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The Right to Digital Education in High School Students of the Federico Froebel Education Unit 2022

El Derecho a La Educación Digital En Estudiantes De Básica Superior De La Unidad Educativa Federico Froebel 2022

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Abstract

In Ecuador, the recognition of the right to digital education has been limited and fraught with challenges. These difficulties have arisen not only due to the absence of its regulation but also because of the lack of infrastructure and necessary resources for effective interaction between educators and students. The right to digital education should not be viewed solely as a right but as a tool capable of contributing to the improvement of teaching methodologies to enhance the quality of education in the country's educational institutions and to ensure the integration of students into the knowledge and information society. The Constitution of the Republic of Ecuador involves the educational administration in the implementation of this right, requiring it to include the competence to manage the constant evolution and reduce the digital gap between technology and teaching methodology. Furthermore, the Ecuadorian legal framework also mandates the assurance of teacher training to enhance the necessary skills and qualifications for successfully addressing digital learning processes. Additionally, it links the training of teachers and students in the use and safety of digital media to the guarantee of fundamental rights on the Internet. This research work analyzes the concept of digital education, the right to it, its background, and the current regulatory framework in Ecuador, particularly in educational institutions in the canton of Babahoyo.

Keywords: *Digital Rights, Digital Education, Electronic Media.*

Resumen

En Ecuador, el reconocimiento del derecho a la educación digital ha sido escaso y lleno de adversidades. Estas dificultades no solo han sido por causa de la ausencia de su regulación, sino también de la falta de infraestructuras y los recursos necesarios para su eficaz relación entre docentes y estudiantes. El derecho a la educación digital, no solo se debe ver como un derecho sino como una herramienta capaz de contribuir a la mejora en la metodología de enseñanza para mejorar la calidad de educación en las unidades educativas del país y a garantizar la inserción de los alumnos en la sociedad del conocimiento y de la información. La Constitución de la Republica del Ecuador involucra a la administración educativa en la implementación de este derecho, requiriéndole que incluya la competencia para manejar la constante evolución y disminuir la brecha digital entre la tecnología y la metodología de enseñanza. A su vez, el ordenamiento jurídico ecuatoriano también pide que se asegure la formación de los docentes, para mejorar las competencias y la formación necesaria para abordar con éxito los procesos de aprendizaje digitales. Además, vincula la formación de docentes y alumnos en el uso y seguridad de los medios digitales a la garantía de los derechos fundamentales en Internet. El trabajo investigativo analiza el concepto de educación digital, el derecho a la misma, sus antecedentes y el vigente marco regulatorio en Ecuador y en especial en instituciones educativas del cantón Babahoyo.

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Palabras Clave: *Derechos Digitales, Educación Digital, Medios Electrónicos.*

Problem Statement

When discussing "digital education," at first glance, it may appear to regulate only online education, so it is deemed necessary to consider the broad scope of this right. Today, it is indeed the modality of education that is growing and evolving the most. However, digital education is a combination of teaching and technical methods based on traditional tools and methods such as digital presentations, video conferencing, digital storytelling, wikis, online surveys, blogs, word clouds, social networks, and, of course, current electronic devices (tablets, smartphones, interactive whiteboards, etc.).

According to UNESCO (the United Nations Educational, Scientific and Cultural Organization): "Digital education involves the use of digital technologies and media to enhance access to information, knowledge, learning, and teaching."

According to Marc Prensky: "Digital education is the strategic use of technology to teach students critical 21st-century skills, such as problem-solving, communication, collaboration, and digital literacy."

For Chris Dede: "Digital education refers to the use of digital technologies, such as computers, the internet, mobile devices, and software, to enhance teaching and learning, as well as to transform the student's educational experience."

In contrast, Richard Culatta states: "Digital education is more than simply using technology in the classroom. It's about teaching students to use technology effectively to solve real-world problems, collaborate with others, and communicate more meaningfully."

Based on the synthesis of these authors, digital education could be defined as the degree of access and participation in digital education, which includes training in digital skills, access to online educational resources, and inclusion in the digital era. Digital education is understood as both in-person and distance learning using digital technologies, to acquire meaningful knowledge and learning experiences for both educators and students as part of higher education. Digital education represents a paradigm shift, a transformation of the teaching and learning process in which educators take on the role of mentors and guides in the learning process. Education knows no boundaries of time and space; digital technologies that connect teachers and students offer opportunities to achieve meaningful learning.

Education is the construction of human culture to achieve specific objectives, and it is based on the accumulated knowledge of humanity. Every offered opportunity must be captured and leveraged. These changes must be far-reaching, not just a one-time process. In this sense, there are two problems to deal with.

The first problem is to reduce the gaps between different sectors of society and among generations in terms of access to and use of new technologies.

The second aspect is related to the educational challenges posed by the introduction of new technologies in schools (Quevedo & Dussel). This affects both the organization of space and time in the classroom and the reorganization of knowledge and authority relationships. Educational institutions continue to use traditional technologies for teaching and learning.

Digital technologies and education from a legal approach

The increasing relevance of knowledge in contemporary societies makes technology an increasingly determining factor in other disparities. The possibility of accessing and critically using new devices and platforms will have a significant impact on the consolidation and expansion of social inequality. Inequality in digital technologies is not only material; it also affects the potential for symbolic and cultural

appropriation by significant segments of the population, thus limiting their possibilities of social inclusion and exercising citizenship (LUGO & DELGADO, 2020).

This highlights the multiple aspects that need to gain prominence in public policies to reduce the digital division and demands a comprehensive perspective. Among these aspects, the following stand out: planning and management of ICT policies, educational practices, digital culture, financial and material resources, available technological infrastructure, and the relationships of institutions with the community.

In this sense, digital policies enable the expansion and transformation of educational spaces to open up new ways of learning and teaching strategies. They also enable the creation of alternative literacy spaces and new models of knowledge certification capable of bridging the gaps between formal education, learning, and global employability.

In this scenario, it is necessary to conceive technology as something closer to educational planning. Its true use requires expertise in ICT, the ability to design unforeseen schemes and a deep understanding of the logic and school cultures. Without these three components, the introduction of technologies can be constrained, unproductive, or redundant (LUGO & DELGADO, 2020).

Therefore, digital policies increasingly require a comprehensive approach and a multisectoral perspective (LUGO & DELGADO, 2020). In this way, it is possible to articulate the needs and demands of governments, the private sector, academia, civil society organizations, teachers, students, and families to design initiatives that promote a comprehensive vision of the right to education.

Despite the efforts of states and the presence of technologies in educational agendas, their integration into educational systems still presents numerous challenges. It is essential to design digital policies based on a critical and complex perspective that studies the past and perceives the present to build the education that new generations need. This overview of the main digital initiatives aims to provide guidelines for the development of a new digital education agenda for Latin America.

The regulation of the right to digital education in Ecuador

In the Ecuadorian context, in the year 2000, the National Telecommunications Council (CONATEL) emphasized universal access and universal service as a state policy for telecommunications services, considering them essential for economic, political, and social development. In June 2002, the "Internet for All" policy was implemented. (Loja, 2020)

By decree, the National Connectivity Commission (CNC) was created, in charge of formulating and developing the National Connectivity Agenda (ANC). The CNC developed the Action Plan to implement the ANC for the 2002-2003 period, focusing on five key areas: infrastructure, tele-education, telehealth, e-government, and e-commerce. Subsequently, the Action Plan for 2005-2010 of the ANC was developed, but it did not include the proposed eLAC2007 goals; instead, it primarily evaluated the goals set in 2002 (Albornoz et al., 2012).

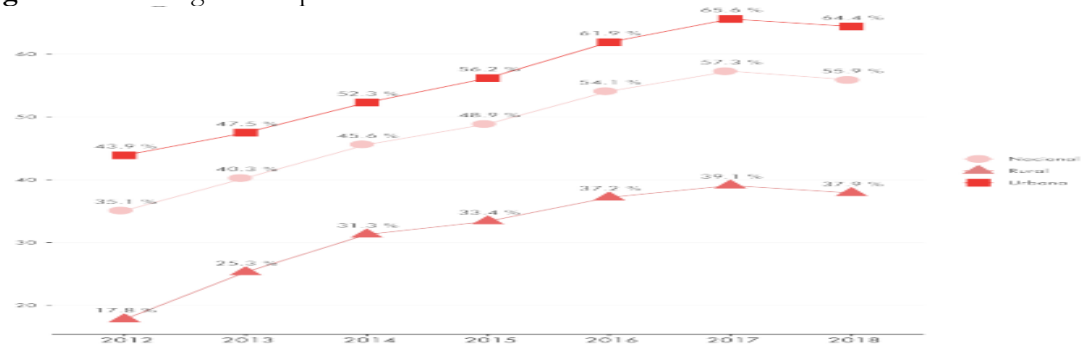
In 2009, the Ministry of Telecommunications and Information Society (MINTEL) was established, with one of its central policies aimed at making ICT a cornerstone of productive transformation and economic development. To achieve this, it implemented the "Ecuador Digital 2.0" project in alignment with the 2009-2013 National Development Plan (PNBV).

In 2010, through an agreement between the Ministry of Education (MINEDUC) and MINTEL, the "Integrated System of Technologies for Schools and Communities" (SITEC) project was implemented. It involved providing equipment (computers, projectors, digital whiteboards, audio systems, and connectivity) to public General Basic Education (EGB) and high school institutions. This project was

divided into two phases: the first phase (2010-2014) focused on equipment, educational content, Community Technology Classrooms, community training, and teacher training. Agreements and contracts with public and private companies were established for equipment and connectivity provision.

For the second phase (2015-2017), the MINEDUC-MINTEL agreement was maintained, and connectivity contracts were renewed with companies such as TELCONET (Ramírez Casas, L., & Maturana, J. M. (2018), cited from MINEDUC, 2018). With the implementation of these and other programs and projects, some statistics highlight the existing technological policy gaps in Ecuador. In Figure 1, an increase in the percentage of people using the Internet can be observed. However, the gap between urban and rural areas remains significant. In December 2018, out of a total of 26,928 surveyed households, 64.4% reported using the internet in urban areas, while in rural areas, the figure was 37.9%. In other words, internet usage has increased in both areas, but the gap persists.

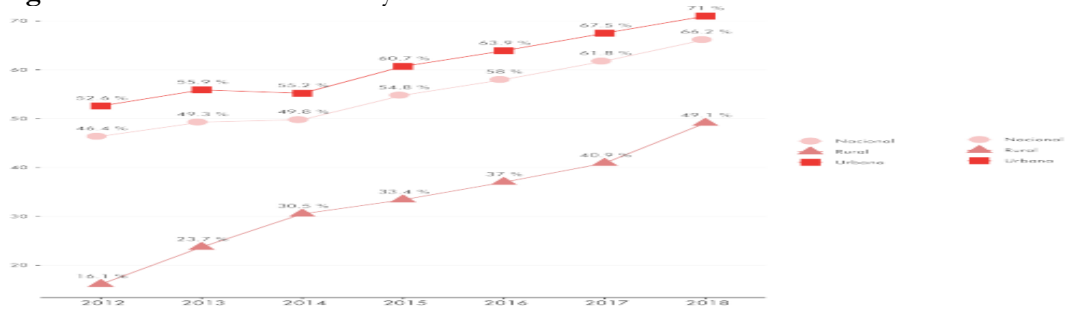
Figure 1: Percentage of People Who Access the Internet.



Source: National Institute of Statistics and Censuses (2018)

Regarding the location of Internet usage, Figure 2 indicates that the home and educational institutions are the most common places for using the Internet. This pattern is similar in both urban and rural areas, and although there has been a significant increase, the gaps between these areas persist. This data is associated with Ecuador's National Development Plan, known as the "Plan for Good Living" during the government of Rafael Correa from 2009 to 2013.

Figure 2: Place of Internet Use by Area.



Source: National Institute of Statistics and Censuses (2018)

According to data from the National Institute of Statistics and Censuses (INEC) in 2020, just over half of households in Ecuador had an internet connection: 61.7% in urban areas and 34.7% in rural areas. While this represents a significant leap forward, it is not sufficient, as the use of technology brings about significant social, cultural, financial, and professional changes. When it comes to the use of ICT tools in schools, an equally important issue arises concerning the specific technological context of each school

or groups of schools with varying resources. This challenge leads to the concept of a digital division, where different schools have different technologies and specific educators.

ICT policies for education in Ecuador

Another interesting statistical fact to consider, especially in recent years, is the increase in the number of people who own smartphones, which allow access to various resources such as social networks and web browsers. According to INEC data, the percentage of people who owned a smartphone nationally increased from 6.2% in 2012 to 41.4% in 2018. Significantly, there are differences between urban and rural areas, with 50% of urban residents owning a smartphone compared to only 23.3% in rural areas.

With these data in mind, in terms of ICT policies, there is a noticeable increase in internet access and smartphone ownership. What remains concerning is the persisting and even widening gap between urban and rural areas. The central government, in addition to increasing access levels, must work on public policies that help reduce this gap between both sectors, particularly in the context of education (Loja, 2020).

From the synthesis of the theoretical foundations presented earlier, it can be established that digital education involves using electronic devices to create a new learning environment that adapts to technological advancements.

It is worth noting that there are no consistent approaches in the theoretical background due to a contrast between theory and practice. In Ecuador, the use of electronic devices in educational methodology is just beginning to be implemented in educational institutions. This is due to the significant socioeconomic disparities in the country, as not all families have the financial resources to acquire electronic devices to enhance the quality of their children's education.

Based on these limitations, the research aims to demonstrate that the Federico Froebel Educational Unit seeks to implement these new teaching methods, gradually advancing the teaching methodology with current technological advancements.

Problem Formulation

How does the right to digital education influence high school students at the Federico Froebel Educational Unit during the 2022 academic period?

Hypothesis

The right to digital education influences high school students at the Federico Froebel Educational Unit.

General Objective

To determine the right to implement digital education in the educational process of high school students at the "Federico Froebel" Educational Unit in the Babahoyo Canton during the 2022 academic period.

Specific Objectives

- To establish a theoretical foundation related to digital education rights.

- To assess the current status of high school students at the Federico Froebel Educational Unit.
- To propose an Organic Law project that implements measures to ensure that all students, regardless of their geographical location, gender, ethnicity, or socioeconomic status, have equal opportunities for access to digital education, reducing the digital division and promoting educational inclusion.
- To validate the work through expert opinions.

Methodological Framework

Research Approach

The methodological approach reflects a mixed approach since it best suits the characteristics and needs of the research, as it seeks to comprehend the social phenomenon using both qualitative and quantitative aspects of the study.

Research Scope

The research scope is descriptive and explanatory. The combined purpose of this scope was to describe the current state of digital education in the methodology of high school education, explaining the causes and conditions that generate the status of these categories.

Research Design

The variables will be observed as they occur in the social reality that contains them without any manipulation by the researcher. The research will have a non-experimental design. According to Hernández, Fernández, and Baptista (2010), non-experimental research "is conducted without deliberately manipulating the variables. What is done in this type of research is to observe phenomena as they occur in a natural context and then analyze them" (p.270). These same authors point out that cross-sectional research designs "collect data at a single moment in time. Their purpose is to describe variables and analyze their incidence and interrelationships at a given moment" (p.289).

Empirical Level Methods

1. **Observation Method:** This method was employed to determine the regularities and characteristics that arise in the right to digital education.
2. **Measurement Method:** It was used to measure significant elements of the variable to describe the quality or quantity of the social phenomenon.
3. **Literature Review Method:** This method allowed for the theoretical support of the variable.
4. **Causal-Investigative Research Method:** It was used to determine the components of the social phenomenon under investigation.
5. **Expert Opinion Method:** This method was used to consult a group of five experts to validate our proposal based on their knowledge.

Theoretical Level Methods

1. **Abstraction Method:** It was used to understand the features or qualities of digital education.
2. **Lege Ferenda Method:** It was employed to determine the relationship between legal dogmatics and the effectiveness of regulating digital education.
3. **Analysis-Synthesis Method:** This method was used to analyze the phenomenon and discover its causes through observation, to understand the whole from its parts.

Data Processing Level Method

1. **Statistical Method:** It was used for the processing and management of quantitative and qualitative data related to digital education.

Research Techniques and Instruments

The research techniques and instruments used in the study were:

- **Systematic or Regularized Observation Guide:** This was used to determine significant elements that needed to be observed to establish the regularities of digital education.
- **Systematic Literature Review Guide:** This instrument was developed for the planned analysis of the literature review, identifying the most relevant authors through bibliographic indexes.
- **Delphi Technique:** It was used to validate the proposal for an Organic Law project that implements measures to ensure that all students, regardless of their geographical location, gender, ethnicity, or socioeconomic status, have equal opportunities in accessing digital education, reducing the digital division, and promoting educational inclusion.
- **Survey:** This **was** used to determine the perception of students at the Federico Froebel Educational Unit regarding digital education.
- **Interview:** It was employed to interview legal experts specialized in digital matters and final-year law students.

Applied Instruments

Survey

General observation: 1 is the minimum of the indicator, and 10 is the maximum of the indicator:

1. How familiar are you with the term "Digital Education"?
2. Do you have regular access to electronic devices (computer, tablet, smartphone, etc.) with an internet connection?
3. Do you believe that the quality of internet access is adequate for educational purposes?
4. Do you think that access to digital education is equitable in all regions of Ecuador?
5. Have you faced or are you currently facing difficulties in accessing digital education at school?
6. Do you believe that teachers are adequately prepared to teach digitally?

Interview

1. What measures do you think should be taken to improve the right to digital education in Ecuador?
2. Do you believe that digital education is equally effective as traditional education in schools?
3. How important do you consider the inclusion of the digital education approach in the school curriculum?
4. Do you think digital education has improved access to education in rural or remote areas of Ecuador?
5. How many high school students are there at the Federico Froebel Educational Unit?
6. Do you think the acquisition of a virtual library could improve teaching methodology in schools?
7. What tools would you implement to improve the quality of teaching through digital education?

Operationalization of Variables

Variables	Definition of the Variable	Dimensions	Indicators	Instruments	Degree of Realization of The Indicator	Units of Analysis
Right to digital education	The degree of access to and participation in digital education, including digital skills training, access to online educational resources, and inclusion in the digital age.	Access to technology and connectivity	Percentage of the population that has access to technological devices and internet connection in their homes or places of study.	-Survey -Observation Guide. -Literature review guide -Interview	Scale from 1 to 10. Where 1 is the minimum realization of the indicator and 10 is the maximum realization of the indicator.	High school students from the Federico Froebel Educational Unit in the city of Babahoyo. Teachers of the Federico Froebel Educational Unit Developmental pedagogies.
		Level of digital competence of teachers:	Measurement of the digital competence and training of teachers who teach classes to high school students.			
		Public policies in digital education	Evaluation of government policies and measures implemented to promote digital education and close digital gaps in Ecuador.			

Variables	Definition Of the Variable	Dimensions	Indicators	Instruments	Degree of Realization of the Indicator	Units of Analysis
High school students of the Federico Froebel Educational Unit	The level of access and participation of high school students of the Federico Froebel Educational Unit to digital education.	High school student index	Percentage of high school students at the Federico Froebel Educational Unit.	-Survey -Observation Guide. -Literature review guide -Interview	Scale from 1 to 10. Where 1 is the minimum realization of the indicator and 10 is the maximum realization of the indicator.	High school students from the Federico Froebel Educational Unit in the city of Babahoyo. Teachers of the Federico Froebel Educational Unit Developmental pedagogies.
		Digital skills training index High School student index:	Percentage of high school students who have received formal training in digital skills, either at school or through training programs.			
		Index of access to online educational resources	Percentage of students who have access to digital educational resources, such as online courses, educational platforms, and virtual libraries.			

Partial Results

The use of technological tools in the classroom by the teacher allows them to improve their class and develop the student's abilities for proper teaching and information management. It is necessary to be aware that today's teachers are facing a fractured reality because they were educated differently and now have to adapt to a technified world that demands knowledge and skills they often lack. Furthermore, many schools in our country, whether in remote areas or urban marginalized areas, lack either the necessary equipment or well-prepared teachers to guide their students in the proper use of these technological resources. The school's equipment and teacher preparation must go hand in hand to overcome these difficulties and eliminate the existing digital division. It is considered that the key to bridging the digital division lies in the educational approach, the use of ICT, the emphasis on the development of skills, learning to research, working in teams, and producing educational materials from any area using ICT. All of this requires that the teacher be trained.

In summary, it can be stated that:

- ICT is a tool that can enhance the quality of learning.
- ICT is educational resources with great potential that teachers can use by integrating them into the curriculum.
- ICT can be a means to bridge the educational gap.
- ICT attracts students and can lead to motivating and meaningful learning.
- ICT will prove its effectiveness by overcoming teachers' resistance through relevant and motivating training.
- It is proposed to use a methodological strategy based on the development of the following processes: Motivation and prior learning. Activation of learning. Reflection and research of practice. Contributions to knowledge and applications. Evaluation. Reinforcements. Innovating my practice: transfer to reality.

Expert criteria validation table

Clarity and precision	Coherence	Correspondence with fundamental rights	Applicability	Consistency with principles	Social impact
10	9	8	10	9	10
9	8	9	8	8	9
8	9	8	10	9	8
9	9	10	8	9	10
10	10	9	8	8	9

Conclusions

- The limited knowledge of people about Information and Communication Technologies (ICT) leads to significant consequences, primarily in terms of job exclusion and a deplorable social and economic status, which ultimately contributes to the underdevelopment of nations. The establishment of Info-centers in Ecuador has led to a reduction in illiteracy and digital division by providing access to Information and Communication Technologies.

- The primary means of communication used in digital literacy is the internet, which not everyone has access to. The reasons for this vary depending on geographical location, government systems, religion, and economics, among other factors.

- The digital division is a limitation that isolates people who have digital electronic devices and the knowledge to use them from those who do not, resulting in a lack of understanding about these technologies. A strategy to carry out digital literacy is to use Virtual Learning Environments (VLEs) or Learning Management Systems, since the teachers can work in this direction, given the multiplier effect of their actions in improving the learning of our students by taking advantage of technological advances for comprehensive human development.

- Continuous training and practice in the use of computer applications on electronic devices with internet access improve the quality of life for people through social and employment inclusion. The success of commercial activities, economic transactions, and basic services relies on the use of online services that information technologies offer, allowing for quality service and efficient response times.

- In conclusion, all the references, opinions, reports, and statements mentioned in the previous sections will be of little use if the final result does not lead to the legal recognition of the right to digital education. Every right is the result of a social construct that needs to be defined positively, that is, legally recognized by national and international bodies, and, when necessary, protected through legal means.

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