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Use of Information and Communication Technology for Quality Management in the Classroom

Uso de las Tecnologías de Información y Comunicación para una gestión de calidad en el aula

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Abstract

The purpose of this study was to analyze the use of Information and Communication Technologies (ICT) for quality classroom management at the Doctor Eduardo Mora Moreno High School in Loja, Ecuador. It was developed in the positivist paradigm, with quantitative approach, in a field research type with descriptive level, non-experimental transectional design with a population and census sample of fifteen (15) tenured teachers in classroom functions. To collect the information, an instrument containing twenty-four (24) items with response alternatives on an estimation scale (always, almost always, sometimes, almost never and never) was designed; it was subjected to content validity using the expert judgment technique and reliability with Cronbach's Alpha internal consistency method, where the result obtained was 0.92, indicating that the instrument presented strong reliability. For data analysis, descriptive statistics were used to obtain information from classroom teachers regarding the use of various ICT tools. In spite of the permanent training offered by the governing body, it was concluded that the classroom management of the professionals does not attend to the stages of planning, organization, leadership and evaluation with the use of ICT, which limits the achievement of educational quality in terms of equity, effectiveness and efficiency.



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Keywords

Digital literacy, educational quality, education, ICT, teaching.

Resumen

El presente estudio tuvo como objetivo analizar el uso de las Tecnologías de Información y Comunicación (TIC) para la gestión de aula de calidad en el Colegio de Bachillerato Doctor Eduardo Mora Moreno en Loja, Ecuador. Se desarrolló en el paradigma positivista, con enfoque cuantitativo, en un tipo de investigación de campo con nivel descriptivo, diseño no experimental transeccional con una población y muestra censal de quince (15) docentes titulares en funciones de aula. Para recolectar la información se diseñó un instrumento contentivo de veinticuatro (24) ítems con alternativas de respuesta en una escala de estimación (siempre, casi siempre, algunas veces, casi nunca y nunca); el cual se sometió a la validez de contenido utilizando la técnica juicio de expertos y la confiabilidad con el método de consistencia interna *Alpha de Cronbach*, donde el resultado obtenido fue 0.92 señalando con ello que el instrumento presentó fuerte confiabilidad. Para el análisis de los datos se utilizó la estadística descriptiva que permitió obtener información de los docentes de aula en cuanto al uso de diversas herramientas TIC. A pesar de la capacitación permanente que ofrece el ente rector se concluyó que la gestión de aula de los profesionales no atiende a las etapas de planificación, organización, liderazgo y evaluación con el empleo de las TIC lo que limita el logro de la calidad educativa en cuanto a equidad, eficacia y eficiencia.

Palabras clave

Alfabetización digital, calidad educativa, enseñanza, TIC.

1. Introduction

Nowadays, progress in all areas of life allows us to see the so-called ICT in every individual and collective activity carried out by human beings in the personal, family, social, community and work spheres. In education, the application of these tools in an adequate way will allow to obtain the advantages to go from being the information society to the knowledge society. In this regard, Pacheco (2011) states that:

We live in a technological culture that is advancing day by day and that marks in a matter of months a rapid obsolescence of many skills and the emergence of others. The impact of this culture is immense as it produces continuous transformations in economic, social and cultural globalization, and affects practically all aspects of personal life: work, commerce, bureaucratic management, leisure and education (p. 2.).

Therefore, the research work entitled Use of Information and Communication Technologies ICT for quality classroom management focuses on the contemporary educational environment, specifically in the Doctor Eduardo Mora Moreno High School in Loja, Ecuador. From this perspective the insufficient and ineffective use of ICT in the classroom by teachers and the deteriorated infrastructure limits the comprehensive education of students, the scarce incorporation of ICT in school activities and the lack of Internet access is also a need that has not been addressed by Ecuadorian government policies. In addition to this, there is also limited ICT training in this digital era, which poses a significant problem. Given this, it is required to intensify the use of ICT as a strategy and action that will allow it to be efficient,



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effective, provide relevant and relevant learning; the above is summarized in that there is a need to provide quality service that is provided as a right of every citizen according to the current legal system in this nation.

In this sense, the present field research with descriptive level intended to analyze the use of ICT for quality classroom management in the Doctor Eduardo Mora Moreno High School in Loja, Ecuador. This leads to the identification of the current situation in the use of ICT by teachers, and the description of the necessary steps for effective classroom management with technological tools. The question that guided the research was: could the integral education of students be improved if teachers used ICTs effectively in classroom management? In this context, the idea is proposed that an efficient and consistent use of ICT by the teaching staff would allow a better integral formation of students, by facilitating an adequate classroom management supported by technological tools.

This article is divided into six sections: review of various sources with which the theoretical framework was constructed, composed of the background, the theoretical bases with the perspective of various authors to support the procedure to be executed; the methodological framework; with details of the nature of the research, in terms of the paradigm, approach, type and design selected to respond to the proposed objectives. The population, data collection technique and instrument, validity and reliability procedures were mentioned, in order to proceed to the data analysis with descriptive statistics. For the analysis and interpretation of results, the instrument was applied to thirty (30) teachers who were the primary source of the research. The analysis of the data was carried out according to the frequency and percentage obtained in each item, the tendency of each group was interpreted according to the indicators of each dimension of the variable; likewise, the results were contrasted with the theory that supported the research. Conclusions were drawn in response to the stated objectives, then recommendations were formulated for the target population of the study regarding the use of ICT for quality classroom management at the Doctor Eduardo Mora Moreno High School in Loja, Ecuador. Finally, references and annexes were presented.

2. Literature review

With technological advances in the order of the day, the use of computers and equipment is practically a daily activity in this 21st century; a premise that schools must consider when designing plans and curricula, since, more than complying with government policies on the subject, it is a matter of integrally educating each citizen. When referring to the subject, Ayala and Gonzales (2015) indicate that technology is "used to: create, store, exchange and process information in its various forms, such as: data, voice conversations, still or moving images, multimedia presentations and other forms, including those not yet conceived" (p 28). Therefore, he considers that the incorporation of ICT in society and, in particular, in the field of education has been acquiring increasing importance and has been evolving over the last few years. It invites each classroom teacher to use various tools to capture the student's interest, while creating a positive and constructive learning environment.

Therefore, according to the aforementioned source, the use of ICT in education has increasingly become a necessary and determining element in the achievement of educational quality. The presence of computers in the classroom, more than fulfilling a requirement or fashion, requires being a means and resources for teaching and learning, it is about the integral formation of the student. Indeed, it is important to promote the use of ICTs in the classroom, as Díaz-Barriga (sf) mentions, "nowadays, education cannot be disassociated from, and denied the support of, ICTs" (p. 4). Thus, from this perspective, it is



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interpreted that any reform or effort to improve education as a process necessarily demands intensifying the use of various technological tools in the so-called classroom management that requires:

- **Training in the Use of ICT:** From the perspective of the Ministry of Education in Ecuador, a relevant aspect for quality teacher management is the use of ICTs; therefore, the teacher professional performance standard implies guiding, supporting and monitoring the action of the groups of actors that make up the National Education System for its continuous improvement. To this end, ongoing training is a state policy that seeks to update teaching professionals so that they can implement various ICT tools in their teaching practice, within the framework of disciplinary, pedagogical and professional ethics aspects that teachers must show in order to develop a quality teaching and learning process.
- **Digital literacy:** for López de Ramos et al. (2022) "must possess a set of specific knowledge and skills that allow them to search, select, analyze, understand and manage the enormous amount of information accessed through new technologies" (p. 161). ICTs have acquired great relevance in the educational context, offering multiple opportunities to improve the quality of teaching and learning. In the era of digitization, ICTs have become a crucial factor in all areas of life, including education. ICT can provide invaluable resources to improve learning and teaching, but its effective implementation is not an easy task in Ecuador. It must be strategic and address multiple aspects to be effective.

To create learning environments enriched with the use of ICTs, it is essential to intervene at two levels within educational institutions. At the first level, it is essential to comply with the five fundamental axes: institutional management, ICT infrastructure, ICT coordination and teaching, teachers from other areas and digital resources. These axes form the basis for an efficient and effective integration of ICT in educational processes and teaching. It is not enough to have the technology available; it must be incorporated in a deliberate manner, and focused on teaching practice and institutional culture. At the second level, the authors discuss the SAMR model, which provides teachers with a clear structure for understanding how ICT can transform traditional learning environments and can be understood as "educational environments that significantly expand students' possibilities for the transmission of knowledge and development of skills, abilities and attitudes" (Méndez, 2012, p. 201). It focuses more on explaining the characteristics of activities that incorporate technologies with the purpose of classifying them by levels according to how they enhance or transform educational tasks. The model of technology integration in education is described as follows. According to Ferreres (2011)

The new social and informational landscape defined by ICTs demands a change in the traditional educational conception and in the roles that teachers and students have been playing in the classroom. The new educational idea is based on training a citizen with the ability to learn throughout his life and on a new teaching methodology where the student changes his traditional role of passive receiver of information for a new role that allows him to develop active tasks of exploration and search for information guided and facilitated by the teacher (p. 4).

Effective ICT integration, according to Cevallos et al. is not a single event, but a continuous and progressive process. It is essential to consider these levels in the design of pedagogical interventions with ICT to maximize their potential to improve the quality of education. On the other hand, the disinterest of students in certain subjects can represent a challenge for teachers in the transmission of knowledge, so seeking new methodologies that include ICT is essential, especially considering the familiarity of students with these technologies from



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an early age. However, the lack of ICT skills of some teachers may limit their implementation. The reluctance of some teachers to integrate ICT into their teaching and the lack of motivation of students are consequences of the limited use of technology. The use of technological tools, such as Google Drive, WhatsApp, PowerPoint, Prezi, Slide Share, Educaplay and Edmodo can enhance learning by enabling communication and information sharing by providing engaging educational content that can be accessible from home (Cevallos et al., 2020, pp. 86-93).

They are also a crucial tool to foster the formation of digital citizens with ethical and participatory skills in the online society. In this context, UNESCO (2019) points out that.

The effective incorporation of ICT in the classroom has the potential to transform pedagogy and empower students. To this end, the continuous training and updating of teachers in ICT competencies is essential, enabling them to guide students in acquiring skills related to the knowledge society (p. 1).

In response to this challenge, UNESCO has developed the ICT Competency Framework for Teachers, which aims to guide the initial and ongoing training of teachers in the use of ICTs in the education system. This framework advocates for strong political commitment and sustained investment in teacher education, with initial and ongoing training, tailored to the context of national and institutional goals, being essential for its successful implementation. According to UNESCO (2019) the professional development of teachers should be a continuous process throughout their lives and not a one-off activity. In this sense, three in-service training policies are proposed in a perspective of teacher learning throughout professional life.

1. To design in-service teacher training articulated to professional competencies and student learning.
2. Organize in-service teacher training through training itineraries corresponding to the roles of teacher, director and trainer.
3. To develop a decentralized model of training and regional participation (pp. 3-4).

These three phases are essential to ensure that teachers can acquire and effectively apply digital competencies in their educational practice, with the aim of improving teaching and learning, and forming citizens capable of thriving in the knowledge society. Pacheco (2011) "points out that we currently live in a technological culture that is advancing day by day and that marks in a matter of months a rapid obsolescence of many skills and the emergence of others" (p. 127). The impact of this culture is immense, producing continuous transformations in economic, social and cultural globalization, and affecting practically all aspects of personal life: work, commerce, bureaucratic management, leisure and education. For these reasons, technology urgently requires learning to live with it and to use its undoubted benefits.

Education in the 21st century focuses on learning to learn, therefore, in a new educational system, implementing ICT is viable and relevant. Navarrete (2018) taking into account these basic clarifications indicates that:

ICTs are means (applications) and not ends; they are tools that facilitate learning and the development of competencies.



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ICTs are generators of information and not of knowledge; of course, with proper mediation, this information can be converted into knowledge; for this to be so, the information must be analyzed, reflected upon and evaluated.

In the classroom, ICTs are potential cognitive tools that can help students expand their intellectual capacities by opening new possibilities for individual and social development (p. 128).

Therefore, it is important to promote the use of ICT in classroom spaces, as Díaz-Barriga (sf) mentions, "nowadays, education cannot be disassociated from, and denied its support as a product of ICT" (p. 4). Thus, from this perspective, it is interpreted that any reform or effort to improve education as a process necessarily demands intensifying the use of various technological tools in the so-called classroom management, as follows:

- **Training in the Use of ICT:** From the perspective of the Ministry of Education (2012) in Ecuador, a relevant aspect for quality teacher management is the use of ICT; therefore, in the standard of professional teaching performance, it is implicit to guide, support and monitor the action of the groups of actors that make up the National Education System for its continuous improvement. To this end, ongoing training is a state policy that seeks to update teaching professionals so that they can implement various ICT tools in their teaching practice, within the framework of disciplinary, pedagogical and professional ethics aspects that teachers must show in order to develop a quality teaching-learning process.
- **Didactic material:** Morales (2012) defines as the:

Set of material means that intervene and facilitate the teaching-learning process. These materials can be both physical and virtual, they assume as a condition to awaken the interest of the students, to adapt to their physical and psychological characteristics, and to facilitate the teaching activity by serving as a guide; likewise, they have the great virtue of adapting to any type of content (p. 10).

2.1 Classroom management

Educational management assuming the perspective of Ramírez-Orozco (2016) points out that management is a "process of organization and administration of resources to achieve organizational objectives through efficient management and where the educational manager leads and directs his teams towards the goals of the organization, motivating, stimulating, evaluating" (p. 5). It implies, then, leading the work in the institution itself, but also in relation to the environment.

Seen in this way, educational management has aspects related to the work of the manager, but also in the classroom, with a teacher who is called to be proactive, updated and assume his or her classroom management towards the achievement of quality in teaching and learning for the benefit of the integral formation of the student and quality management in the classroom. This also requires fostering meaningful learning experiences, making efficient use of available resources to train not only in theoretical content, but also in practical content. Indeed, classroom management is the implementation of a series of policies, guidelines and programs that govern a country and seek to streamline teaching and learning for the benefit of all stakeholders involved. In the words of Villalobos (2011)

It develops between the interactions between the subject who teaches and the subject who learns in a micro society that is the classroom or the



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place where these interactions take place. Within this, the construction of meanings and new knowledge from the effective transfer of official curricular proposals to practice plays a preponderant role (p. 5).

In other words, classroom teacher management is derived from or has its framework of action in a series of educational guidelines and policies that should permeate their performance, their pedagogical practice manifested in a series of stages inherent to teaching and learning, namely developing planning, organization, leadership and evaluation.

1. **Planning:** for Carriazo et al. (2020) it is understood as "selection and organization of all curricular activities of the institution, based on objectives and human, economic and material resources, the interest and needs of the educational community, and the time available" (p. 88). Therefore, it is a theoretical model for future action. It begins by establishing the necessary plans to achieve them in the best possible way, it is necessary to be specific, to know where to go, how, when and with what. In the educational field, it is related to national and jurisdictional educational policy decisions, and to institutional contextualization, thus allowing the design and programming of its teaching practice not to be an isolated element, but at the same time respecting the independence and professional autonomy necessary for the development of its activity.
2. **Organization:** in the words of Robbins (2003) expresses how "organization includes determining what tasks will be performed, who will do them, how the work will be grouped, and who will report to whom and where decisions will be made." (p. 114). In other words, it involves determining and establishing the structure, procedures and resources needed to achieve the objectives established in the planning.
3. **Leading:** Evans and Lindsay (2008), state that leadership "is the ability to positively influence people and systems by provoking a determined attitude, under one's authority in order to have a significant impact and achieve important results" (p. 212). Therefore, leadership is the ability of a person to influence, motivate, organize and carry out actions to achieve their goals and objectives involving people and groups within a framework of values.
4. **Evaluate:** Díaz and Hernández (2000) "the evaluation of the learning and teaching process should be considered as a necessary activity, insofar as it provides the teacher with a self-control mechanism that will allow for the regulation and knowledge of the factors" (p. 352).

With the aforementioned stages of classroom management, i.e., planning, organization, leadership and evaluation, the teacher has a range of technological tools that allow him/her to respond to the needs of the student in a world in which digital scenarios are becoming more frequent.

2.2 Educational quality

According to the Real Academia de la Lengua (2012), the term quality comes from the Latin "qualitas, -ātis, and this calque from gr. ποιότηςποιότης." and refers to the "property or set of properties inherent to something, which allow us to judge its value." (p. 241). The greater or lesser quality is produced by the gap or not between the definition of the vertebral principles and the social understanding of them in the facts, in everyday life. In this sense, the quality of education according to UNICEF (2020) indicates that:

Under international law, States have a legal obligation to ensure that educational institutions are safe and conducive to a quality and inclusive



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learning environment. This includes school buildings, classrooms, libraries, sanitation facilities for both sexes, access to safe drinking water, availability of materials, recreational spaces, science laboratories, computers and infrastructure for technology and internet access, etc. (p. 64).

Quality education includes well-nourished students with a supportive family environment, an educational method with a curriculum that provides the necessary knowledge, a safe teaching environment, trained and skilled educators. These are a number of attributes for quality education, focused on the development of students, by producing permanent changes that at present cannot be disconnected from the use of ICT. There are different factors that determine the quality of education and depend on aspects such as society itself, a political stance, the development of science, history and culture. These factors are classified into human, technological, scientific, cultural, political and economic, and they contemplate different considerations such as the relevance of studies to the social reality and educational programmes in relation to their mission, values and what they contribute to the lives of students. Teachers should also enhance the training of students to innovate in the classroom and facilitate well-being. Consideration should also be given to sufficient flow for resources and for adequate and comprehensive infrastructure, the philosophy of continuous improvement to focus on teaching and learning, the matching of mission, vision and objectives, and training that enables students to be self-reliant and identify life projects.

Teaching and learning also includes pedagogical methods, evaluation, class size, values and skills in numbers, literacy, and skills for everyday life, taking into account the following elements of educational quality. The quality of education focused on responding to the needs of the environment, for the benefit of the students. According to Barba (2012)

It represents a problem with multiple interpretations, which vary depending on its incorporation in the structuring of organizational processes, the constitution of organizational models and its relationship with the context. Properly, the notion is developed in the business environment, which, according to the author, responds to issues such as: efficiency, effectiveness, efficacy, change and flexibility. Together, the abstraction links the individual, group, organizational and social levels. (p 13).

Educational quality can be identified from indicators such as: equity, effectiveness and efficiency to strengthen competencies and skills needed to succeed in a profession and break the cycle of poverty, according to UNESCO (2016)

Relevant teaching and learning methods and content that are appropriate to the needs of all learners and delivered by appropriately qualified, trained, paid and motivated teachers, using appropriate pedagogical approaches and supported by appropriate information and communication technologies (ICTs), on the one hand, and the creation of safe, healthy, gender-sensitive, inclusive and well-resourced environments that facilitate learning, on the other, are indispensable (p. 30).



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3. Methods and Materials

The research was conducted between September 2020 and March 2021 with a focus on the use of ICT in quality management in the classroom. The place of study was the Doctor Eduardo Mora Moreno Bachelor's College in Loja, Ecuador. The research subjects were fifteen (15) teachers in class positions at this school who voluntarily participated in the study. Teachers taught different subjects and educational levels providing a diverse representation of teaching experience.

In order to gather information, the survey was applied as a technique, which is defined by Busot (2006) "as one that allows to know the opinions and attitudes that people show" (p. 148), and the instrument a questionnaire, which for the quoted author is "a set of questions regarding one or more variables to be measured" (p. 276). For study purposes, a questionnaire designed with twenty-four (24) closed items, with alternative responses on an estimated scale: always, almost always, sometimes, almost never and never, was used to measure the classroom quality management variables, dimensions in the use of ICTs (item 1 to 10); classroom management stages (item 11 to 18) and elements of educational quality (item 19 to 24).

A pilot study was conducted on ten (10) teachers, with characteristics and conditions similar to those studied. Subsequently, the Cronbach Alpha reliability coefficient was calculated, for having the instrument more than two (2) alternative responses, applying the following formula:

$$\alpha = \frac{n}{n-1} * \frac{St^2 - \sum Si^2}{St^2}$$

Equation 1. Cronbach's Alpha reliability coefficient.

A = Reliability Coefficient
 St^2 = Total variance of the test
 Si^2 = Sum of the individual variance of the items
 N = number of items of the instrument

It should be noted that the result obtained with the application of this formula was 0.92, indicating that the reliability of the questionnaire presents high reliability, as indicated by Ruiz (2002).

N of Cases =		10				
N of Statistics for Scale	Mean	Variance	StdDev	Variables		
	75.1111	62.25	7.8899	24		
Item Variance	Variances	Mean	Minimum	Maximum	Range	Max/Min
	0.8647	0.2778	1.6222	1.333	5.8	0.0591
Reliability Coefficients 24 ítems						
Alpha =	0.9274	Standardized item alpha =			0.9243	

Table 1. Reliability analysis



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Table 1 details the reliability analysis where 10 cases are considered, as well as statistics such as the average (75.11) variance (62.25), standard deviation (7.88) of the 24 observed variables. The variance analysis determines the minimum and maximum and the range used. The reliability or significance level (Alpha=0.9274) indicates that it is statistically significant. From the position of Hernández et al. (2014) the purpose of data analysis is to describe “variables and explain their changes and movements and the characteristics that make up it are the systematization, intensive use of statistics (descriptive and differential) based on impersonal variables in data collection” (p. 14).

With this basic argument the tabulation of the data collected in the application of the questionnaire was processed quantitatively, this provided the necessary automation for the effective handling of the information obtained. The data were analyzed using descriptive statistics, representing the information in charts and percentage bar figures, for analysis and interpretation with the respective theoretical support in formulating conclusions and recommendations.

4. Results

A 24-item, expert-verified and highly reliable data collection instrument was used in the present research. The data were summarized in tables and percentage bar charts addressing various indicators and stages of classroom management. The results were compared with the theory supporting the research to respond to the proposed objectives framed in the positivist paradigm to analyze the use of ICT in the educational context.

ALTERNATIVE ANSWERS											
For quality management in the classroom, use ICTs:		S		CS		AV		CN		N	
		f	%	f	%	f	%	f	%	f	%
Participates in training activities at the institutional level	1	0	0	2	13	8	53	5	34	0	0
Participates in ongoing training programs in the use of ICTs	2	0	0	2	13	10	67	3	20	0	0
Average Values Indicator Training		0		13		60		27		0	
In the digital literacy of students	3	0	0	0	0	6	40	9	60	0	0
In the achievement of competencies (from the simplest to the most complex) in the use of ICTs.	4	0	0	0	0	8	53	7	47	0	0
Digital Literacy Indicator Average Values		0		0		46		54		0	
As didactic material in the collective construction of scientific knowledge.	5	0	0	0	0	15	100	0	0	0	0
As didactic material in the development of diverse procedural contents.	6	0	0	0	0	11	73	4	27	0	0
Average Values Indicator Didactic Material Indicator		0		0		86		14		0	
As a source of information in the development of school assignments.	7	15	100	0	0	0	0	0	0	0	0
As a source of information on various	8	12	80	3	20	0	0	0	0	0	0



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topics optimizing the quality of educational training.

Average Values Indicator Source of Information	90	10	0	0	0
As a tool to facilitate students to do school work	9	0	0	10	67
As a tool for cooperative learning	10	0	0	0	15
Average Values Indicator Instrument for Performing work	0	33	60	7	0
Average Values Use of ICT Dimension	18	11	51	20	0

Number of teachers= 15

Table 2. ICT Use Dimension

Table 2 shows the responses of 15 teachers interviewed by questionnaire, of which the response items are: always, almost always, sometimes, almost never and never, for the questions related to the use of ICT in the classroom, training, literacy and the didactic material used. In general, the results in Table 2 indicate that teachers are adopting ICTs in their educational practice.

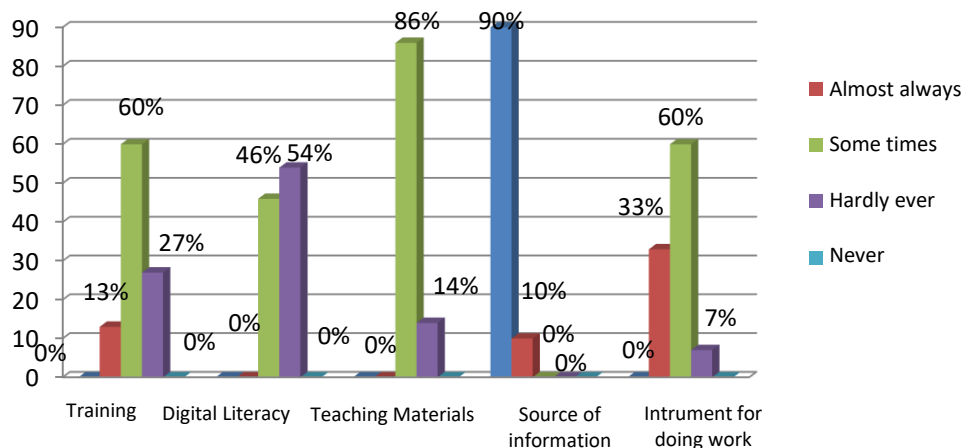


Figure 2. Percentage of ICT use dimensions

The general trend in the use of ICT for quality management in the classroom is irregular, with a predominance of "sometimes" responses. This inconsistency may be a barrier to improving the quality of education through the effective use of ICT at the Doctor Eduardo Mora Moreno High School in Loja, Ecuador. Greater consistency is needed in training, digital literacy and the use of ICTs as teaching materials and tools for work. Hence, it is necessary to enhance ICT in education for this purpose, the following can be mentioned:

On the indication in Figure 2 that precedes the average values of the ICT training indicator, it is observed that 60% indicates the option sometimes, 27% almost never and 13% almost always. On this data is evidenced the scarce importance that is given to the teaching training in the use of ICTs, there is a disadvantageous tendency to prevail the option sometimes, which is interpreted as an inconsistency in the teacher training that in the words of Sánchez (2009) "Luckily, they no longer serve only what the books say, since they can learn, more



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and more, by themselves, to raise, plan strategies and solve situations in permanent transformation thanks to their accessibility to thematic environments” (p 43).

The average results of the digital literacy indicator are as follows: 54% in almost never option and 46% in the option sometimes, determining that for the majority of teachers (54%), almost never use ICT for digital literacy, despite the point by López de Ramos (2022) who emphasizes the purpose of “search, select, analyze, understand and manage the huge amount of information that is accessed through new technologies” (p. 161). In this case, such a tendency to deprive sometimes and almost never is a limit to the achievement of educational quality by the class teacher.

The mean values of the teaching material indicator include 86% in the option sometimes and 14% almost never, therefore, this discrepancy is interpreted as an unfavourable trend in the use of new tools in educational management. These results contradict what Morales (2012) pointed out, who emphasizes that “the teaching material lies in the influence that stimuli to the sensory organs exert on the person who learns, that is, puts it in contact with the object of learning, either directly or giving it the feeling of indirect” (p .10).

The results belonging to the indicator source of information is considered a favorable trend, 90% of the subjects of study always answer and 10% almost always apply and use ICT in the execution of school activities, which is a favourable factor in the pedagogical practice. The mean values of the instrument indicator for carrying out work, constitutes 60% in the criterion sometimes, 33% almost always and 7% almost never, so it is evident that the majority of the subjects of study there is inconsistency, weakness in the use of ICTs as instruments for performing work. This unfavourable trend limits the achievement of quality in the teaching practice of the teacher.

It is important to note that the predominance of frequency sometimes in the use of ICT is a weakness, since in terms of Cabrero (2019) “empowering students: importance of creating meaningful learning experiences that take into account the students’ ideas. In addition, it emphasizes attention to diversity with ICT, ensuring equitable access to technologies” (p. 3). The diversity of tools allows to capture the interest of the student and in turn create a positive and constructive learning environment in the classrooms of the educational institution.



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ALTERNATIVE ANSWERS											
For the achievement of educational quality, in its classroom management:		S		CS		AV		CN		N	
		f	%	f	%	f	%	f	%	f	%
Plans various activities for meaningful learning with the use of ICT.	11	0	0	0	0	15	100	0	0	0	0
Plans objectives focused on the use of ICT for educational quality.	12	0	0	3	20	4	27	8	53	0	0
Average Values Planning Indicator		0		10		63		27		0	
Organizes the computer equipment available in the classroom for the intensive use of technology in school work.	13	0	0	0	0	15	100	0	0	0	0
Organizes didactic resources to promote the use of ICT in the classroom.	14	0	0	0	0	15	100	0	0	0	0
Average Values Indicator Organization		0		0		100		0		0	
Leads the use of ICT as didactic material in the classroom.	15	0	0	1	7	6	40	8	53	0	0
Leads several pedagogical projects with the use of ICT.	16	0	0	1	7	9	60	5	33	0	0
Average Values Leading Indicator		0		7		50		43		0	
Conducts diagnostic assessments to determine students' media competencies	17	0	0	0	0	12	80	3	20	0	0
Applies formative assessments to track student digital literacy goals	18	0	0	0	0	12	80	3	20	0	0
Average Values Indicator Evaluation		0		0		80		20		0	
Average Values Use of ICT's Dimension		0		4		73		23		0	

Number of teachers= 15

Table 3. Indicator of the dimension for the management of educational quality in the classroom.

Regarding the survey conducted for 15 (fifteen) teachers, there is a general tendency towards inconsistent and occasional application of the stages of classroom management in the context of ICT. Planning, this result suggests that there is a need to improve the planning of ICT use in the classroom. Teachers should consider the use of ICTs in the development of their educational objectives, and should plan activities and resources that take full advantage of the potential of ICTs for learning. Organization is positive, indicating that teachers are recognizing the importance of organizing ICT resources for use in the classroom. The use of ICT in the classroom will improve teacher leadership by enabling students to develop critical thinking, problem solving, collaboration and communication skills. Teachers create engaging and interesting assessments to evaluate, this helps to maintain student motivation and at the same time measure the impact of ICT use on student learning, and the results of the evaluations improve their teaching practice.



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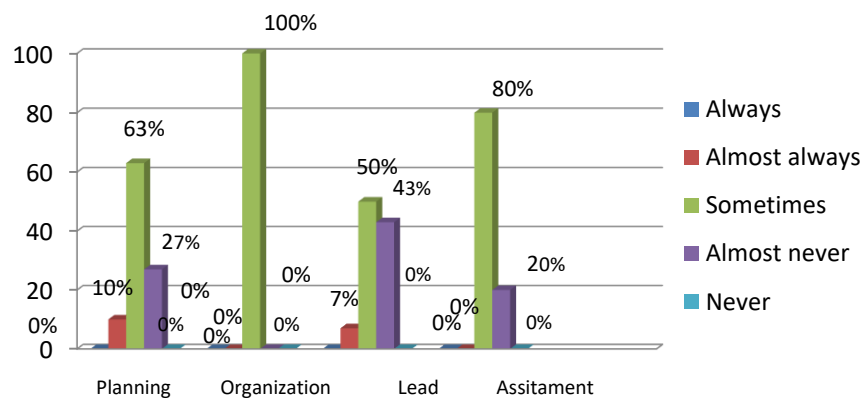


Figure 3. Dimension of the stages for classroom management

When analyzing the results, it can be mentioned that: the results of the planning indicator are 63% in the option sometimes, 27% almost never and 10% almost always. This is an unfavorable trend that shows inconsistency on the part of these professionals in integrating the use of ICTs in planning, a stage that, in the words of Cabrero et al (2020), "considers what to do, how to do, for what, with what, with whom and when something should be done" (p. 88).

The average results of the organization indicator are 100% in the criterion sometimes, thus determining that most of the teachers working in the educational institution are inconsistent in their professional development of the organization as a stage of classroom management, so that the lack of implementation or limited compliance undermines the operational development of educational quality in terms of ICT management. This trend is unfavorable, since the organization stage is vital, as mentioned by Robbins (2003) "organization includes determining what tasks will be performed, who will do them, how the work will be grouped, and who will report to whom and where decisions will be made." (p. 114).

Leading corresponds to 50% in the option sometimes, 43% almost never and 7% almost always, which is evident that for most teachers (50%), they sometimes assume leadership in the performance of activities as part of classroom management, which does not allow the optimization of their professional performance, since this process corresponds in terms of Evans and Lindsay (2008) "ability to positively influence people and systems causing a determined attitude with intentionality to achieve educational quality" (p. 212).

The average values of the evaluation indicator are 80% in the criterion sometimes and 20% almost never. It is a trend that is interpreted as unfavorable in the application of the stages of classroom management, since according to the position of Díaz and Hernández (2000) it "should be considered as a necessary activity, since it provides the teacher with a self-control mechanism that will allow him/her to regulate and know the factors and problems that promote or disturb this process" (p. 364).



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ALTERNATIVE ANSWERS											
In its classroom management, it addresses the following elements of educational quality:		S		CS		AV		CN		N	
		f	%	f	%	f	%	f	%	f	%
Equity in educating according to the individual differences of students.	19	0	0	0	0	6	40	9	60	0	0
Equity so that the educational service benefits students from the most disadvantaged social sectors.	20	0	0	0	0	4	27	11	73	0	0
Average Values Equity Indicator		0		0		33		67		0	
Effectiveness in achieving institutional objectives	21	0	0	0	0	5	33	10	67	0	0
Effectiveness in keeping as many citizens as possible in the educational system.	22	0	0	0	0	2	13	13	87	0	0
Average Values Effectiveness Indicator		0		0		23		77		0	
Efficiency with the adequate management of institutional resources for the use of ICTs.	23	0	0	0	0	11	73	4	27	0	0
Efficiency in the achievement of expected learning with students in terms of ICT use.	24	0	0	0	0	15	100	0	0	0	0
Average Values Efficiency Indicator		0		0		87		13		0	
Average Values Elements of Educational Quality Dimension		0		0		483		52		0	
Number of teachers= 15											

Table 4. Elements of educational quality

In Table 4. The equity criterion has a positive result, teachers are recognizing the importance of equity in the classroom through educational strategies. In terms of effectiveness, the result is positive, indicating that teachers can help students learn more about a wide range of topics and develop research and critical thinking skills.



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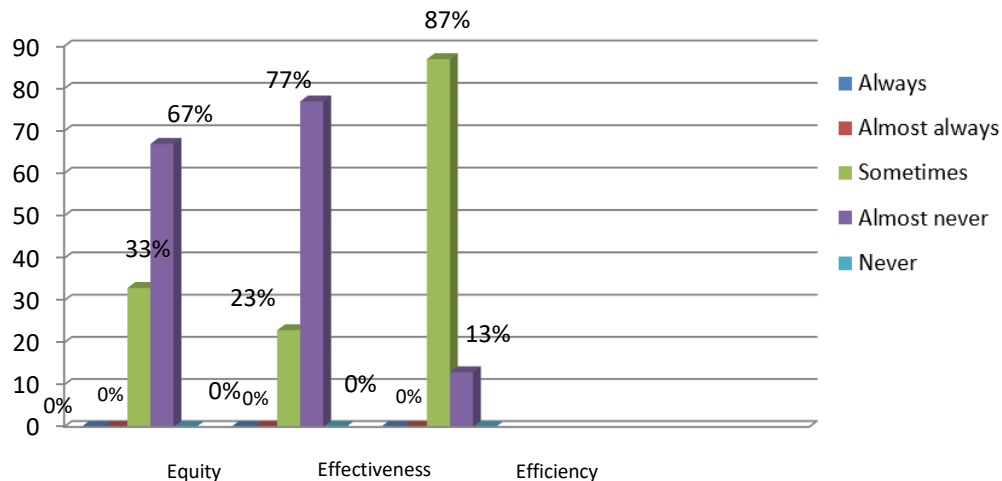


Figure 4. Dimension of elements for educational quality

On the other hand, Figure 4 shows the dimension of the elements for educational quality where they almost never adequately address equity, effectiveness and efficiency in their pedagogical practice. This represents an obstacle to the achievement of quality education, considering that these three elements are fundamental indicators of educational quality. Upon analyzing the data, the following can be mentioned: The average values of the equity indicator are as follows: 67% almost never and 33% sometimes, thus determining that most of the subjects of studies almost never emphasize equity as an element of educational quality, which is unfavorable for the integral formation of the citizen, since according to the postulates of Bracho and Hernandez (2005), "educate according to individual differences and needs, without economic, demographic, geographic, ethical or gender conditions being an impediment to learning" (p 9).

In the efficiency in the use of ICT is manifested in 77% as almost never, while 23% sometimes, therefore, it is a limitation and unfavorable trend in the management of efficiency as part of the elements of educational quality, since in terms of the National Institute for Educational Evaluation (2018) "they measure the degree to which a policy or social program is able to achieve the defined goals and objectives in the expected time and with the expected quality, regardless of the costs" (p 34). The average values of the indicator efficiency in the use of ICT translate into 87% in the option sometimes and 13% almost never, so most of the participating teachers sometimes address and use efficiency in classroom management as part of the elements of educational quality, which is limiting for the achievement of objectives, since according to postulates of UNESCO (2019), it is the relationship between "the expected educational objectives and the learning achieved, through the optimal use of the resources allocated" (p. 45). These terms are associated with the levels of achievement of indicators that are reached in a given period in terms of the effective use of available resources focused on the proposed objectives.

5. Discussion

The analysis of the data collected yields several interesting findings, all of which have significant implications for the quality of education provided at the Doctor Eduardo Mora Moreno High School in Loja, Ecuador.

In the area of equity, it is of concern that 67% of teachers almost never seek equity in their teaching, despite its importance in ensuring equitable access and achievement in education.



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Equity enables all students to reach their full potential, regardless of their background. Therefore, the Sustainable Development Goals, established by the United Nations (2023) include "supporting the development, implementation and monitoring of policies aimed at reducing inequalities and overcoming all forms of discrimination" (p. 5). This implies promoting equity in education as a fundamental part of the global agenda for sustainable development. To achieve this goal, it is essential that teachers are aware of the importance of equity and are trained to implement equitable educational practices in the classroom.

Regarding the effectiveness of ICT use, the results indicate that 77% of them almost never address the indicator to achieve institutional objectives. This poses a problem in the way educational objectives are being achieved. Effectiveness is fundamental to measure the degree to which educational objectives are being met and is a crucial element of educational quality. On the other hand, Siemens (2010) notes that "the task of any trainer is to create and foster a learning ecology that enables learners to improve rapidly and effectively on the learning they already have" (p. 5).

In the context of current education, efficiency and the use of ICT are two fundamental aspects to improve educational quality, 87% of teachers occasionally employ efficiency in their teaching practice. However, it is important to highlight that the efficient management of resources, including ICT, plays a crucial role in maximizing learning and improving educational quality. In order to use these tools effectively in the classroom, it is essential to receive training and develop digital literacy skills. In contrast to Viñals and Cuenca (2016) state that:

The teacher of the Digital Era must maintain an attitude of permanent inquiry, promote the learning of competencies (generate learning environments), maintain continuity from individual work to teamwork (bet on integrated educational projects) and encourage the development of an ethical spirit. Technology and information alone do not guide, help or advise students; therefore, the teacher's work in digital education is more important today than ever before.(p. 23).

The above results have important implications for the development of educational policies and pedagogical practices, both at the level of the institution and more broadly. These findings make it possible to provide teachers with the training and resource support needed to address these challenges. It is essential that teachers feel competent and supported to use ICT effectively, and thus address equity, effectiveness and efficiency in their teaching.

6. Conclusions

As part of the methodological procedure executed, once the information provided by the fifteen (15) classroom teachers at the Doctor Eduardo Mora Moreno High School in Loja, Ecuador was analyzed, we proceeded to formulate a conclusive synthesis, in accordance with the objectives set out, highlighting the following:

After identifying the current situation in the use of ICT, classroom teachers are mostly unconscious in training and participation to apply digital tools in the pedagogical practice with the intention of favoring the achievement of educational quality. As Roldán (2007) states "it is necessary a continuous system of teacher education and training, in which pedagogical, didactic, technical, technological and creativity converge" (p 171). In addition, we sought to describe the stages that are fulfilled for quality management in the classroom, where a weakness of professionals is that they do not constantly plan various activities for meaningful learning with the use of ICT. Likewise, they are inconsistent in organizing the



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institutional equipment available for the intensive use of technology in school work, which hinders the achievement of equity, efficiency and effectiveness indicators. To address this situation, it is necessary for educational institutions to implement training and support programs for professionals so that they can use ICTs effectively. These programs should provide professionals with the knowledge and skills necessary to plan and implement meaningful learning activities using ICTs.

According to the survey results, teachers use ICTs in the classroom occasionally, either as didactic material or in pedagogical projects. However, they show weaknesses in conducting diagnostic and formative evaluations to determine students' media and digital competencies. When analyzing the use of ICTs for quality classroom management, it is observed that most professionals are inconsistent in their use, whether for training, achieving digital literacy, or as didactic material. In most cases, ICTs are used only as a source of information or to carry out work, which limits the comprehensive training of students. Classroom teachers do not incorporate the use of ICTs in the planning, organization, leadership and evaluation stages. This limits equity, effectiveness and efficiency in quality classroom management.

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