



## Innovación educativa y su incidencia en el profesorado

### *Educational innovation and its impact on teachers*

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### Resumen

El presente artículo tiene como objetivo el análisis de los procesos de cambio e innovación en la educación y su incidencia en el profesorado. El tema adquiere particular relevancia debido a que la educación superior en Ecuador está pasando por importantes procesos de transformación que ameritan revisar los contenidos curriculares y la metodología de enseñanza, aspectos fundamentales que subyacen en todo proceso de innovación o cambio educativo y la adaptación del profesorado a estos cambios. La metodología del presente trabajo consistió en el análisis de los principales postulados de Fullan (2002-2012), Havelock y Huberman (1980), Rutherford y Hall (1990), Rogers (2003), Marcelo (1995-2010), entre otros, que se han dedicado al estudio de los procesos de cambio en el contexto educativo y su impacto en el profesorado. Como resultado de este estudio se identifica como factor fundamental la participación proactiva de los docentes en la construcción y fortalecimiento de los procesos de innovación para la formación integral de los ciudadanos en un marco de compromiso social y ético con la educación en todos sus niveles. El trabajo concluye con un cuerpo de recomendaciones que supone, entre otras, la necesidad de involucrar al profesorado desde el inicio en los procesos de transformación educativa a través de programas de sensibilización, formación y acompañamiento.



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## Palabras clave

Cambio educativo, innovación educativa, profesorado, educación superior

## Abstract

The purpose of this article is to analyze the processes of change and innovation in education and its impact on professors. The topic is relevant since higher education in Ecuador is going through an important transformation process that requires reviewing the curriculum content and the teaching methodology, key aspects that underlie any process of innovation or educational change and the adaptation of professors to these processes. The methodology consisted in the analysis of the main postulates of Fullan (2002-2012), Havelock and Huberman (1980), Rutherford and Hall (1990), Rogers (2003), Marcelo (1995-2010), among others, devoted to the impact of the processes of change in professors. As a result of this study, the proactive participation of teachers in the construction and strengthening of innovation processes is identified for the integral formation of citizens with a social and ethical commitment to the education at all levels. The work concludes with recommendations that implies the need to involve teachers from the beginning in the processes of educational transformation through awareness-raising, training and accompaniment programs.

## Keywords

Educational change, educational innovation, professors, higher education

## 1. Introduction

Higher education in Latin America and the world is conditioned by the acceleration and systematic transformation that society goes through, and by the demands posed by the so-called knowledge society. In this sense, higher education at the beginning of the new century is in crisis worldwide, despite having shown various types of development in the last decades of the twentieth century, forcing to be permanently redefined to face the new challenges. The population, the demand for new skills, the evolution of technology and the accelerated and continuous creation of knowledge, demand constant changes in the educational system.

Referring to changes in education is to recognize the current demands that must be met by society as a whole, because the possibility of innovation processes that are expected to contribute to raising the educational quality depends on this. In this sense, in a context of permanent transformation characterized by globalization, massification, technology and multi-literacy among other trends; openness and adaptation to the process of permanent change must be part of the dynamics of all institutions. This involves developing strategies that respond to these trends by making the curriculum more flexible.

The gaps between social demands and the response of educational institutions have been the subject of multiple meetings, conventions, congresses at the global and local levels, in order to deepen the analysis of new realities and establish agreements and reforms, which allow to outline proposals, projects, strategies, whose main objective is to raise the quality of education.

Evaluation processes have been developed in Ecuador, the results of which have shown serious questions about the relevance and quality of higher education. In this regard, part of the balance is shown by the following:



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It is worth highlighting as the main problems of higher education the questionable management in terms of: quality and relevance, the non-application of the principle of equal opportunities and integrality of the education system, the quality of online education, university autonomy with social responsibility, academic integrality, training and research (Larrea and Granados, 2016, p. 155-235).

There is no doubt that Ecuadorian society is demanding changes in higher education; it has been a necessity to comply with the most substantial part of the Bologna Declaration for Higher Education (1999), in order to be in agreement with the challenges posed by the knowledge society. There are aspects in the Declaration that refer to quality, mobility, diversity and competitiveness to ensure that the educational offer is adapted to social demands. These demands involve changes that require to be debated and analyzed in spaces with the social actors, with the members of the academy, with the university community. This contributes to establishing processes for the development of new educational, pedagogical models and to build the new curricular designs of careers that meet the objective of training future professionals according to the new scenarios related to the country's models of society and the development projects.

The changes that are taking place in our society affect education and the teaching work. A knowledge society requires innovation and quality-oriented schools. But innovation is not a mandate, it cannot be ordered (Marcelo, Mayor and Gallego, 2010, p. 112).

In any process of change, the active participation of those who will be affected by such change should be considered. In this sense, if a transformation process takes place, its success would depend on the actors of the process with its conception and implementation. According to Fullan (2002a), "to achieve certain kinds of purposes, in this case the educational objectives, these cannot be imposed by a mandate, because what really matters for the complex goals of change are skills, creative thinking and action" (p. 36). In this sense, any process of change and innovation especially in education must arise from a context in which problems are identified and ideas, proposals, projects, reforms, mandates, models are established with the educational actors. Proposals imposed do not have the desired effect.

In this sense, the aim of this research is to analyze the theoretical principles underlying the processes of change and innovation in education, specially of Ecuador (Breilth, 2017) and at Universidad Central del Ecuador (Páez, 2018) which are subjected to a number of factors such as the teacher training, the understanding of the new curriculum model, the ability to assume and make the changes that involve reforms, and above all, the levels of affectation that teachers have on their performance, among others. In short, if there is no knowledge, clarity and training related to the processes to be undertaken, difficulties will arise in their implementation. It is about channeling the sociological, psychological, pedagogical guidelines of change and educational innovation to prioritize inclusive processes and/or create new ones that strengthen those developed by each society, considering the teacher as an actor, facilitator of knowledge with critical and constructivist guidelines, relating them to the family context and the sociocultural environment.



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This work is divided into four parts. The first addresses the topic of educational change, then it sets out a panoramic view of the innovation and educational change processes and finally it discusses the aspects and factors involved in any educational innovation process.

## 2. About the educational change

Educational change is not new. It has been discussed for many decades worldwide. The nature of change, due to advances in different disciplines and the impact of technologies on society, is multiple and profound. It affects production systems, power relations, politics, culture, and education, causing transformations.

The culture of the 21st century demands various types of literacy: audiovisual, digital and information literacy. The educational paradigm moves to incorporate distance learning, mixed learning and collaborative learning. The media is changing the way we interact, present ideas and information, and communicate.

The demand for training involves serving new learning and competencies in virtual and personalized learning environments, accompanying the development of training throughout life.

In Mexico, Frida Díaz Barriga, a teacher at UNAM, in her article titled "Curriculum Reforms and Systemic Change" (2012) indicate that since the 1990s, curricular innovation processes for educational transformation have been developed with a series of models, changes with great educational potential, aimed at achieving educational quality (p. 23-40). However, a centralized and top-down implementation approach continues to proliferate in reform processes without articulating a dynamic of systemic change. One of the problems highlighted by the author is the lack or insufficient information regarding the processes and implementation conditions of the changes, which prevents its successful development in the diversity of contexts in which its implementation has been intended. This has led educational actors not wanting to get involved in the processes and if appropriate, they do so by obligation, but not with the conviction that these changes will transform educational beliefs and practices to meet the demands of the society.

Changes usually come from top to bottom and from outside to inside, with the aggravation that teachers see it as mandatory. In this regard, Murrillo and Krichesky (2012) argue that "change is not linear since what happens is that each phase can have retroactive effects or alter decisions made at an earlier stage" (p. 4). These processes of change, which can be part of education reforms, have been carried out globally and respond to the growing and globalized knowledge society, the incorporation of ICTs, international models, economic-business; proposals aimed at quality assessment linked to education funding, certification and accreditation. This is accompanied by the difficulty that these quality standards are unified and general and the social, cultural and institutional diversity of each community are not taken into account.

## 3. Innovation and change processes: overview

Questions arise in the actors and managers of educational change as to whether the models that have been applied for decades, can be considered as innovations or are trends or educational developments of the moment, for example, the orientation of the curriculum by competencies. Hence the importance of knowing the model and reflecting on the implications of these innovations in the educational work.

However, the change is inherent in the evolution of society. In this sense:



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The evolution of humanity is inherent in the notion of change in every aspect that characterizes it: the production of subsistence goods, the models, the methods for their exploitation, the distribution and consumption of goods, the health-disease process and its care, the socialization, communication, art and leisure, among others (García-Quintanilla et al, 2015, p. 47-48).

It is stated that there have been continuous processes of change since the beginning of the existence of human beings, which allowed growth and development in all aspects of society such as the production, politics, personal, communication, art, among other elements for better personal, family and communal living conditions (García et al., 2015, p. 47-53), argue that social change is a theoretical construction with two types of processes:

- Those who maintain the structure
- Those who tend to change.
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The two processes can be presented on different aspects at the same time. As an example, they point out that parents can teach their children the customs with which they were formed, and at the same time they can teach their kids behavior patterns that allow them to better adapt to the new social structure. Change is considered not a fashion but a theoretical structuring organized by social thinkers in each age (García et al. 2015 p. 48).

As mentioned by Breilh, (2017), Higher Education undergoes a process of change to adapt to a new reality, it has a strategic role to fulfill, establishing sustainable development processes, leaving behind traditional models, creating more advanced university currents according to the different moments that characterize a change of era. It is the responsibility of university institutions to enhance the development of new streams of thought that give way to a new university ethos.

There is no doubt that society at the global level, and especially Ecuadorian society, demands emerging changes in higher education; it has been a need to comply with the most substantial of the Bologna Declaration for Higher Education (1999) where emphasis is placed on curricular reforms, title approval, lifelong learning, access to study opportunities, and training and promotion of mobility. This process allows obstacles to the effective exercise of free trade, new methodologies and financing, in order for the academy to generate processes of change that are in agreement with a dynamic society in constant transformation.

Part of these processes of change go through the analysis of the agencies that run Higher Education and firmly undertake a recovery process of university autonomy, understood as the particular dialectical relationship established between the state and the university (Tünnermann, 2008, pp. 314-315), as well as the independence of universities from the state and government, their capacity for self-government and administration.

On the educational change, Murrillo and Krichesky, (2012), state: "Educational changes are processes that develop in an educational organization or institution, involving several factors simultaneously and sequentially, phases or stages continuously and permanently developed" (p. 28). Indeed, when changes in institutions involve aspects that affect culture these do not occur in a single moment. Its complexity involves various stages ranging from



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recognition to acceptance and adaptation. Every transformation process is a challenge in the implementation and evaluation and the expected results are not always obtained, because it depends on several factors, among them the difficulty in learning and applying the constructs and collaterally understand, facilitate and measure the dimensions of change processes (Hall, 2014, p. 99). Factors such as ignorance, understanding innovation and participation in implementation are decisive for the adoption of change processes in organizations.

Research on educational change highlights the works of Michael Fullan (2002a) who since 1960s conducted researches related to the study and practice of educational innovation in Canada. He called that early era "the era of adoption" (1972-1982) because he considered that the changes that initiated in the educational context were intended to import innovations to achieve educational improvements. The intention was to improve education, especially in the U.S., as it was considered to be low compared to other countries, especially the Soviet Union. The main focus during this period was innovation and not teachers. There was little awareness that innovations created uncertainty about the roles that teachers had to assume, and that this would mean certain unlearning and relearning. At this time according to Fullan (2002a), "there has been very little change in education and the protagonists have little impact in this process, being considered as 'passive adopters'" (p. 6), i.e., at this stage the model refers to teachers as the users.

The next decade (1982-1992) is called "the decade of meaning". At this stage the change is observed as a whole from all edges, especially from those who will apply it. Another feature of this stage is the vision of changes as part of a process that includes the initiation, deployment, continuation, and result phases. Fullan (2002a) believes that "although it was still a linear process, there was at least two-way side between each phase" (p. 7). It is no longer merely the adoption of an innovation but a complex process of transformation in the educational field. In this case, the teacher interacts with the other elements in each of the phases.

This decade emphasizes the meaning of innovation and teacher preparation for the expected results. Fullan points out (2002a), "If change is to succeed, individuals and groups must find the way of what they want to change and how to change it...", (p. 7).

Starting in 1992, Fullan has been talking about the "decade of the capacity for change". In this decade, Fullan writes the first series about the process of change, in which he states, is there anything worth fighting for? It basically integrates guidance and recommendations to teachers who face difficulties in implementing change processes.

Beginning 2002, Fullan wrote a trilogy to document the processes of educational innovation. The first book called, "The Forces of Change: Exploring the Depths of Educational Reform" (2002a), in which he emphasizes that a person by engaging in the depths of change also becomes part of it. In this sense, he notes that "we learn that it is not possible to solve the problem of change, but that we can learn to live with it in a more preventive and productive way" (p. 7). The second book is called, "The Forces of Change: The Continuation" (2004), aimed at studying the dynamics of the process of change based on an important empirical component that allows to demonstrate the evolution of internal and external reform and propose new prospects for the improvement. Fullan (2004) says: "We will analyze in depth the role of knowledge in the organizations, as well as knowledge and external connections" (p. 9). The third book is titled "The Forces of Change by Far" (2007) which highlights the continuation of studies on the process of change and states a new proposal that will try to change the context rather than accept it as something known.



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In addition, it emphasizes the importance of the sustainability of reforms, establishing the need to consider the best conditions for them to endure.

In general, the level of changes in education processes and labor markets as Rama points out (2015), "... shows the way education systems operates, creating necessary changes and opportunities for investment, innovation and the development of new management models" (p.23).

As stated in the doctoral thesis "Teacher concerns at the implementation of curricular redesigns in the education careers of Central University of Ecuador" (Páez, 2018), this millennium undoubtedly means facing changing times; and in these new contexts education must be conceived differently and research should be carried out at all levels to diagnose critical knots and promote changes, which can be made through reforms that generate transformations in the organization of knowledge, the learning process and academic management, always considering the new epistemological horizons, new social, political and cultural scenarios.

As mentioned by Fullan (2002b), the change is mandatory in education, teachers must have different background training; educational institutions and the system itself must change in the training of future teachers; methodologies should be established to relate the environment and the community; reculturization must be promoted, i.e., transforming the habits, skills and practices of educators and promoting the creation of new actions. Change should not be imposed; these processes should not be handled isolated. It highlights the need to establish connections, networks, to enrich the proposals, to know the strengths and weaknesses of the proposals and to solve the problems that arise.

According to Beraza and Zabalza, (2012), "Innovating is doing justified changes" (p. 28), referring to the fact that superficial changes do not benefit the interlearning process. Therefore, profound changes must be considered to impact and benefit the educational community and society. These changes must respond to the specific needs and demands of the environment.

At the same time, as Osorio and Pech (2007) show us, we should not consider the processes of change from one direction. "Changes should not be addressed from a single perspective, either as government policy or as a result of the school's initiative, but from both directions and in conjunction with the surrounding social, technological, economic, etc. forces." (p. 175). This gives us, on the one hand, a rather complex view of what the processes of change actually entail and the factors involved in their development.

On the other hand, it is important to consider that any process of change, innovation or curriculum reform must be known, built and implemented by educational actors, i.e., by teachers, considered as agents of change. Unfortunately, the actors in the process receive the information when they have to implement the changes, generating a number of concerns, uncertainties, discomfort and resistance, having an impact on their implementation. As Rutherford and Hall (1990) have pointed out, changes are favored to the extent that they seek to respond to a lack of institutional need; they present to the institution and key players clearly express the two sides in their complexity and feasibility and explain their scope and diversity. Partial or total reform or innovation will work if there is training by teachers and the new curriculum proposal corresponds to the broader concepts of innovation, i.e., that they are well-founded, organized, contextualized, viable and practical

In this regard, Havelock and Huberman (1980, p. 49) point out that:



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The fragility of the innovation process considered as a system makes a deep knowledge of the characteristics of its operation, essential in relation to the context in which it is developed. An innovative project can fail for a variety of reasons and only careful and ideal planning can give innovation some assurance that it will be in a position to coordinate the system and keep it running (Havelock and Huberman, 1980, p. 49).

Consequently, if reforms are imposed from the external or internal higher authorities of the IES (Higher Education Institutions), concern and even resistance will be created. It is therefore essential that actions be carried out concerning socialization, awareness and acceptance by teachers, along with conceptual and practical preparation on educational innovations. Teachers must be trained to achieve conviction levels that innovations understand, can apply and understand their scope.

Educational innovation is a deliberate and planned act of problem solving that aims to achieve higher quality in student learning, surpassing the traditional paradigm. It involves transcending academic knowledge and moving from passive student learning to a conception where learning is interaction and is built among all (UNESCO, 2016, p.3).

Innovation is the most suitable way that educational institutions respond to the requirements of a society, to its current complexity. According to Villavicencio (2017) there is currently the requirement of higher education institutions, especially the educational careers in which future teachers of all levels of education in Ecuador are trained to introduce alternative modalities of curricular designs that consider current social demands, the harmonization of new epistemological horizons, the growing and accelerated change that is being operated in science and technology, in order to respond to the new challenges that human beings must face in the rapidity and depth of the changes that are taking hold in life itself, in families, in institutions, in society. According to Pérez (2012) "The confluence of such significant and radical changes is shaping a new target context that changes the institutions, states and daily lives of citizens within an era of globalization and interdependence" (p. 49). The new target context concerns the new political and economic relations of the nation-state, the globalization processes in the environmental, cultural, political and interdependence related to the coexistence of new different human groups and up to the environments that determine the complexity of the context.

In these processes of change, society, public and private educational institutions and teachers must be involved, and teachers must participate decisively and directly. Educational institutions should focus their attention on the main agent of innovation processes, they should know their thoughts, expectations, personal and professional interests, the training received, skills and preferences.

In the research of Beraza and Zabalza (2012), dedicated to the institutional and organizational dimension in educational innovations, the authors highlight the main role of innovative teachers in the implementation of innovation. The decisive role of institutional culture in terms of the perception of teachers who are part of the institution is highlighted, perception that manifests itself in the meaning and value that teachers attribute to innovation. The process of change is difficult to understand and accept, even more so if the person, agency or institution has not been invited to participate in its construction.

As mentioned by Fullan (2002b), educational reforms risk failure to implement if the basic elements such as the evaluation of previous processes of change are not considered, determining their strengths and weaknesses; furthermore, if the actors of change are not



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taken into account or if other factors such as politicians, religious who want to impose trends aimed at the fulfilment of other interests are involved, distant from the quality of education and the comprehensive training of future professionals.

When talking about changes, the terms change, reform or innovation are often used interchangeably. It is then necessary to clarify the meaning of these terms. Casanova (2015) summarizes the meaning of the three terms as follows: "change as the fact of stopping doing one thing to do another, reform such as doing again, modifying situations to correct and improve them and innovation as the alteration of something to introduce novelties" (p. 17). Casanova (2015) defines innovation as "the incorporation of something new into an existing reality under which it is modified" (p.20).

According to Fullan, (2002b) change is multidimensional and it involves at least three components: the use of teaching materials, new teaching approaches, and new theoretical approaches. And he states that "... the problem with much of the literature so far is that it emphasizes on innovation and not on the user (parents, teachers and students)" (p. 4). In this regard, it emphasizes the study of the methodology that is the object that should cause the change and not on the effects that the object causes on the users. Undoubtedly, education must respond with permanent inclusions and continuous processes of change that require will, commitment, enthusiasm of teachers, in order for an effective participation during the process that ranges from the construction of innovations, their implementation and evaluation.

Murrillo and Krichesky (2012) argue that "possibly one of the worst sins of education is complacency: whoever believes that he already does well, that he does not need to improve, is on the way to doing it wrong and getting worse" (p. 27). In any process of social change, it can be mentioned that if we do not move forward, we go backwards.

To carry out any process of change especially in education, things must be considered as its complexity, know the stages that compose it and know how to anticipate the own resistances that originate in teachers in the face of these processes. In particular, teachers' concerns should be identified in order to establish the necessary actions to overcome personal problems, and start the process of change, innovations with better guarantees of sustainability and efficiency. In this sense, the studies carried out by Hall, G. and Hord, S. (1987) are significant, setting out the stages of concern of teachers in the face of innovations.

As mentioned by Casanova (2015) it is necessary to establish processes of change, innovators and emancipators for the construction of a public policy and the development of institutional reforms for higher education, which allow the establishment of new scales and evaluation protocols, quality assurance (not accreditation). It is also necessary to establish new educational models, curricular proposals, pedagogical strategies for undergraduate careers and postgraduate programs. Added to this is the need to respond to the creation of different systems of admission and leveling, eliminating those that deepen the structural and historic social gaps that leave out thousands of high schools each year of higher education, becoming part of a population group that does not have the opportunity to forge a promising future due to the impossibility of achieving a place in public universities and also achieving decent work.

#### 4. Aspects involved in the educational innovation

The definition of educational innovation is unclear, there are many definitions. For example, Rogers (2003) notes that "innovation is an idea, practice, and object that is perceived as new by an individual or adoption unit" (p.20). In this sense, any element that appears and alters



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the image that individuals have of the environment is considered as innovation. In education, it refers to the incorporation of devices in the classroom, a new practice, a methodology, a new instructor. At the same time that it can be considered as the modification of the physical space, the incorporation of stimuli such as colors or sounds, etc. As can be seen the meaning is very broad and many aspects can be considered as innovation from it.

García-Quintanilla et al. (2015), declare that educational innovation constitutes a novel and major work aimed at completing or creating a system or processes of intentional change, consisting of a project or a set of activities that are part of a project (p. 50). It is sometimes considered as synonym of change, but it is not; it can be seen that they are closely linked to each other, as innovation produces changes which are considered special to them, as they constitute a deliberate effort which has as its main purpose the improvement of the system.

Beraza and Zabalza (2012) define innovation as "deliberate effort to obtain significant improvements in the system" (p. 46). "It is a novel and major work aimed at completing or creating a system" (p.47). A society permanently seeks to improve and to make the most of the results in all areas and for this purpose new processes, strategies, activities are resorted, to make it possible to achieve that desired change. In the case of educational innovations, these are processes that arise aimed at introducing fundamental changes in a relentless search for solutions to the problems faced by institutions directly related to social changes, paradigms, new pedagogical approaches.

Educational innovation identifies with an action or actions of change that are intentionally performed in education as part of a project. Tejada (1998) mentions that "any innovation is always a deliberate action and that this experience must be conceived with complete rigor" (p.13). Citing the intentionality, systematization, contextual dimension, substantive dimension, personal dimension, process dimension and evaluation dimension as conditions for the fulfillment of the objectives in an institution.

Referring to educational innovation suggests that the meaning of the term innovate needs to be revised, because while it is true that in education there is an effervescent world of innovations, they must be applied with analysis. What innovation means and what is not, "to innovate is not only to do different things, but something better than the above" (Beraza and Zabalza, 2012, p.19).

In order to develop processes of educational innovation, there must first be a decision to innovate, then the understanding of the process, the analysis of information, the setting of priorities, the visualization of the situation, the definition of strategy, plan implementation, evaluation and change management (Ortega et al, 2007).

There must be the direct participation of educational and social actors, teachers and students, the entire educational community in the construction of innovations. As is currently the case in Ecuador, these changes are imposed, as are regulations that stifle higher education institutions, as they respond to a technocratic, linear, concentrator model based on hegemonic, which have made IES and teachers to be on an elitist education of an individualistic meritocracy, creating spaces for a national and global phenomenon. According to Villavicencio, (2017), the rankings often have perverse effects since they can affect certain social groups, educational institutions, blur the vision of academic management (research, teaching and linkage) giving way to administrative concerns (filling matrices and accumulating evidence).



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Change, innovation, education reforms are imperative, but these must be built with teachers, with the entire educational community, and strategies must be established to enable them to be implemented.

Referring to the Rogers innovation process (2003), it presents the following steps:

Scenario	Definition
Knowledge	Innovation is known and understood
Persuasion	An attitude is developed for or against innovation and it is argued
Decision	Innovation is accepted or definitively rejected and the process is not continued
Implementation	The implementation of innovation is tested
Confirmation	Acceptance of the innovation

Table 1. Stages of the innovation process. Source: (Rogers E. 2003. Diffusion of innovations)

The stages of the innovation process presented by Rogers (2003) clearly state that an innovation process, especially curriculum, involves the management of information in a broad, clear, correct and defined way, information that allows teachers to reduce uncertainty caused by misinformation regarding changes to be adopted. Potential knowledge will allow to understand innovation and have the necessary arguments to take a stand against change and decide whether or not to adopt it. If it is favorable, the decision will continue with its implementation, which will be determined by the complexity of the structure and resources available to the institution for its implementation and with the conviction of its functionality, opportunity and relevance, aspects needed to achieve transformative and impactful action in the multiple fields of the educational institution and society.

Undoubtedly, as mentioned by Ortega et al. (2007) when making changes, it is important to have innovative teachers prepared to develop change strategies and reforms, based on research and linkage, ready to carry out collaborative, inclusive work that develop its management in internationalization and virtualization learning processes, conditions that are essential if innovation is considered not as a formal bureaucratic compliance with what is imposed by the administration of higher bodies or authorities.

Innovation processes in their implementation have adverse factors that often make it difficult to meet expected targets. Havelock and Huberman (1980) refer to six adverse factors to the innovation process:

1. Underestimating the innovation process: insufficient coordination and communication.
2. Personal conflicts and motivations: opposition to change, personal motivations, difficulty understanding others.
3. Underdevelopment: negative conditions in resources, insufficient materials.
4. Financial problems: insufficient financial input.
5. Opposition of influential groups: opposing ideas of power groups, of the leadership group.
6. Bad social relations: lack of harmony among members, difficulty in relationship, contrary ideas (pp. 304-323).



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Indeed, the implementation success of curricular innovations depends on the adverse factors to innovation being evidenced, in order to overcome them in the educational institution. It should be thought that there must be sufficient coordination and communication with teachers before starting the process of change, so that they know, discuss its application and familiarize with it. It is also necessary to develop a motivation process to overcome attitudes opposed to change, knowing the reasons and analyzing them. Sufficient human, material and financial resources must be available to meet the requirements and to hold working meetings to find agreements and harmony among the actors linked to the process.

It is important to note that good intentions on the part of authorities and teachers is not sufficient to achieve the expected success with the proposed innovations. Teachers need to assume the innovative project as their own and commit themselves to the processes of change and co-construction that promote and strengthen a quality education, updated at the scientific, technological, curricular, cultural and citizens. Educational institutions generally develop processes of change, introduce innovations, new programs, practices, curricular designs, with the intention of generating better results for students, for the community, processes that involve difficulties in its implementation and not always achieve good results, sometimes the results are even unfavorable. When that happens they often test other reforms or innovations, ignoring to know and understand the causes that failed to meet the expected objectives.

Century XXI requires that education be developed with a new vision; education bodies, educational institutions, educational and pedagogical models, curricular designs, their programs should be transformed, in particular, the training of the teacher must change in order for his performance to respond to the new epistemological horizons, to the new challenges determined by complexity, modernity. In this regard Fuguet (2015) says, "Undoubtedly, an educational challenge is to be able to face the continuous changes in technological advances, especially those related to those to communication and information" (p. 100).

With regard to the university teacher, Mas-Torrelló and Olmos (2016) should be considered a professional in constant process of change, due to epistemological, paradigmatic transformations, referring for example to not focusing attention on teaching and the teacher, but to focus on learning and students, social, cultural and structural changes, new curriculum designs, review of methodologies used, new models of assessment, accountability, the application of new regulations by referring to laws, regulations, instructions among other aspects, and to agreements, resolutions, mandates of national and international conventions that recommend on the requirement for profound changes for the quality and internationalization that must be assumed by the universities (Mas-Torrelló and Olmos, 2016).

This reality leads to changes in the roles and tasks assigned to the teacher and the need to adopt new competences to efficiently develop their professional functions, which in turn gives rise to the need to establish pedagogical training plans for continuing education and updating aimed at defining and guiding new roles in the fulfillment and articulation of the substantive roles of the teacher in the different scenarios demanded by education in this century. Innovation is then constituted as a change that has an effect on structural and functional aspects of education to improve its quality.



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With regard to teachers' concerns about curriculum innovations, Hall and Hord (quoted in Marcelo, Mayor and Sanchez, 1995), say that "a concern would be the representation composed of feelings, concerns, thoughts and considerations given to a particular issue or task" (p. 154), in consideration of the fact that each teacher perceives situations differently in relation to the event he faces in accordance with his own development scheme.

Concern means a state of unease and fear caused by a problematic situation. If this state is presented in processes of change and innovation, it can become an obstacle at the time of implementing reforms or innovations, and the results will surely not be as expected, risking failure, as these can be adopted or rejected individually or collectively.

People, experiencing the changes, have many questions about how they will affect them, how they will do it, and what impact it will have on students, the institution; they have skepticism and disbelief about the usefulness and validity of processes and those who direct, including mistrust, questions that since are not answered can generate resistance, indifference, demotivation and even opposition, all of them considered determining factors when implementing any process of change.

Fullan (2004) argues that in order to succeed in the implementation of an educational change process, it is appropriate to understand and merge the intellectual, political and spiritual strength, which must be developed and combined. Intellectual strength, referring to the creation of knowledge about the process of change; the political force, which establishes collaborative work processes with internal and external alliances; and the spiritual strength or moral purpose involved in provoking debate and commitment to change. Concluding, Fullan (2004) says: "It is also clear why we need the fusion power, i.e., that all three forces interact and combine to achieve maximum effect" (p. 97).

## 5. Factors that must be involved in the educational change

The process of educational change begins with the identification of a problem and in the case of higher education in Ecuador, the agencies that run these made assessments in which a number of problems and serious questions were identified, as set out in the report of the Higher Education Council (CES, 2014).

In this context, it is worth noting that García-Quintanilla et al (2015), present three basic principles that should guide the processes of change in education:

1. Increase in the democratic participation: the direction of processes and activities should promote an exercise freer of opinion and the emergence of initiatives through a process of full communication.
2. Critical assessment: aimed at knowing and analyzing what is done and how it is done.
3. Motivation: in the process of change there should be an opportunity for greater professional involvement of the staff, based on motivational activities (p. 49).

Changes in education are a complex process whose stages must be known to those who will apply them. In addition, leaders should anticipate potential resistance attitudes and establish strategies to initiate, execute and evaluate the process and support its effectiveness and sustainability (Murrillo and Krichesky, p. 27).



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Fullan, M. and Levin, B. (2009) in a research conducted in Toronto, Canada, state that the change in education must be politically driven by leaders who must understand, accept and participate by establishing a set of fundamental strategies of the entire reform system. They raise six bases:

1. Development of the teaching profession: the basic premise is respect for teachers and professional knowledge. Reform cannot be implemented unless all teachers are working towards the same goal. In addition, a combination of labor peace, stability and incentives is needed for the profession to develop.
2. Establishment of measurable objectives in collaboration with all: it is necessary to establish specific goals in partnership with all involved, whether institutions or groups of teachers.
3. Maintaining a two-way path between instruction and evaluation: good instruction should lead to evaluation and an evaluation should lead to good instruction. Both must allow capacity development.
4. Recognize leadership as a key element in the process of change: effective leadership of all participants with leadership roles must be encouraged.
5. Establish comprehensive intervention strategies: based on motivation to all staff immersed in the process of change in order to develop comprehensive collaboration.
6. Allocate resources for all projects and use existing ones: it involves putting the required economic resources, in a focused way, at the service of the execution of the projects (pp. 30-31).

Regarding the educational change at the Ecuadorian university, Ramírez (2016), says "this is perhaps one of the main challenges that the Ecuadorian university has; not only to convey knowledge but to have a critical-reflective, self-reflective knowledge generator, responsible for the common interests we have as a society, region and world" (p. 47). The change in higher education allows the development of society and thus the increase of the quality of life of human beings, because it is a cultural environment that makes it possible to discover and cultivate individuality and strengthen coexistence. The objectives are achieved on the basis of the transformations of universities to respond to the constant changes posed by the current global, regional and local context.

Educational changes involve many personal, behavioral and cultural factors that promote or hinder them. According to Sepúlveda and Murrillo (2012) these factors are:

Personal factor: by resistances or obstacles that prevent people to be open to changes that arise from the beliefs that are formed throughout life. These are the mental models that condition certain ways of thinking and acting, even to consider that as the only truth.

Behavioral factor: believing that people are not prepared for changes, because new ideas take away security or peace of mind and detract from confidence to continue with new learnings.

Cultural factor: as each person learns and internalizes throughout life, customs, norms and behaviors that influence his life (p. 8-9).



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It is important to note that in the development of any process of educational change, internal and external factors to the institution and especially teachers should be considered, since not doing so can determine that the action is taken in the opposite direction, which will surely generate resistance or indifference and/or fears that can alter the process or limit the scope of innovation.

In short, it seems that the tendency is to do collective work in terms of significant changes that revolutionize education as a response to the myriad problems affecting the world's societies and in particular Latin America. A path must be opened to advance educational, pedagogical, curricular, methodological changes, being aware that a change in education is imperative and should be applied in order to achieve a quality, contextualized, modern education for diversity, interculturality, equity and inclusion, which is sustainable and can be generalized.

## 6. Conclusions

It is necessary for the community to create a proposal to develop a process of educational change, in which the relevant elements are integrated and articulated from the philosophical, epistemological, sociological, psychological, pedagogical point of view; project principles and objectives; strategies including teacher training, among other elements. These aspects make it possible for teachers to be involved and get excited by being an active part of a large project.

A factor that is often overlooked in the processes of change is the human element, since teachers are not considered to be educational actors, professionals who actually do the work. In addition, it is generally not taken into account that each person responds to a new process with attitudes and beliefs, with a personal and professional record of their own, a fact that determines that each acts differently from the processes of change. The change of mindset is fundamental in all these processes, because without existing it, there is the risk of finding defensive, superficial, ephemeral success attitudes (Fullan, 2002b, p.15).

When referring to educational change, it must be understood that it does not only affect the school system, but also the people involved who have different perceptions, attitudes, feelings and concerns, which must be considered in order to achieve a management that facilitates and drives the process of change that according to Hall (2014), takes three to five years for it to happen. In this regard, Osorio and Pech, (2007), point out that " there is a broad consensus in the face of educational reforms that these are not sustainable if the actors involved do not participate in their design and implementation..." (p. 174)

It is undoubtedly necessary to address the process of change from the perspective of teachers, from the concerns generated from the reforms or innovations that are in place to be implemented, if it is considered that they are the direct actors of the implementation in the classroom, in the institution and that it is essential to accompany the professionals on this journey to support and strengthen the process.

Finally, it is confirmed that teachers' concerns regarding the reform should be known in order to predict and determine actions for the preparation, training, guidance, assistance and resources needed for the implementation (Marcelo, Mayor and Sánchez, 1995).

There are validated instruments in other researches (Martínez, 1999, Páez, 2018) such as Frances Fuller's Concern Based Adoption Model (CBAM), which is a basic adoption model



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focused on concerns that teachers have in the implementation of a process of change, reform and innovation in the area of education.



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