Educational science management as an agent of change for educational institutions

Dirección científica educacional como agente de cambio para las instituciones educativas
A gestão das ciências da educação como agente de mudança para as instituições educativas

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Abstract

Introduction: The various problems that are manifested in the current educational context demand an "educational change", a reality that increases the strategic nature of educational scientific management as a concept that is relevant to the social sciences and education; Objective: To analyze the challenges faced by educational scientific management and its incidence in promoting "educational change"; Reflection: Educational scientific management presents scopes and challenges in terms of building a more just and educated school, based on the predominance of human values and thus foreseeing, promoting and valuing educational change in all its significance and transcendence. The management relationships sustained at the different levels of the educational institution must be characterized by adequate mechanisms of communication and participation in decision making, which increases confidence in management, recognizing the limitations and tensions that emanate from a dynamic and complex educational environment; Conclusions: Educational change, which implies the need for a transformation of the forms and contents that are developed in modern educational institutions, is a process consubstantial to educational scientific management and, consequently, has to be visualized, understood and promoted by all its protagonists.

Keywords: Organizational change; Participatory development; Educational quality; Leadership.

Resumen

Introducción: Las diversas problemáticas que se manifiestan en el contexto educativo actual demandan un "cambio educativo", realidad que acrecienta el carácter estratégico de la dirección científica educacional como concepción que resulta relevante para las ciencias sociales y la educación; **Objetivo:** Analizar los desafíos que enfrenta la dirección científica educacional y su incidencia en promover el "cambio educativo"; **Reflexión**: La dirección científica educacional presenta alcances y desafíos en función de construir una escuela más justa y culta, sustentada en el predominio de los valores humanos y de esta forma prever, propiciar y valorar en toda su significación y trascendencia, el cambio educativo. Las relaciones de dirección sostenidas en los diferentes niveles de la institución educativa deben caracterizarse por adecuados mecanismos de comunicación y participación en la toma de decisiones, lo que aumenta la confianza en la gestión, reconociendo las limitaciones y tensiones que emanan de un entorno educativo dinámico y complejo; **Conclusiones:** El cambio educativo, que implica la necesidad de una transformación de las formas y contenidos que se desarrollan en las instituciones educativas modernas, es un proceso consustancial a la dirección científica educacional y, en consecuencia, ha de ser visualizado, comprendido y promovido por todos sus protagonistas.

Palabras clave: Cambio organizacional; Desarrollo participativo; Calidad de la educación; Liderazgo .

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Resumo

Introdução: Os vários problemas que se manifestam no actual contexto educacional exigem uma ″mudança educacional″, uma realidade que aumenta a natureza estratégica da gestão científica educacional como um conceito relevante para as ciências sociais e a educação; **Objectivo:** Analisar os desafios enfrentados pela liderança educacional científica e o seu impacto na promoção da ″mudança educacional″; **Reflexão**: A liderança educacional científica apresenta o alcance e os desafios em termos de construção de uma escola mais justa e mais culta, baseada na predominância dos valores humanos e, assim, antecipando, promovendo e valorizando a mudança educacional em todo o seu significado e transcendência. As relações de gestão sustentadas nos diferentes níveis da instituição de ensino devem caracterizar-se por mecanismos adequados de comunicação e participação na tomada de decisões, o que aumenta a confiança na gestão, reconhecendo as limitações e tensões que emanam de um ambiente educativo dinâmico e complexo; **Conclusões:** A mudança educativa, que implica a necessidade de uma transformação das formas e conteúdos que são desenvolvidos nas instituições educativas modernas, é um processo consubstancial à gestão científica educativa e, consequentemente, tem de ser visualizado, compreendido e promovido por todos os seus protagonistas.

Palavras-chave: Mudança organizacional; Desenvolvimento participativo; Qualidade da educação; Liderança.

INTRODUCTION

Currently, in the face of the imprint of advanced technologies, the easier passage to scientific knowledge and its consequent impact on productive transformation and international competitiveness, the social task to education is trans- formed by addressing the comprehensive training of new generations, in correspondence with the scientific-technological civilization for social development (Montes and Gamboa, 2018).

For this reason, raising the quality of education is an indispensable condition, a source of controversy and an object of study by teachers, researchers and managers in the sector. This is undoubtedly one of the most complex and pressing problems that is part of the strong questioning of education from multiple platforms and scenarios.

This necessary aspiration requires that educational institutions provide organizational conditions that guarantee their cohesion and identity in favor of educational quality (Garbanzo-Vargas, 2016), as well as demand professionals committed to their practice and social task, as well as a design of educational institutions consistent with the scientific and pedagogical character that is in their very essence. All this in order to be able, from scientific-pedagogical bases, to successfully undertake the necessary changes that the social dynamics itself imposes on education. In this way, it is a problem that needs to be analyzed in its different aspects, and that leads to the raising of some questions:

1. What are the challenges facing educational management in order to contribute to the quality of education we aspire to?

2. How to understand and implement organizational change in educational institutions?

3. What management relationships are consistent with current desired aspirations for education?

The answers to the above questions may be of a diverse nature of approaches, paradigms and positions, as a result of the polemic nature of this topic in the field of social sciences. The approach to this subject, which is the subject of this text, is based on the authors' conviction that educational scientific direction can be decisive for the achievement of higher educational quality, as long as it is a proposal supported by educational practice and pedagogical research.

In this analytical tenor, it should be noted that in terms of the quality of educational management, there are many factors that can condition its results, but those related to planning, the forms of development of managerial leadership, the use of resources, the construction of a favorable educational climate, the validity and quality of the processes carried out stand out (López, 2010). Paradoxically, when it comes to the development of educational institutions, the relationships that are established are not always analyzed and acted upon effectively, nor is preparation for change guaranteed; however, by their very nature they should be of a strategic nature.

From this perspective of analysis, the aforementioned requires, in the current conditions of Colombia, a greater use of the so-called "integrated management systems" to achieve the indicated objectives.

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The main objective is to achieve a coherent structuring of management relations, considered as those that involve leaders and those led within an organizational system in order to increase the effective and committed participation of each of the members of the organization (teachers, workers, students and parents) in the planning, organization, execution and control of the activities inherent to the school practice (Méndez, 2006; 2011).

The management relationships established in educational institutions are highly complex (Vázquez and Angulo, 2006), as a result of the multiple processes that take place in them and the specificity of working in the web of relationships established by human beings in their social practice, in this case, education. Therefore, the purpose of this article is to analyze the challenges faced by educational scientific management and their impact on the improvement of management relationships, organizational change processes and the management relationships involved in the process.

THEORETICAL FRAMEWORK / FRAME OF REFERENCE

Scientific educational management, current scope and challenges

Currently, it is necessary to consider the social transformations that are taking place in Colombia with the purpose of raising the quality of education to higher levels, based on the reasoned and logical use of material and financial resources, in order to ensure rationality and effectiveness in the educational process. The necessary transformations that occur asynchronously in the different departments, municipalities and educational institutions of Colombia (Loaiza and Hincapié, 2016), are an expression of the need to transform the practice of educational management, and at the same time, are a reflection of the existence of problems in the professional performance and leadership levels (Parra, 2011) of managers at different levels of the educational organizational structure.

Consequently, it is urgently necessary to apply a scientific conception of educational management that starts from considering the social determination of this activity in its relation to the mission or purpose of educational institutions and considers the determining role of the manager in the achievement and attainment of that purpose. That is to say, the need to apply scientific knowledge to the activity of educational management, understood as a process through which goals are set and routes are traced to achieve social participation in the search for common achievements, focused on generating changes in the formation of people and also institutionalizing the means for this enterprise (Bringas, 1999).

Scientific educational management is thus a communicational process by which all educational actors assume a conception of development aimed at obtaining socially valuable objectives (Cuevas and Torres, 2006). According to the authors, it is above all a human, participatory, motivational process of continuous interpersonal relationships and cooperative efforts to achieve objectives of social significance focused on personal and institutional development. This implies recognizing its complexity, represented in a philosophical background that guides a system of conceptions, thoughts and actions of educational leaders, regardless of the level of management exercised (Bastida and Mora, 2017).

That philosophical background of educational scientific management implies, in terms of Bastida and Mora (2017), recognizing its configuration from the contributions of three approaches, a) the current one, in that.

requires the management of contemporary trends of human development in the educational system; b) the historical-pedagogical, which highlights the necessary knowledge of pedagogical postulations that respond to cultural history, giving context to the educational act; c) and the socio-philosophical, which integrates the application of regulations and educational policy guidelines in the direction of the educational system.

In an attempt at synthesis, it is feasible to point out that the central thesis of scientific educational management focuses on the fact that management is inherent to education, and therefore educational management is subordinated to pedagogical science (Bringas and Carbonell, 2010). This implies (at least) two major approaches to action, the first focuses on management as a process of empowerment of human capacities, where men and women are trained, and trainers of men and women are trained (Bastida and Mora, 2017). The second approach responds to the articulation of knowledge in a logic of management and administration; therefore, educational scientific management outlines planned strategies that respond to the needs of personnel, the administration of material resources, inter-institutional relations, among others (Bringas and Carbonell, 2010).

Management, as a process in which human groups participate to achieve objectives, has gone through a historical journey plagued at times by uncertainties and misunderstandings, and moments full of certainties and growth until it reached its contemporary forms, which are grouped in the so-called "Scientific Management". In this complex journey, laws, principles, categories, methods and theories have been defined and developed that have evolved to the present day (Cuevas et al., 2002).

In the analysis of the different models developed from the scientific management approach, Alonso (2006) shows that human knowledge about this phenomenon has obtained significant achievements, among which the following stand out:

1. The body of knowledge and experience on management activity has achieved a significant margin of development, going beyond the merely business or industrial context to be applied in other social sectors.

2. Methodological contributions and empirical developments from various disciplines have strengthened the theoretical foundation and body of knowledge related to the management activity.

3. The structuring, by each scientific branch or social sector, of its own conception (or particularization) of the science of management, starting from its original foundations, but considering the peculiarities of each discipline and context.

However, for several years, experts in the field (Torres and Cuevas, 2004) have pointed out some contradictions and limitations in scientific educational management approaches, among which the following can be highlighted:

1. Difficulty of articulation between theory and practice; this implies that the complete mastery of theoretical postulations and knowledge systems on management activity does not guarantee that management practice itself will be efficient.

2. Excessive idealism and decontextualization of the educational management activity, which has been fundamentally based on models proposed in the contexts of developed countries of the world.

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America and Europe, ignoring the rest of the regions (Africa, Asia and Latin America).

3. The absence of a truly flexible and systemic approach to management activity, as well as the premeditated "apolitical" intention of this activity.

These limitations can be seen in the daily practice of management in educational institutions, hence, as a result of the concerns, analyses and proposals of teachers, researchers and managers from multiple platforms, world organizations and the educational institutions themselves, there is a confirmed desire to carry out transformations that improve the theory and practice of educational management.

It is pertinent in this analysis to take up the ideas of Bringas (1999) when he warns that educational management should assume the task of resolving conflicts that arise in the articulation of internal and external mandates of educational institutions, for which it should appeal to the use of management methodologies and procedures derived from the educational activity, instead of making slight adaptations of the management applied in other scenarios. In line with this idea, Valle (2003) points out that such a situation makes educational management a clear necessity for educational success, since the lack of managerial capacity leads to the structural weakness of organizations and their imminent failure.

From this perspective of analysis and from an integral vision of the problem addressed, it is necessary to consider two basic demands: the necessary increase in the quality of education and the demand of teachers, students and parents, who advocate a more horizontal and affectionate treatment of their managers, accepting the authority that emanates from the example in all spheres of performance of managers. In line with this reality, Reyes (2007) has identified five challenges to be faced by educational scientific management:

1. To build a more just and cultured school, based on discernment, research and the pre-mastery of human values, as a means of strengthening national identity in the midst of a globalized world.

2. To transform the educational system by incorporating the most advanced ideas in terms of human formation.

3. Effective use of new information and communication technologies.

4. Promote the development of a competent educational administration.

5. To develop the theory of educational administration in order to guide with greater scientific rigor the practical activity.

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To lead scientifically in education means, above all, to design the desired future, in accordance with the changes in the internal and external environment that are currently taking place (Cuevas et al., 2002). For this purpose, the development of learning skills converge as essential elements, which are reverted into new knowledge and these have effects on the improvement and integral development of the individual, of the institution's collective and of society in general.

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Precisely, the education to which we aspire is determined by the level of excellence of the services provided to students, from which learning for life is built. In this sense, the objective is achieved to the extent that the students who are educated have greater competencies (political, professional, economic, environmental and citizenship), to face the professional challenges and the expectations of the institutions where they work, their families, themselves and society in general, once they begin their working life, which will demonstrate the quality of the pedagogical process that preceded it (Casanova, 2012; Jiménez, 2017; Zorrilla, 2009).

Improving educational quality means the organized creation of an advantageous change in the indicators that characterize educational scientific management, recognizing that the maximum responsibility for educational quality belongs to the managers, whose basic task will be to plan, organize, execute and control this process. The development of educational institutions is not possible if, in parallel and consequently, the people who will make it possible are not integrally developed, and for this, the so-called "educational change" needs to be understood, foreseen, applied and valued in all its significance and transcendence for the achievement of this challenge.

It is required to demonstrate the ways and relationships that are assumed between the ways of directing education and the educational quality itself within the institutions, which facilitates the creation of a different understanding of the school problematic and leads to proposals that, with the necessary exigency, take responsibility for the objective processes of improvement in schools and in the nation's education (Quintana-Torre, 2018).

Educational scientific management and educational change

The extremely complex socioeconomic context in Colombia, which poses the challenge not only of increasing coverage and income levels, but also of systematically improving the quality of educational processes, requires a qualitative development of the educational institution, which inevitably involves the development of its human capital, and for this it is essential to involve teachers and managers as protagonists and participants in educational change.

Assuming this position requires educational managers to work towards an eminently participative management process that harmonizes centralization and decentralization, granting the necessary autonomy to serve as a vehicle for a qualitative change in the school (García et al., 1996).

Every change implies a transformation; it involves movement, the transit of the object in time and in a specific historical context. According to the collective of researchers of the Central Institute of Pedagogical Sciences (ICCP) of Cuba (see the compilation of Valle et al., 2015), educational changes occur as a consequence of those innovations or alternatives that embrace educational conceptions, as well as in the ways, resources and materials for their implementation.

From this perspective of analysis, educational change is considered a psycho-pedagogical process that is planned, organized, executed and controlled to successfully respond to the specific historical demands imposed by society. It is inferred from this position that educational change needs to be accurately directed and the professional performance of managers is decisive in this regard (Valiente et al., 2015). If change is considered as an eminently participative process, aimed at improving all the processes of educational change, then the professional performance of managers is decisive (Valiente et al., 2015).

The results obtained in the institution and the results obtained from them, it is also understood that it must be understood by all those involved in it (Fullan, 2002), in which case the educational institution's directors have a decisive role to play.

The complexity of educational institutions and the different processes that take place in them, causes changes to provoke a certain level of uncertainty, bewilderment and natural resistance to it, however, in the specialized literature it is widely documented (Elmo- re, 2010; Ritacco and Amores, 2018; Viviani and Zambão, 2015) the importance of these changes occurring and resulting in higher levels of autonomy of educational institutions, curricular management aimed at innovation and development of professional training, all integrated to the administration of educational resources.

International organizations governing educational policies also suggest that educational change should include the creation of innovative pedagogical practices that raise the quality and results of learning (European Commission, 2009; Organisation for Economic Co-operation and Development [OECD], 2011). Hence, it is important that this process of change is well conceived, planned, organized, executed and controlled, and that feedback channels are foreseen and kept active as a condition for the introduction of the necessary modifications, all of this based on collaborative work and school management responsibility focused on educational improvement, responding to the construction of regional leadership in education (Weinstein and Hernández, 2015).

The barriers that naturally arise in the processes of educational change can be minimized if the requirement of a deep analysis of the social significance of the change is addressed, which requires the involvement, contribution and input of the actors involved (managers, teachers, students, technical staff) (Michavila, 2009), considering that all of them bring with them ideologies and educational conceptions that may be opposed to the new educational alternative (Hernández de la Torre and Medina, 2014); their appropriation in the process, the development of feedback channels and attention to training needs (Ramos et al., 2015) can help to ensure that the change is assumed as a positive transformational process.

Evidently, this requirement does not exhaust the multiplicity of actions that can be conceived and executed in each educational institution to achieve the success of the change, the problems that need to be solved, the objectives that were previously set. From the authors' perspective, if we train competent citizens committed to social development, then we must insist on learning competencies that require gradual consolidation through practice and exercise in situations and environments (scenarios) specially organized for this purpose. Therefore, the main transformation that we must achieve with the educational changes that we have set out to achieve, is the adequacy of the educational-formative model, which must also respond to the needs of educational innovation, inclusion of technological development and promotion of effective pedagogical practices (Mena and Mar- tín, 2019; Villa, 2019). A schematization of what has been presented so far in relation to change can be seen in Figure 1.

This requires the development of training actions that allow the transformation of institutions into learning organizations of a new type, whose bases support the idea of knowledge as a factor of growth and progress, as well as the development of cognitive processes of social appropriation,

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Figure 1.
Manifestations of organizational change in educational institutions.
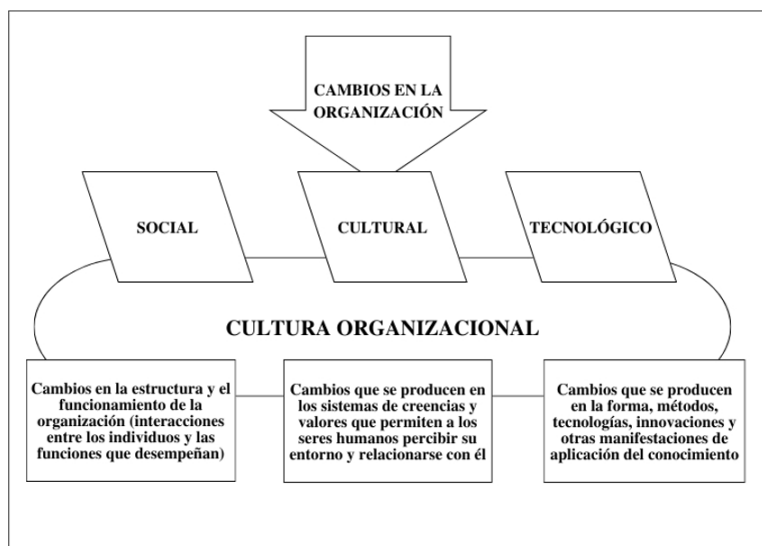
Source: Own elaboration.

the possibility of building referential and conceptual schemes based on the development of the institution and its members and a valuable and futuristic thinking of the leaders.

The latter take on a preponderant role, inasmuch as managerial leaders at any level operate as shapers of internal economic relations in educational entities, then, the actual leadership becomes a determining aspect (Parra, 2011). Teachers do not exercise their profession direc- tively, but are regulated by their leaders at the various levels of the institution, in the words of Bastida and Mora (2017), all personnel in the educational sector directs and is directed. From this perspective, leadership relationships are essential and participatory democracy and leadership constitute the cornerstone of the entire system. If relational dysfunctionality were to exist, it would hinder the entire process in which the teacher-manager category is built and would affect the construction of the new educational model to which we aspire.

The educational manager leads the process of leading the organizational effort to achieve the system's objectives and even manages to positively influence teaching performance (Ayvar, 2016; Torlak and Kuzey, 2019). The leader of an institution, of a project, of a department, must work through others and motivate them so that all have the same goal. That real leadership function emanates from his own personality of "driver" of human beings, his skills allow him to connect with the context and understand the personal identity of leader (Clapp-Smith et al., 2018) and by having that real authority he can make all the forecasts work according to the plan he formulated, he gets his paradigms to be taken as his own by his followers and even motivates leadership skills in less experienced collaborators (Kragt and Guenter, 2018).

Therefore, the management process (at any level) is the process of conducting - in the sense of leadership - the organizational effort in pursuit of the goals of the educational organization. In addition, it is proposed that it constitutes a social, historical, cultural and socio-politically determined relationship established between the leaders and the led, in the work activity, in which the following are produced and

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systematically reproduce relations of subordination and relations of cooperation among them (Assmán, 1977; Hermida et al., 2015).

It is developed as a process of interaction in which a certain order of functioning is established and the required modes of action are planned, organized, readjusted and controlled in order to: 1) Guarantee the fulfillment of the objectives set, 2) Strengthen the development of all the members of the organization linked to the change, and 3) Foster the development of the personal resources of the members as well as the culture of the educational organization.

These processes, in addition, correspond to the way in which management relations are configured, established with the purpose of achieving cooperation in the different activities of the whole social life and consequently its productivity and fulfillment of the social task. The aspired functioning in each institution is conditioned by the managerial processes and the managerial relationships on which they are built.

In this order of ideas, and taking into account the historical development of education in Colombia, it is evident that the problems identified in the current educational context are of a multilateral nature and are manifested in the various processes that take place in the institutions, i.e., curriculum management, didactics and learning, school-family-community links, teachers' professional pedagogical performance, among others. In the face of this complex reality, educational scientific management alone will not generate educational change; however, far from minimizing its scope, its value increases, since it embodies the responsibility of guaranteeing the strategic vision and the coordination of the efforts of human talent in accordance with the changes in the internal and external environment that are currently taking place.

Management relations in the educational context

It is not the intention of this article to exhaust the discussion on the concept of leadership relationships and their implications in the educational institution; such an aspiration would be naïve as well as pretentious given that it is a topic of broad theoretical development and diverse analytical positions. For a broad discussion of the different types of leadership relationships, readers are recommended to see the work of Fernández et al. (2014). The consideration of this concept in this article focuses on the close relationship with educational leadership processes as central elements in the agency of educational change.

Management relations refer to relationships involving subordination and cooperation, i.e., they demarcate interaction between leaders and those led, which occur at different levels, and also define the exchange of values, ideas, knowledge and specific ways of perceiving reality (Gómez, 2011). These relationships are determined by the organizational hierarchy and express exchanges within the framework of the work activity defined among the actors of the institution (Fernández et al., 2014).

The communicative nature of this type of relationship is a key element, since the functioning of the different levels of management must always be a permanent "brainstorming" to get everyone involved in the solution of daily problems (effective participation in the decision-making process). Organizations do not improve their results if people do not change their individual behavior at work, based on their sense of responsibility for collective results, and on the level of motivation achieved by management relations with the members of the organization (Fandos, 2006).

However, motivation should not be managed exclusively at the individual level, but by focusing on the shared objectives of the collective. Greater effectiveness is needed in systemic approaches seeking cooperation and correlation in everyone's work, so that the vision must be shared collectively. Thus, in addition to individual work, it is necessary to focus the work with the group, strengthening teamwork, integrative and collaborative cooperation, either in departments or in the teaching unit, developing management relationships to achieve high commitments for high performances (Borges-Torres et al., 2017).

It requires the precise determination of the objectives to be achieved by the entire educational institution and of the measurement criteria for their fulfillment, or that allow the mission of the organizational system to be achieved. This is helped by the clear definition of the individual responsibilities of the members of the collective, all focused on achieving the mission of the center (system with purpose) and the missions of the different levels, based on contextualized decision making as a result of a rigorous knowledge of the educational reality (Fandos, 2006).

It is essential to emphasize that the crucial participation of teachers in the design of the measures and in the control of their compliance based on the contribution of their experiences and suggestions is achieved when the communicative processes function correctly based on adequate management relations, since these promote the search for the best solutions.

As Pernett (2004) points out, the efficiency of educational institutions is equivalent to the efficiency of their processes. Most educational institutions that base their work on these ideas oppose structures based on fiefdoms or shogunates, by conceiving the process from a collaborative (functional) vision, considering the satisfaction of the people for whom they function.

In line with the above, the educational institution must have an organization that establishes the archetype of actions that are intrinsically executed and, in this sense, the decisions that are made, with three levels in the decision-making process:

Strategic level: made up of the members of the highest collective management body, who are responsible for the operation of the educational institutions.

Tactical level: composed of members of middle management bodies with the main mission of directing and implementing the strategic directions approved at the strategic level.

Operational level: composed of members of basic management bodies, where key and/or support processes are developed, making it the most important level for the fulfillment of the institutional mission.

When the management relationships sustained at the different levels of the educational organization are permeated by favorable means of communication and participation in decision-making, the psychological distance between teachers and administrators is reduced and trust in management increases (Thomsen et al., 2016). The objective is to achieve the appropriate and effective intervention of teachers (participation), workers, students and family members, i.e. educational agents, in the solution of the problems identified, as shown in Figure 2.

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Figure 2.

Proposal of a functional hierarchical organizational structure for educational institutions.
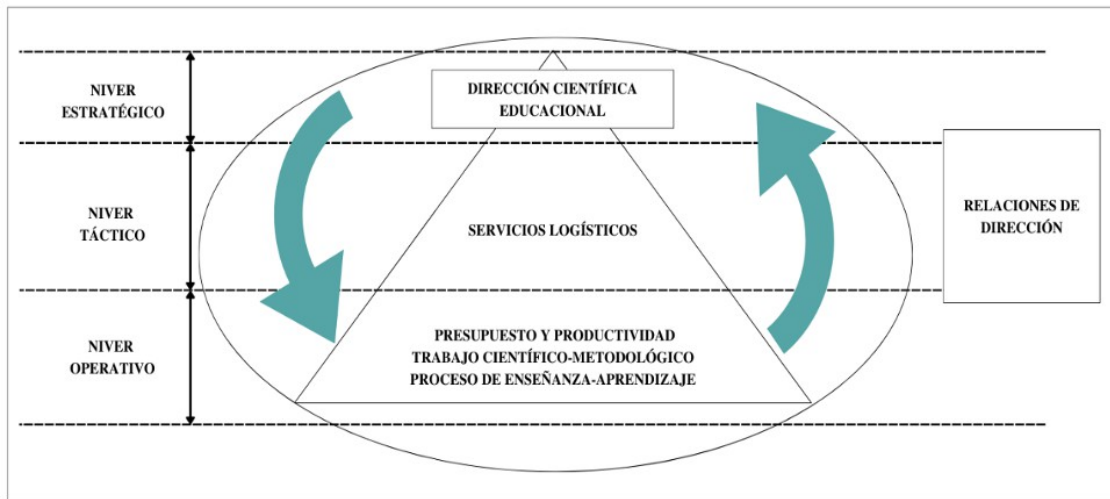
Source: Own elaboration.

Leaders at all three levels develop the corresponding management processes and ensure adequate management relationships for the effective participation of teachers in continuous quality improvement (Figure 3). The latter is a tool for increasing educational quality and constant, consistent and solid development throughout the process. The sustained development of an educational center requires knowledge of all processes and measurable analysis of each step carried out. Some of the tools used include corrective actions, preventive actions and the analysis of satisfaction in members or customers (Pérez-Rosell et al., 2017). From this perspective, we talk about the improvement of educational institutions.

Figure 3.

Relationship of actions for the improvement of processes in educational institutions.
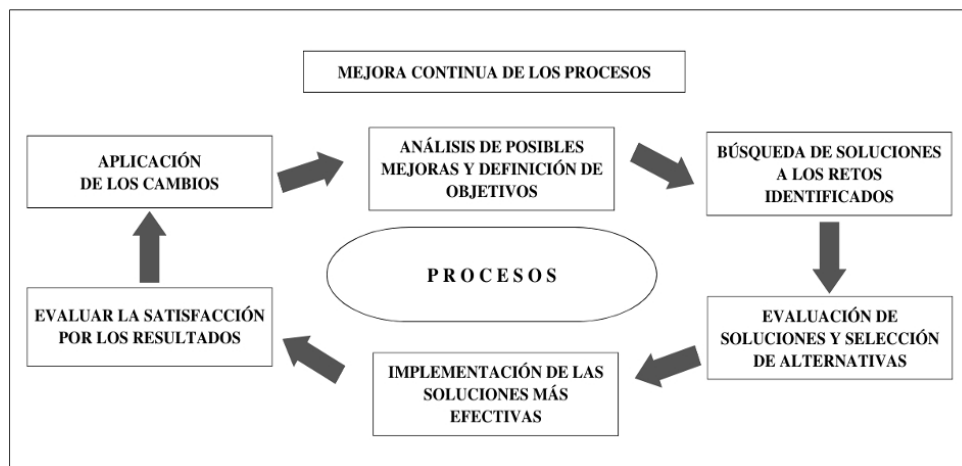
Source: Own elaboration.

It is necessary to determine the level of responsibility and involvement of each of the members of the institution, from their role and tasks and from their knowledge and expectations. The person responsible for the process interacts with him to ensure success.

Finally, it is important to point out that educational change implies the need for a radical transformation of the content and form of the educational model developed in the modern institution. This process also entails organizational decisions that respond to the need to offer guarantees in the welfare conditions of teachers, starting with a good analysis and description of their roles and responsibilities in the process of change. Likewise, it is required to establish labor relations, information systems and control of the teaching-learning process at all management levels, in order to deploy an organizational culture with emphasis on the development of methodological work, scientific activity and individual improvement plans according to needs and interests, in which also the evaluation of pedagogical performance is the starting point to ensure continuous improvement.

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Constraints and tensions for change through an educational scientific direction.

The guidelines described in this article have been presented as a road map that contributes to the generation of managerial improvements in educational institutions, where management is guided by the scientific knowledge of administration in the educational scenario and not by hasty adaptations of organizational management from other contexts. In addition, the scientific conception implies taking advantage of pedagogical knowledge to produce changes in the training model based on evidence derived from the scientific work of the educational sciences.

We warn that our proposal is not reductionist; it would be a scientific contradiction to maintain that the solution to the problem of the quality of education is exclusively due to the implementation of educational scientific direction. On the contrary, the spirit of this work focuses on recognizing how this direction can contribute to enhance educational work, since quality in education is not a responsibility that should be attributed solely to the educator and classroom processes, but is part of an organizational umbrella, of a directive management that should articulate the valuable work of teachers with policies and resources such as those previously described.

In a national context such as the Colombian one, even in the Americas, it is complex to achieve radical organizational changes due to the political and economic reality that conditions the development of education. Recently, Cárdenas et al. (2021) have pointed out that public education in Colombia is the most vulnerable in terms of quality, as a result of economic segregation trends that mark evident gaps compared to private institutions, which enjoy better resources that facilitate a more efficient managerial exercise. Clearly, the economic reality conditions the scope of the management process, but precisely, the scientific educational management appeals to the optimization of processes by modulating the objectives according to the capacities and the teachers' competition.

It is also true that achieving scientific educational leadership implies having leadership dynamics in the personnel who assume school leadership, but this continues to be a task that requires greater commitment in the Latin American context, where pedagogical leadership continues to be weak, requiring a more effective and efficient management.

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of greater promotion by educational policies (García-Garnica and Martínez-Garrido, 2019). Achieving a better level of leadership to be reflected in educational management requires better personnel selection processes, but also more attractive conditions in school management positions and greater opportunities for training in pedagogical and organizational skills (Bolívar, 2012).

The very structure of educational management can be an obstacle to achieving scientific educational leadership, to the extent that managerial activity must respond to a number of operational or technical-level activities (Gairín et al., 2017) that limit the possibility of assuming leadership processes from a motivational perspective for change that affects the expectations, commitment and self-efficacy of teachers (García-Garnica and Martínez-Garrido, 2019).

The extremely complex socioeconomic context in Colombia, in which the quality of educational processes must be systematically improved, demands a qualitative development of the educational institution, from which it emerges that scientific management in educational institutions must prioritize its motivational and participative character, as an essential requirement to mobilize the strengths and potentialities of its human talent and the resources of the community towards the achievement of its social function.

Observance of the particularities and characteristics of each educational institution in particular, as well as the establishment of a dynamic and stable relationship with its environment, are the main elements for the conception of educational management and for its practice by its staff. In this sense, it is necessary for management relations to be permeated by favorable means of communication and participation in decision-making, which will reduce the psychological distance between teachers and administrators and increase confidence in management, from which it follows that it is essential to achieve the effective participation of teachers, workers, students and the family in the resolution of the institution's problems.

CONCLUSIONS

Educational change, which implies the need for radical transformation of the content and form of the educational model developed in the modern institution, is a process inherent to the process of scientific educational management itself and, consequently, must be visualized, promoted and understood by all managers of educational institutions.

This process of change entails organizational decisions on the basis of which to offer guarantees in the welfare conditions of teachers, starting with a good analysis and description of their functions and responsibilities in the process of change. Likewise, it is necessary to establish labor relations, information systems and control of the teaching-learning process at all management levels, in order to deploy an organizational culture with emphasis on the development of methodological work, scientific activity and individual improvement plans according to needs and interests, in which the evaluation of pedagogical performance is also the starting point to ensure continuous improvement.

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