital inclusion in education. These strategies would include disseminating and teaching the use of multiplatform and Web Based tools such as Google Classroom, Google Meet, WhatsApp, and YouTube, designed to be accessible. This promotes their use on basic devices and even with limited connections, with a view to improving access to online education with simple adjustments, sharing their benefits for sustainable education and bridging gaps in resource-limited areas.

Keywords: digital gap, educational equity, Guayaquil, inclusive education, information and communication technologies, critical pedagogy, Ecuadorian curriculum.

Introduction

Perhaps one of the concepts with the most interpretations is "The digital divide". For this article, we will take the concept from cruzroja.es: "The digital divide refers to the inequality in the access, use, or impact of Information and Communication Technologies (ICT) among social groups. These groups are usually determined based on economic, geographical, gender, age, or cultural criteria".

One of the biggest current challenges facing education globally is the digital divide. Through the review of current empirical evidence on the digital divide in our educational system, we intend to propose pedagogical routes that are aligned with the national curriculum and thus mitigate it.

Digital education has undergone a kind of standardization, adopting software and technological tools that require medium expertise and high resources for their proper functioning. This has left aside a vast group that, by not being digital natives or by being in sectors lacking cutting-edge technical or technological resources, have been relegated. Our goal will be to promote more economical and technologically viable alternatives for this human group.

Theoretical Framework

Related Pedagogical Models

Knowing the enemy we are going to fight, "The digital divide," we will do so from the educational perspective. To this end, we will focus on the most current pedagogical models that are most consistent with our Ecuadorian context and the type of learning we wish to develop. The resulting pedagogical model converges between different currents or approaches, which will allow for the construction of active and interactive learning. The

Constructivist Model will be essential, viewing ICT as the tools that mediate this process. We will also rely on another model, Connectivism (Siemens, 2005). This model emphasizes the creation of knowledge networks and the students' ability to navigate, filter, and recombine digitally distributed information. Without neglecting the importance of a Socio-Critical Approach, which shows education as emancipation and social justice, emphasizing the need for guaranteed technological access as a right (Gorski, 2009).

Literature Review

The topic of the digital divide has already been extensively studied by other researchers, some of whom have focused on Latin America. Jafar, Ananthpura, and Venkatachal (2023) documented the trade-off between limited connectivity and academic performance in Tamil Nad (India) , and a similar context was found in the Andes (Luque, 2019). Salemink, Strijker, and Bosworth (2017) reported that insufficient rural infrastructure inhibits the adoption of ICT, while Van Dijk (2020) stated that utility and appropriation are even more critical than access.

In Ecuador, the Ministry of Education (2022) admits that only 37% of public schools have a solid connection, which directly affects the implementation of curricula and learning outcomes.

As proposed by Rivera Gómez (2017), we must seek and promote the use and optimization of the smartphone as a pedagogical tool in the classroom, addressing the internet, social networks and their risks, autonomous learning, and a new conception of the classroom.

Results and Discussion

The literature analysis has allowed for the grouping of the most influential factors

perpetuating the digital divide into three dimensions: structural-infrastructural, sociocultural, and pedagogical. The first is given by the lack of broadband networks and devices that restrict access due to planned obsolescence (Salemink et al., 2017). In the sociocultural dimension, the level of parental education, gender, and rurality create significant differences in the use of ICT (Luqee, 2019). From the educational perspective, the lack of digital competencies among teachers is evident in practice, which is a limitation for the potential of technological transformation (Gorski, 2009). The reviewed consequences include low virtual participation, academic delays, and increased school dropout (UNESCO, 2021).

Proposal

In the Ecuadorian reality, the digital divide (technological inequality) becomes one of the major impediments to achieving equality on various fronts. Development becomes disparate, especially in education, rural areas, and low-income urban sectors. From the perspective of the current pedagogical model, which encourages equal participation in learning and the complete development of the student, it is necessary to consider technological proposals adequate to the country's social and economic conditions. A viable option is to integrate multiplatform software into the school environment. This type of technological application, by functioning on multiple devices (e.g., simple computers, economical cell phones, and web access), makes it easier for students with scarce resources to use learning materials and academic tasks from their device, without the need for high-end equipment. Employing the use of multiplatform software not only improves access but also aligns with the foundations of equal teaching and is adapted to the current environment by encouraging the active engagement of each student, regardless of their technological conditions. Its implementation in academic settings, social spaces, and government plans can significantly help reduce the digital divide and advance towards more equitable and accessible

education in Ecuador.

Within this same proposal, bringing educational cinema to these sectors could undoubtedly massify our objective. By presenting information on the use, implementation, and utilization of this type of software in common spaces, we optimize the resources destined for this task. A single teacher could thus reach families and even entire communities without the need for large investments in logistics and mobilization of teaching staff.

These strategies focus on the dissemination and teaching of the use of multiplatform and web-based tools, such as Google Classroom, Google Meet, WhatsApp, and YouTube. Thanks to their operation on mid-range or low-end devices and their low data consumption, these applications are ideal for contexts with limited resources.

The proposal promotes the systematic pedagogical use of these platforms, not just as circumstantial responses, but as pillars of accessible and sustainable online education. By training teachers and students in their strategic use, the purchase of new hardware is avoided, and complex infrastructures are dispensed with. In this way, access to knowledge is democratized, and the economic and technical barriers that traditionally marginalize certain groups are reduced.

Furthermore, bringing educational audiovisual content — "educational cinema" — to community spaces can amplify the reach of this initiative. By projecting in squares, neighborhood centers, or mobile classrooms, a single teacher can simultaneously reach entire families, optimizing resources and minimizing logistical and displacement costs. This modality strengthens collective learning, encourages intergenerational participation, and reinforces digital literacy by demonstrating, practically, the use and benefits of multiplatform software.

Conclusions

The digital divide continues to be one of the constant problems affecting education in

Ecuador. It is not just about having or not having internet, but everything that implies: students who cannot access virtual classes, teachers who still do not know how to use technology well, and communities that are left behind.

Analyzing different studies and documentation, we understood that this problem is not new, but it has advanced over time, especially after the pandemic. Urban areas, low-income households, and public educational centers are the most affected.

It is not enough to simply hand out computers or have a good Wi-Fi network. The real solution involves training teachers, adapting the curriculum to the digital reality, and creating spaces where technology is used effectively for learning. The pedagogical models we analyzed help us think better about this challenge. Constructivism, Connectivism, and the Critical Approach serve not only as theory but as a basis for action in educational practice. Proposals such as the Community Connected Classrooms demonstrate that options can indeed be sought from the school itself, with community support, and carefully analyzing what is truly needed, not just what is newest or most expensive.

Finally, closing technological inequality is not the job of a single institution. It requires commitment from the State, constant training, investment, and above all, an educational perspective that sees inclusion as a right, not a privilege.

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