# EDUCATIONAL SYSTEMS: TRENDS AND CHALLENGES

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## ABSTRACT

This article provides a documentary review of the educational systems, based on their structure, organization, regulations, characteristics and problems; in addition to establishing the different educational levels in which they are articulated, according to the International Standard Classification of Education (ISCED). Special emphasis is made on the educational systems of countries such as: Spain, Argentina. Bolivia, Colombia and Venezuela, establishing comparisons between them, which allow identifying common aspects and establishing the differences between their models, in view of the multiple factors that affect the educational trajectory of each country. In the same way, an informative tour on the tendencies of the educational systems and the analysis of ten scientific articles that approach the subject are made, which allow to understand in a better way, the particularities of the same ones, determining that at the moment a great variety of tendencies of educational systems exists, that look for to obtain successful models, to improve the educational quality and the economic development of their contexts. Finally, the challenges of educational systems are addressed, the tracking indicates, that they are of diverse nature, but have common challenges associated with the fourth revolution, in context with education 4.0 and Steam; which in turn are consistent with sustainable development, within the framework of the digital transformation that affects all sectors of society. Educational systems seek to respond to the challenges demanded by the current and future situation, preparing students in skills and abilities in addition to those traditionally received, so that they can adapt to change, with talent and competencies relevant to the new scenario.

**Keywords:** educational systems, ISCED, challenges, trends.

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## INTRODUCTION

Educational systems can show us the set of interconnected parts, which, when internally related, reflect the external state of education, which, regardless of whether education is formal or informal, are destined to respond to the productive objectives of the system in force (Combs, 1971). In this order of ideas, the world statistical analyses serve us to verify the success of the educational system in the society, it is circumscribed today, with the classification of the United Nations, ISCED.

In order to know the current state of the educational systems, it was considered important the documentary review of the functioning of education in some countries of the world such as: Spain, Argentina, Bolivia, Colombia and Venezuela, through the comparative analysis of their educational models, which in addition, can serve for reflection, criticism and intervention from any estament in which we find ourselves as actors in the educational processes, to generate contributions that allow us to improve the quality of education in our region.

Documenting the trends of educational systems, based on different bibliographic sources, allows us to get closer to the subject. Recognizing that this phenomenon is of global interest, given the need to respond to the challenges of education in the 21st century. Therefore, political entities and educational actors are in processes of review, reflection, intervention or minimally concerned about applying policies, strategies, innovations and methodologies that allow them to develop in their countries, educational systems contextualized with a society in transformation and uncertainty; which leads them to envision a variety of trends or inclinations, seeking to achieve successful and sustainable educational models that lead to educational quality and consequently, contribute from education, to economic development in their respective contexts.

It also addresses the challenges faced by educational systems today, within the framework of digital revolutions. Accordingly, education is facing different challenges, which can be considered as a crisis of the system, but these changes can also be assimilated as opportunities that require training according to the new demands of the transformation of society. From this perspective, the evolution of technology requires an education that trains talents and develops competencies relevant to the digital world, which requires adaptation processes at all educational levels, so that they develop educational trends that best respond

to the challenges in which educational systems are immersed.

## TRENDS IN EDUCATION SYSTEMS

### EDUCATIONAL SYSTEMS AS UNIVERSAL STANDARDIZATION REFERENTS

Classifications of any kind establish ideals that condition and exemplify the model to be followed. In the educational field, some countries see in the rankings the hope to reach better economic conditions, knowing the direct relation that education has with the product that is wanted to obtain for the economic development; for that reason, the reforms to the educational systems have not been made to wait, with the respective analysis of the determining factors, because each country is unique in its history and with it, in its educational policies, according to its criteria and dimensions. In such a way that its response is established according to its particular and educational policies, especially in what has to do with investment in logistics, didactic and technological support, quality of life of students and curricular designs (Castillejo, 1985). There is increasing interest in doing better in the Program for International Student Assessment (PISA) tests. This global reference indicator, which, according to the analysis of standardized results, allows the countries that take them into account to make adjustments to their educational systems, in order to improve the quality and prosperity of society. However, standardizations sometimes ignore the diversity of institutional and family contexts, making visible a system that does not enable social change.

In order to achieve the quality of the educational system in accordance with the desired international standardization, different educational trends are developed, which obtain good effects when they start from the reflection of the educational reality and the recognition of exemplary models, analyze them, contextualize the strategies used and the plans for the improvement of their results. Likewise, it is convenient to detect the weaknesses of the educational systems in the different countries, in order to rethink the traditional educational systems, through active pedagogies, according to the interests of the students. Education in Colombia, as in other countries of the world, is being compared universally, through the regulation of the United Nations Educational, Scientific and Cultural Organization (UNESCO), within the framework of ISCED; as a measure that allows to know the reality of the country.

All these elements become a great challenge for the reality of the different levels of

the educational system in the countries of the world, which must also go beyond achieving a quality model that successfully responds to the current national and international parameters and configure a solid structure, where all educational actors sustain a true social and political commitment, which leads them to consider the need to use their capacities for adaptation and transformation, to improve the quality of education, close the inequity gaps in the most vulnerable populations and act around the following indicators: a teacher positioned in an innovative and democratic paradigm; an autonomous curricular proposal but in correspondence with current universal parameters; use and appropriation of information and communication technologies, for the favoring of the educational system; recognition of successful educational models worldwide; assuming the historical responsibility of educating today the man of tomorrow and training for the development of transversal competencies for life.

Therefore, following these indicators will surely have a positive impact on policies that improve the quality of educational systems, but it is necessary to be careful with this type of standardization so as not to fall into segregationist and discriminatory aspects, since these parameters can generate tension among the participants in the educational process by not being well positioned in the international standardized regime, and even worse, it is possible to look for culprits with their respective repressive and non-reflective measures that far from serving to improve the quality of education and therefore the welfare of society, end up harming the teaching and learning processes from the social and cultural contextualization of the populations.

In addition, it is necessary to consider that educational systems must respond to the need for a true education and full development of the human being, since although it is true that ISCED levels contain universal standardized comparisons from early childhood education to the highest educational attainment, evaluative statistics often do not contemplate the particularities of human nature, which when intervening affect the development of competencies and the valuation of their multiple potentialities and capacities.

## COMPARATIVE ANALYSIS OF THE EDUCATIONAL SYSTEMS OF SPAIN, ARGENTINA, BOLIVIA, COLOMBIA AND VENEZUELA, BASED ON THE CINEMA

The educational systems of the different countries of the world have developed their own particularities, which as well as being differentiated, present common aspects, which when compared from ISCED, through aspects such as regulations of the educational system, academic structure, financing and obligatory nature, characteristics and problems; allow establishing relationships that when analyzed, show their strengths and weaknesses, which can serve as a reflection, to make contributions according to the experiences of the compared countries, towards a path of improvement, from a collaborative and participatory perspective.

We begin with ISCED Level 0, establishing relationships between the countries selected for this analysis: Spain, Argentina, Bolivia, Colombia and Venezuela. It should be noted that the regulations of the educational systems of these countries regulate their guidelines based on their Political Constitutions and laws that guide the principles contained in their ideals. In such a way, that normatively in the educational systems of these countries, it is possible to find relations in their democratic, cultural, equity, obligatory, free, universal, intercultural, integral, equality and right principles; which is a positive manifestation of the human development that is identified in their political trajectory.

The academic structure of this level coincides in all countries with Early Childhood, which for Spain is Infant Education, in Argentina and Bolivia Early Education and in Colombia as well as in Venezuela, Preschool; these educational standards "incorporate programs aimed at developing the socio-affective and academic skills that allow the child to participate actively in social life and enter Primary Education" (ISCED 2011, p, 28). It is compulsory in all the countries studied, with some differences in its free nature. In addition, several countries associate the financing of education with some comprehensive programs such as: health, nutrition and guidance; which possibly affect a better preparation for their next incorporation to Primary Education, considering that Early Education reflects powerful effects for future development as pointed out by Vegas and Santibanez (2010) cited by Rivas and Sanchez (2016a).

According to the ISCED Level 1 classification, in the indicated countries it corresponds to Primary Education, which is associated by some within Basic Education. They coincide in

several aspects such as: entry age, 6 years, compulsory, student evaluations, free of charge in the official sector; which certain nations accompany with health and welfare services such as school canteens, transportation, supplies and textbooks; these measures are carried out with the aim of minimizing inequality that incurs in the effectiveness of education systems.

In spite of the fact that certain countries develop these educational policies that improve the social and economic conditions of students to access Primary Education, there are problems of educational coverage, where the whole national territory is not reached in the same way, since the enrollment in the urban sector is higher than in the rural sector, a situation that is common among Latin American countries and that reflects an educational gap that has been affecting the results of students' learning in international standardized tests, reality that is often unfair because these measurements need to be recognized from regional contexts and it is in primary education where students are provided with basic skills in reading, writing and mathematics, becoming a solid foundation for learning and understanding of the essential areas of knowledge (ISCED 2011, p, 32).

The education classified at ISCED Level 2 covers all students who develop their studies in the countries covered, where the subjects are diversified, the age of entry is between 10 and 13 years and it is required to have completed the previous level. At this stage, there are marked differences between educational systems, according to the educational structure of the country and the cycles they develop, it is called Lower Secondary Education within the framework of the ISCED classification. For Spain, it corresponds to Compulsory Secondary Education (CSE) in its first courses, in Argentina it corresponds to the Basic Cycle, in Bolivia to Secondary Education, in Colombia and Venezuela to Basic Education. This stage continues to be compulsory and free of charge for official educational institutions, thus guaranteeing the right to education enshrined in their regulations.

A problem that coincides with the student population of several countries referred to in this paper has to do with the relationship between the high level of grade repetition at this level. To point out an example, although Argentina has managed to expand educational coverage, repetition in primary school has decreased, but increased in secondary school; being the country that most decreased inequality in PISA test results between 2000 and 2012 (Rivas, A and Sanchez, B, 2016b). This situation should lead to collaborative work between these countries, to share successful reforms and implement proposals that transform

education, through policies and lines of action that respond to the need of the system that requires it, without selfishness, contextualizing good practices and leading interventions, for educational improvement.

Secondary Education is consolidated through Upper Secondary Education, classified as ISCED Level 3, it is characterized because the instructions are more diversified, specialized and advanced, the starting age is between 14 and 16 years old. It is differentiated between: General Upper Secondary Education and Vocational Upper Secondary Education. This corresponds to studies that complement Secondary Education, through diversified cycles such as, for example, in Colombia, the configuration of High School in its different modalities, which continues to be financed by the state, although in order to solve infrastructure and logistics problems, agreements are developed with allied companies, which facilitate the development of study plans.

Post-Secondary Non-Tertiary Education ISCED Level 4. It reinforces the contents acquired in the previous level, preparing for the labor market in its direct access to work. It corresponds to educational plans of a technical nature and vocational programs. This type of education meets the rapid needs of a sector of the school population that requires to generate income in a short time with its labor force. It is implemented in all the countries compared, without being compulsory, and its financing is generally assumed by private educational institutions that charge for the provision of the service, being regulated by the State through current regulations. In Argentina, in view of the stagnation of the economy, Technical Education has diversified, promoting the learning and development of skills of different types that comprise Technical Professional Education at the secondary level, and in Venezuela it is required by students who are inclined towards industrial training, commerce and services.

The last global benchmark of international standardization of education systems corresponds to Tertiary Education. It comprises high-level academic education and advanced professional or vocational education. It consists of levels 5, 6, 7, and 8; where Level 5 corresponds to the short cycle such as technological education. Level 6 has a duration of 3 to 4 years, such as some bachelor's degrees and professional careers; Level 7 refers to specialization or master's degree programs and Level 8 is the doctorate.

In terms of higher education legislation, Spain differs from the other countries

examined because it is governed by the regulations of the European Higher Education Area (EHEA). Accordingly, it is classified into: Degree, Master's and Doctorate; whose degrees are valid throughout the EHEA, which currently comprises 49 countries. These educational agreements of convergence between states, facilitate mobility among students, teachers and graduates and thus the exchange of professional training, in order to ensure the quality of higher education.

Tertiary education in Argentina is structured on the basis of higher education with intermediate degrees, specialization, masters and doctorates. With respect to credits, the unit of measurement of the academic work required by the student to achieve professional competencies at a higher level, there is no specific system at the national level; each institution establishes the minimum number of credit hours. The same occurs in Bolivia, where universities have adopted different criteria to define academic credits and higher education issues intermediate undergraduate and graduate degrees.

Colombian Higher Education establishes titles or academic rights in the different training modalities; such as intermediate technological, professional university or Post-graduate; with specialization, master's and doctorate degrees. Universities are also obliged to express the academic work of students through credits, these parameters are part of the minimum conditions for the operation of their academic programs.

Finally, Venezuela establishes educational training within the levels of Tertiary Education as technical specialist, specialization, master's and doctorate. It should be noted that of the countries discussed, this one has a unified university credit system, which was approved by the National Council of Universities in the 1970s, and which is used in most universities, although there are other diverse criteria for quantifying credits in the country's institutions.

The educational systems of the countries compared, allowed to establish aspects that identify and differentiate them, according to the related parameters. The respect for the education of ethnic groups is striking, based on the protection of their own roots, since most of the countries selected for this study present a common historical background, which is a cultural strength; in addition, it is evident in all the educational systems that, through regulations, establish educational programs that favor the inclusion of all students, thus

considering that quality education is a right for all.

These countries, some more than others, show little effectiveness in their educational systems, from the standardized view of international frameworks. Each of the ISCED levels presents its own problems, some derived from the economic crises they are currently suffering, others because they have not been able to adapt to the new challenges that today's society demands and essentially due to the lack of effective educational policies contextualized to the diversity of educational needs that each country has.

Among the difficulties, we can mention the following: lack of educational coverage, problems in the physical infrastructure of schools, deficient training of human resources and even shortage of teachers, lack of didactic support and connectivity, high repetition and dropout rates, lack of support from parents, new programs that implement innovative pedagogies for the strengthening of areas that enable the development of students' analytical skills, training that is not in context with the labor market, deficient monitoring and updating of student evaluation processes, little revision and updating of curricular proposals, insufficient training and constant updating of teaching personnel, precarious living conditions, lack of care at an early age in some countries, among others.

But with these strengths and weaknesses they have been working on the trajectory of improvement of educational systems and consequently, the results of some of the countries analyzed have achieved significant progress in international benchmarks of evaluations, which allows us to establish that if they achieve a shared learning from successful interventions and develop an educational political leadership as a learning community towards the improvement of their models, contextualizing their particularities and localities, they will achieve a more progressive trajectory of improvement that could improve quality and equity in education, to achieve greater economic development.

## TRENDS AND RAE ANALYSIS OF EDUCATION SYSTEMS

There is currently a wide variety of trends in education systems; however, several of them are usually identified with educational policies that seek to solve socioeconomic aspects, since they coincide with the problems that condition the levels of development in the less advanced regions. Such is the case of Latin American countries, where there is a tendency to seek to improve education through national education plans, implementing educational

strategies and interventions. But the quality of education linked to social development, is only achieved in Latin America, through the systematic transformation of education (Vidal, 2017). To this political leadership of Professor Vidal is what Dr. Arturo Condo refers to, in view of the changes that information technologies represent in the 21st century, so he envisions the future of education in Latin America with the empowerment of leaders who influence mobilization more than with their power, from the perspective of training for life, changing the teaching approach to learning with the technology that one has, since the power of youth can change the world (Condo, 2016).

The technological and innovative trends associated with "power pupils" or empowerment of students, a trend presented by the teacher Avila (2019), call attention to respond to the current knowledge society and thus, make students competent, as assured by the proposal of Drs. Benavides, Amado, Ramirez and Corchuelo (s,f), by considering that university students and the rural and vulnerable ethnic populations of the Department of Cauca can take advantage of the productive opportunity offered by the natural wealth of the region, building a community of knowledge and innovation that uses Information and Communication Technologies (ICT) as mediation and as a strategy the appropriation of science, technology and innovation (STI) to open markets, and with this, the productivity and motivation of the students of the region.

Continuing with technological and innovative trends, the experiences of Norberto Cuarteto and Diego Ventura with Gamification in the classroom, which consists of the use of dynamics, mechanisms or game elements in non-playful contexts, draws attention; therefore, the game, from educational technology, becomes a tool for students to learn more by playing (Cuarteto, 2019), from the perspective that learning by playing develops the intrinsic motivations of students. In context with this dynamic, playing to change the world is the position of Diego Ventura, when considering that playing is the present and the future, from the theory that when playing the brain generates more dopamine, provoking in people actions that lead to social good. He considers that to understand the young people of this new society, it is necessary to make teaching fun and with so many possibilities to design the right experiences, there are no excuses for education not to be fun (Ventura, 2013).

Other interesting pedagogical experiences, which have taken up previously exposed concepts, to revaluate them in the current society and thus, achieve changes in education, are

developing achievements, such as the pedagogical approach of inverted learning, in which the role of learning is changed, giving the instructions to be carried out at home and in the classroom time. The exchange of meaningful learning takes place, leading to "forming people who learn to learn by themselves" (Bauer, 2017). With this educational trend, the teaching model focuses on the student, which although it surely has many criticisms by breaking the traditional paradigm of the classroom, it develops more autonomy in the student, an aspect that is necessary to address positively in the education of the XXI century.

In the same way, we can mention the Challenge-Based Learning (CBL) and the Power of Stories. The former uses as a strategy to awaken the student's interest by actively involving him/her in a problem linked to the environment, which implies the definition of the challenge and the subsequent solution. This trend corresponds to "Lean entrepreneurship" (Avila, 2017). As for the narrative of stories as a teaching and learning strategy does not lose validity in the society in which we find ourselves, if we are based on its historical antiquity, what of course have changed are the formats, because they continue to fulfill the function of transcending, interest and appropriate the receiver, since the stories since ancient times were becoming the cultural memory of the peoples and when used as an educational strategy, they develop competencies in all disciplines of knowledge, by connecting the event with the planned pedagogical intention, to the point of leading the student to the restlessness of knowledge because the sciences are full of stories and the power of them makes us want to see the end, becoming an effective technique to interest students, in the transmission of culture, and thus education for life (Saenz, 2015).

Other current educational trends can also be considered, such as Adaptive Learning, which is an instructional method that uses a computer system to create personalized learning experiences, as documented in a report by the Monterrey Educational Innovation Observatory EduTrensd. This educational resource has its own learning model driven by content and assessment; which allows for more flexibility in the ways of teaching and learning, this is of interest to students in today's society, immersed in the technological world. Another educational scheme also reported by EduTrends, are the Massive Open Online Courses (MOOC); as a new form of social learning that also gains more users-students today in virtual communities.

According to the above, there are new trends in educational systems, which are the

order of the day to explore, consider and make contributions to the quality of educational processes, allowing us to contextualize ourselves with the requirements of a community of students, increasingly interested in the changes that the medium provides. Therefore, we cannot lag behind, on the contrary, let us be restless and think in a democratic and cognitive freedom. Therefore, it is appropriate to continue advancing the documentary review, now with the RAE analysis, of 10 scientific articles selected from the Scielo platform. The most important aspects of these articles were extracted for analysis.

The article entitled *"Rethinking education. Trajectory and future of modern educational systems by Pallares"*, Chiva, Planella & Lopez (2019) address the problem of integrating the demands for school improvement according to the solutions and social challenges that from the political sphere are claimed to school institutions. The aim of the study is to reflect on the double condition of educational reforms required in advanced societies, as an element of political-sociological knowledge and as a social regulatory action. They deal with the intention of countries to implement educational reforms, based on external models, without educational and social planning, without counting on the pedagogical action of the teacher. Based on an interpretative hermeneutic approach, they emphasize that reforms should not be subordinated only to the sociological needs of the moment. They were based on the observation and interpretation of the educational systems of advanced societies, contrasting the realities and their applications. They consider that comparing education systems and students on the basis of PISA does not allow us to assert that the same cause-effect links can be generalized to all countries. International performance indicators establish that societies evolve and educational systems need to be structured according to the transformations of society, but it is the contexts that determine the changes to be made in educational institutions.

Elecqua, Martinez, Santos & Urbina (2012) in the study *"Public-private tensions and the design of educational systems: What does PISA tell us?"* analyze the public-private tensions in each educational system and their implications on educational models. The objective is to analyze the implications that different educational models, specifically their type of financing and provision, have on a series of educational outcomes relevant to education and the society in which they are embedded. It is significant because the various systems in the world pursue both public and private objectives. They develop an exploratory study, comparing public and private educational models. The results show that those systems with high private provision and public financing increase the freedom of choice of families, by making available to them

a more diverse educational offer and increasing the number of available options, allowing them to achieve greater efficiency. The authors support the information with the PISA 2009 database. Accordingly, it is a complex task to design educational models that make it possible to reconcile public and private interests in education. It leads us to reflect on segregationist aspects and proposes to release some of the tensions between public and private education, through a public policy that attenuates them.

The problem addressed by Franco (2017) in *"Education systems and migration. A look at education in the United States and Mexico"* is the inequality of opportunities for migrant children of Mexican origin in the U.S. educational system, by not legitimizing and empowering other ways of being and being in school; in view of which, he outlines the objective of reviewing and comparing the educational systems of the United States and Mexico, placing the interest in the attention they provide to migrant children. It reflects the current conditions of gradual acculturation processes of the student, which endangers plurality, the lack of valuation of their formative experiences and languages. Documentary research indicates that, despite the interest of both countries in providing basic education, this leads to exclusion reflected in the school failure of those who do not conform to the established parameters. The educational processes and specifically the programs designed to serve immigrant students in the United States generally tend to exclude and segregate them because of their cultural and social differences, while the Mexican educational system encourages them to adapt to the school practices instituted in a univocal and centralized manner, which does not allow their education to meet their needs and expectations. In practice, both educational systems tend to consolidate their own project, assimilating the different, through gradual "acculturation" or excluding them when they resist adapting to the school culture, generating isolation, which is often reflected in school failure; thus increasing educational inequalities and life opportunities, which are reflected in the globalized discourses of effectiveness and efficiency, turning this population of migrant students into those who obtain the lowest levels in the educational system.

For his part, Sanchez (2017) presents in *"Mass Measurements; A Political Production of Meanings and Significance About Educational Systems."* a study on the installation and legitimization in the world of certain senses and meanings about mass measurements and the forms of relationship and organization that it creates. Its objective is to analyze some of the senses and meanings produced by mass measurement practices. This problem is of academic

importance, since mass tests have been instituted and institutionalized in the educational field; conceived as standardized evaluation and referents of the quality of education, but without taking into account the processes of exclusion that are generated from these practices, which is important in view of the diversity of students who present themselves in a situation of inequality in different contexts and whose results are seen as the responsibility of the subjects, without analyzing the conditions in which they learn. The author uses as a methodological basis, documentary reviews and discussions with teachers and experts in educational evaluation, based on the results of mass tests conceived as an evaluation and reference of the quality of education. It allows reevaluating the concept of educational quality and evaluation from the perspective of mass measurements, considering that quality should be linked to the generation of conditions so that everyone can learn, and equity implies a differentiated attention to the needs of the populations and from this perspective, tests do not contribute to the improvement of quality.

*"A comparative look at the Educational Systems of Bolivia, Colombia, Cuba, Mexico, Nicaragua and Venezuela"* is the article by Roncal (2014) in which he addresses the main characteristics of the educational systems of Bolivia, Colombia, Cuba, Mexico, Nicaragua and Venezuela, in order to make comparisons among them. The main objective is to show the differences but also the similarities of the educational systems of these countries. The study contributes with the comparative compilation of the educational systems of the proposed countries. It presents a review of the literature according to what has been defined, however, it is biased in that only some aspects are taken for comparison, without showing indicators that better support the information. Educational guidelines are usually based on the constitutions and regulatory laws that enforce compliance with the mandates that ensure comprehensive education and quality learning. The contrast allowed for analyses that led to a better understanding of the educational systems of the countries addressed by the author, but as far as real-life problems are concerned, the article makes little contribution, insofar as it relates several countries without extending significant contributions of an indicative order, i.e., it is a valid form of research in its context.

The work of Monarca (2012) *"The influence of national evaluation systems on curriculum development"* addresses the review processes of educational quality evaluation systems in Latin America, initiated almost a decade ago. The objective of the study is to deepen and advance in the review processes of educational quality assessment systems,

taking into account their influence on the development of the curriculum and the construction of educational reality. It is established that the evaluation should be systemic, that is, to evaluate the whole and not the parts, and by the whole it refers to the proposed purposes, the processes, the use of the evaluation by the educational community, looking at the contexts, among other aspects. Thus, there is a need and requirement to submit them to a review process. He criticizes the primacy given to results to the detriment of processes and, above all, to the curricular reductionism practiced by evaluation systems. It presents solid conclusions that respond to the points raised in the article and a global or systemic vision of evaluation. It is important to highlight the use of evaluation by teachers, but bearing in mind that these have a political ideological framework from which they define and understand the meanings they have and construct. This document makes it clear that evaluation systems are not, nor can they ever be neutral, in their foundations, forms, uses and effects; but they are necessary for educational improvement.

In the article *"Challenges imposed by globalization on Latin American educational systems"*, Cornejo (2012) raises some of the challenges posed by the phenomenon of globalization on Latin American educational systems. The objective has to do with the challenges faced by Latin American countries in the 21st century, based on an exploratory study that does not ignore the benefits of globalization in the educational field, but also considers that it imposes a series of challenges to the educational systems of the region; from the transformation of life in society, from work to the way of studying, understanding that it is an *"unfinished process"* which lacks regulation, humanization and civilization.

The document contributes by showing the change of paradigm in the educational phenomenon by presenting the situations faced in the area of competencies and skills, but also in the implications of values, producing a reordering of actors, norms and relationships that will eventually produce a new order in world relations. The challenges posed by this new reality are, on the one hand, to ensure that the benefits of globalization reach a greater number of people and, on the other, to reduce the social costs inherent in its application, so as to create an enabling environment that preserves and respects cultural pluralism.

The study by Cardenas (2012) *"Corruption in educational systems; A review of practices, causes, effects and recommendations."* (Corruption in educational systems; A review of practices, causes, effects and recommendations) addresses a problem observed in

various regions of the world, corruption in educational systems, whose improper practices cause harmful effects to education. The objective of this research is to analyze corruption practices in the management of educational systems.

The documentary review of literature on educational corruption is the methodology used by the author. It describes a typology of corruption practices and develops a classification of the findings on corruption in education; such as causes, effects and recommendations, as well as the classification of the methods applied for the study of corruption practices. The main forms of corruption in educational systems, which usually derive from the presence of organizational cultures in which institutional objectives are systematically displaced, are made known. It also contributes to the design of anti-corruption policies by describing the causes and consequences of these practices that are detrimental to education systems. Reducing acts of corruption in education systems is necessary to achieve better conditions of equity and quality, given that corruption practices may have different impacts on different population groups. The author states that there is little literature on this problem, however, it is based on reports and theorists who have dealt with this phenomenon, which should serve as motivation to continue with studies that better support research of this nature.

The quality of educational systems is of interest to Martinez (2010) through the article "Indicators as tools for the evaluation of the quality of educational systems", which deals with the usefulness of indicator systems as tools for evaluating the quality of educational systems. The objective is to explain the background, design and reliability of indicators for the evaluation of education systems. According to the literature presented in the study, a consensus has been reached that indicators cannot, by themselves, set objectives or priorities, evaluate programs or establish balance sheets. Accordingly, the usefulness of a system of indicators to support decisions does not depend exclusively on its technical soundness, but on the legitimacy given by the richness of its construction and, in the case of educational indicators, it must reach maturity, which implies several years.

Measurements are convenient as inputs to follow up and make decisions about education systems, but taking into account that they should not be reduced to the referent, because the dimension of the evaluated reality is presented, which is necessary, but not enough to reach a judgment about the adequate or inadequate. It is necessary to consider that the indicator is only a tool that can support the intervention believed necessary, but it is not the absolute truth,

since there are other particular factors not considered in the standardization of the indicator. However, it makes it clear that the educational reality may involve a dose of injustice, since it does not take into account social, demographic, economic and cultural factors.

The growing practice of evaluation in education is dealt with by Tiana (2008) in his article *"Evaluation and change in educational systems: the necessary interaction"*, which deals with the current interest in the evaluation of educational systems as a phenomenon that goes beyond the merely circumstantial and passing. To this end, its objective is to analyze the recent boom in educational evaluation, in the face of the pressure of change that our current educational systems are experiencing.

Educational systems are measured according to national and international educational indicators and, in practice, countries determine educational policies based on these parameters, facilitating, among other elements: knowledge and diagnosis, the conduction of change processes, improvement in the organization, assessment of results and operation of educational centers. He makes a descriptive study on the concern for the improvement of education in developed or developing countries, where there is the conviction that the current educational systems do not work effectively, interpreting that evaluation can contribute to the knowledge of their state, which leads him to develop generalizations on the results found. It highlights the care that must be taken with credibility and impartiality in the design and implementation of educational indicators and allows knowing the benefits and care that must be considered when carrying out or assessing evaluations of educational systems.

## CHALLENGES OF EDUCATION SYSTEMS

One of the current challenges facing education systems has to do with the current transformation of education; but at the same time, these advances are facilitating the development of the so-called industrial revolution 4.0 (digital revolution) and various educational approaches that promote education 4.0; however, we are facing the most complex challenge presented by this education: to convince the people who manage it, because they facilitate or hinder the development of talent 4.0, due to the fears that represent the massive use of data. This is a common situation, since transformations have historically produced distrust, as in previous industrial revolutions, until the essential dynamics of the paradigm shift is imposed with the opportunities for improvement that it represents, because *"revolutions scare us, but life opens paths"* (Gonzalez, 2018). The essence is in considering change as

a necessary property of education and society, due to the same trajectory of the educational paradigm that loses its sustainability and where the ideal of citizenship and empowerment that develops the school culture and the role of the teacher in that change resurfaces.

In accordance with the demands of society, technology fosters talent 4.0 in industry and in all fields of study; therefore, education 4.0 conceives flexibility according to educational needs, taking into account the personification of learning, recognizing and stimulating the pace and speed of students, according to their interests, in addition, it is based on data analysis. Project-based learning serves you as a strategy to deploy talent 4.0, developing the learning of key competencies of the 21st century, especially; creativity, assertive communication, teamwork, creative thinking, innovation, networking and collaboration, emotional intelligence, resilience, among others (Ranz, 2016). Therefore, a society focused on the importance of education for its own development and a school culture proactively willing to participate in the changes required to develop its context, will carry out coordinated educational actions, which successfully respond to the challenges of the educational systems required today.

Since the beginning of the 21st century we are witnessing the birth of the fourth revolution, characterized by the fusion of technologies, which are erasing the boundaries between the physical, digital and biological spheres (Echeverria and Martinez, 2018), in such a way that science and technology, respond to the challenges of the digital revolution, developing skills in individuals, such as critical thinking, teamwork and creativity. In this line we find STEAM education, as a model associated with industrial technology. Teaching is developed through integrated network centers, where information is commissioned, shared, explored and molded into new ways of seeing and being, through collaborative risk-taking and creativity; it has to do with leading students to deep thinking where they use the skills and processes learned, in such a way, that the approach leads them to be: problem solvers, inventors, innovators, self-sufficient, logical thinkers and technologically literate (Dominguez, Oliveros, Coronado & Valdez, 2019). These are the technological consequences of globalization, which challenges in all areas, being the educational one of the most affected, since knowledge is immersed in the multiplication of information and communication sources.

STEAM education, whose name derives from the grouping of the four major areas of knowledge: Science, Technology, Engineering and Mathematics, is another important

challenge for educational systems, where students must be prepared to acquire skills and abilities in addition to those traditionally received. Engineering and Mathematics, is another important challenge for educational systems, where students must be prepared to acquire skills and abilities in addition to those they traditionally receive, which implies including robotics and related subjects in the curriculum and adapting training spaces, thereby promoting training in STEAM technologies, which according to some experiences of countries that develop it, recommend promoting it from an early age, thus preparing students to coexist with new digital devices and be able to respond to these changes, evolving from digital natives, who only interact with devices, to builders and creators in a digital world (Bravo, 2016).

However, being in a society in permanent change; it is even more required the acquisition of new skills to live in the information and communication society, such as an education that promotes basic ethical principles; that encourages digital coexistence and integral personal development; an education for the active exercise of citizenship, which promotes the culture of international solidarity peace.

The digital transformation of society is leading to various challenges, which according to Llorens (2019) can be taken advantage of, if we make students know, observe and understand the digital world, so that they are prepared for a future characterized by uncertainty and make them learn the language of machines; how the world works in which they must develop the ability to respond with productivity and competitiveness, using new technologies, adapting to the speed of change of society, its needs and revolutions; where in addition, all the educational entities, we must get involved, since we can influence in the formation of the new generations, that respond with knowledge and innovation, adapting to the changes that represent the challenges of the educational systems, because the education is connected with the development of the person and of the society and the students cannot be outside this social and economic reality of the globalized world, that has changed the productive and social relations of the man and the social ones.

Likewise, Higher Education Institutions are being affected by global technological trends, they have modified many of their management and training structures, taking advantage of technological changes, such as, for example, offering undergraduate and graduate virtual university education, digital marketing communication strategies, methodological variations, educational programs in the field of emerging technologies. Therefore, the transformation

of the higher institution's information media has been propitiated by the development of digital revolutions, which have modified the teaching and learning paradigm (Almaraz, Maz & Lopez, 2016); although their impacts are also observed at all levels of education.

However, digital transformation has its detractors, considering the misuse of technology on individual and collective social relations, problems of isolation, depression in young people, cyber dependence, loss of employment, among others. The most predominant criticism has to do with the change in the labor paradigm, as it causes the need for other professions and the lack of skills of workers, due to the change of activities that brings with it the new global employment landscape, so it is required to form future visions at an early age, as expressed by Dominguez et al. (2013) *"transformations require people to be in a permanent attitude to take advantage and use during life every opportunity to adapt to a world in continuous change"* p, 47. In such a way, that the intention in these times of change, should be to take advantage of the opportunities offered by digital revolutions, in order to improve from education, life and prosperity of all.

Another important challenge to which education systems must respond has to do with sustainable development, in such a way that it satisfies present generations without compromising the future of future generations, eradicating poverty and injustice in order to achieve peace in societies. Educating in response to this challenge implies using all technological, political and human means; around quality education, from the awareness of lifelong learning, as a global agenda that promotes collective development from childhood. Therefore, the 4.0 revolution, must be contextualized with the development of generational talent that recognizes, values and promotes: inclusive education, equitable, quality learning opportunities for all, production and consumption in harmony with nature (Espejo, 2019).

Consequently, to transform our world, according to the United Nations (UN), quality education is required, as this is the key to achieving many Sustainable Development Goals (SDGs), because when people have access to quality education, they can escape poverty, reducing inequalities and contributing to the empowerment of the individual to lead a healthier, sustainable and tolerant life in society.

## CONCLUSIONS

The study of educational systems, based on the documentary review on the subject, led to a journey through different sources of knowledge, which allowed the consolidation of better theoretical and conceptual foundations on the components of educational systems, the variety of trends that are developing and the challenges they face, given the digital revolution in which we find ourselves, within the framework of the technological globalization of society.

Consequently, the conformation of a quality educational system, which in turn responds to international standardized parameters, contextualized with educational trends that face in a relevant way the challenges that the transformation of education implies, is a complex task so that it deserves to be studied, in pursuit of the welfare of society. The complexity lies in the multiple factors that converge in the success and sustainability of a quality educational system, such as: pedagogical, political, democratic, historical, cultural, social, economic, intellectual and emotional factors, which must now be reconciled with the technological revolution, for educational improvement.

Historically, all revolutions have produced mistrust, and the 4.0 revolution requires an education that is adapted to it. It is natural that the current educational phenomenon generates resistance and fear, because it means being prepared with the necessary skills in all areas, especially education, which can be exploited, for all the possibilities offered by addressing the technological world at an early age.

From the study it can be concluded that society is in constant evolution and educational systems cannot be left behind because they lose effectiveness, and in the face of the current technological revolution, they need to be structured according to the transformation of society, since the context characterized by the variety of trends and challenges so determine. Therefore, coordinated actions are required to provide an appropriate response and recognize these changes as opportunities that benefit the greatest number of people, because true educational quality is that which generates the conditions for everyone to learn according to their particularities and potentialities, for the social and economic progress of humanity.

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