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University innovation in Colombia from online learning (E-learning). Contributions of the UNAB-UOC agreement (2004-2019).

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Abstract

Online learning or distance learning such generalized as E-learning (electronic learning) has been considered a teaching-learning and communication process necessary to improve the quality and educational coverage in developing countries. According to the connectivism and from a qualitative perspective, the concepts that about innovation and education were proposed in a sample of one hundred research papers resulting from the Master in E-learning of the UNAB-UOC agreement since 2004 are contrasted and grouped. The results of the reflection are presented with direct quotes, from the grouping of notions, projections and conceptions that from the different typologies of educational innovation were assumed and articulated to the intervention proposals of each teacher-graduate. Concepts and practices in innovation that have been proposed from E-learning to transform traditional education and improve pedagogical practices, guided by referents of the UOC's educational model and UNAB approaches. Concludes that the differentiation between the scope and challenges of E-learning requires university teachers graduated from the master's degree to reflect and continually improve learning agents, virtual environments, accessible resources and a permanent reflection on "virtualization" in times of crisis.

Keywords: E-learning, innovation, educational innovation, model, university.

1. Introduction

Online education (E-learning), unlike face-to-face mediated with technological platforms, mixed (Blended-learning or B-learning) or distance (Open-learning) (Galvis, Duart and Carvajal, 2018), is not limited by the values and educational forms of the past, in particular by the promotion of titled professions that are static and unquestionable (Galvis, 2018). However, online teaching and mixed education preserve closed structures that have allowed face-to-face education to ensure and defend its continuity such as: institutional regulation, curricular formality, pecuniary certification, conditional promotion and limited access (Denegri, 2018).

Online learning is considered the teaching-learning process of distance learning through which all communication or learning is mediated by computing or electronic devices (computer, computer, tablet, video game, smartphone, etc.) (Pérez, 2019). Which requires online electronic resources to guarantee communications between multiple users such as the Internet, telematics, virtual classrooms, digital collaboration, multimedia, web conferences, etc. (Torres, 2018). Technological devices that have become the educational means of access to content and learning tools, formal or recreational, while the end is the didactic possibilities that electronic resources for virtual communication have (Mayorga and Pascual, 2019). For this, it has been necessary to create environments that surpass the machine or the networks themselves as a priority: network learning, asynchronous participation, collaborative learning through virtual interactions, distributive recognition of face-to-face courses along with the virtual ones, among others (Pérez, 2020).

Virtual teaching and learning spaces mediated by E-learning have become an expression of institutional innovation and the changing transformations of the

technological and industrial revolution, especially as the transition from virtual university campuses mediated by administration platforms to personalized learning through social networks (Torres; Romero; Pérez and Björk, 2018).). However, the expectations projected since 2000 have not yet been reached as they have not been achieved: full appropriation and use of the tools linked to virtual environments; technological stability by requiring changes in the devices used multiple adjustments in the spaces and learning scenarios when moving in less than a decade from desktops to mobile devices; lack of unity in terminology and didactics due to the increasing fragmentation and ambiguity in the sub-modalities associated with E-learning and the contradiction between the increasing projections of access and the unprofitable results in terms of massification of virtual education and use of platforms of digital content (Fernández, 2009).

The goal of E-learning mediated education: "to allow the creation and management of teaching and learning spaces on the Internet, where teachers and students can interact during their training process" (Fernández, 2009, p. 2). However, in virtual learning designs, the technological scenarios and processes thought for teachers by the administrators of the platform have prevailed, as well as the institutional parameters of the pedagogical advisers and the teachers of the subject, not being considered the open didactic role nor the personalization of the didactic structure of each course through personal e-learning environments (ePLE) in terms of administration, communication, content plan, types of activities and evaluation of the platform (Marín and Llorente, 2013).

Considering these limitations, this research result article aims to describe the conceptions and projections that have been presented on E-learning in the undergraduate work of teachers, mostly university students, who have completed the Master's program in E- learning of the agreement between the Autonomous University of Bucaramanga (UNAB) and the Open University of Catalonia (UOC), in order to justify this type of training as innovation, especially among the higher education institutions to which the Master's graduates belong.

The UOC offers in Spain as an official title the Master on Technology and ICT, but in its Latin American headquarters the name and purpose of the same varies according to the agreements and alliances. In the case of its headquarters in Bogotá, it is recognized that the master has been offered since 2004 as the Master in E-learning at UNAB (UOC, 2019). In Chile, the UOC has mobility programs and agreements for the development of educational platforms from E-learning, as with other universities in Colombia, but no programs are offered under agreement. In Mexico, the UOC has a specific headquarters and platform, but with regard to master's degrees in education, those interested must take the master's degree taught in Barcelona with a recent adaptation according to the interests of Latin American teachers, as it is entitled "university master's degree in Education and ICT (E-learning) "(UOC, 2020).

After fifteen years of existence and a hundred graduates of the Master in E-learning UNAB-UOC, most of them belonging to universities in different regions of Colombia, this communication aims to solve the following question-problem: what have been the conceptions and challenges in educational innovation that have characterized Colombian university institutions when designing new programs or instructional plans mediated by E-learning?

2. Method

The results obtained show the use of the deductive research method and a methodology with a qualitative approach and descriptive scope (Hernández, 2014, p. 382), characterized by a hermeneutical contrast of conceptions and references on the definitions and typologies of E-learning. Which is part of the research project "Research perspectives on" educational innovation "of the Autonomous University of Bucaramanga from the perspective of Online Education (ELearning)" (UNAB, Act 28 of 2019).

The study population corresponded to 50% of the reports made by professionals who have completed the Master in E-learning (100 reports) from 2004 to 2019 and whose reports are available on compact discs at the UNAB central library (2019). A significant non-probabilistic sample of research in higher education institutions in Colombia emerged from the judgment and judgment of the researchers, corresponding to 50% of the population (46 reports). Which have definitions on innovation, propose an instructional design and establish concrete impacts by promoting solutions mediated by Information and Communication Technologies (ICT). Hence, the reports that were most significant for the research were those that defined as part of their innovative goals the transformation of processes mediated from E-learning in the educational institutions where they worked, from the adaptation of virtual education as a complement to the presential teaching.

The instruments that were used for the development of the proposed objectives were: indicative table of the central categories identified in each research work regarding the concepts of: design, innovation, education; Database through which the results obtained in each report were grouped for each of the central categories, as well as for emerging categories and; an argument organization template of the results obtained as an argumentative text. All this made it possible to verify compliance with the purposes of the Master in E-learning such as: "... deepen the knowledge of E-learning addressed in an interdisciplinary way from the perspective of instructional design, teaching and management" (UNAB, 2017).

3. Results

One of the first reflections on the teachings and impacts of the Master in E-learning of the UNAB-UOC agreement was the research work carried out by Ramos in 2010, which aimed to present the proposal of a methodological standard to improve teaching and the learning of research competencies at the postgraduate level in virtual environments, from the case study that represented the master's in self-study.

Based on the reflection on the importance and effects of training by competencies, which had not yet been incorporated into the UNAB or Master's curriculum, it was assumed by the researcher from the training experience imparted by the UOC that E-learning It is: "… any electronic means of distribution, participation and support for learning, normally through the Internet and related electronic media services such as computer learning, virtual classrooms and digital collaboration" (Ramos, 2010, p. 51) . With which, from that perspective, virtual objects and platforms, as well as actors and instructional managers are learning media.

The Ramos retrospective recognized the Master in E-learning as a novel online training program carried out in partnership with the UOC as the main institution promoting online learning in Europe, along with the Master's degrees offered by UNAB in agreement with the Instituto Tecnológico de Monterrey as the main promoter of E-learning in Latin America (OECD, 2015, p. 98), through which it proposed: to deepen the knowledge of E-learning and demonstrate the application of new methodologies and strategies within their own training processes. As well as to fulfill one of the purposes set forth by the UNAB such as: "... develop research skills to identify problems typical of training scenarios with E-learning" (Ramos, 2010, p. 12).

For Ramos, a teaching process requires with a greater commitment on the part of the program's guiding teachers since: "… promoting the foundation of the investigative task, teaching to investigate in practice, that is, to investigate, learn by investigating, and alongside , or with the guidance of professional teachers who develop their own research projects and who can identify the problems their students will face on a daily basis "(Ramos, 2010, p. 12). This formative expectation and the commitment of the teacher educators has materialized in the two hundred research works that the graduates of the Master in E-learning have presented during their first fifteen years of existence. However, in 2010 the limitations that the products of the investigative component of the program could have when they were registered with the Ministry of National Education as a deepening master's degree, according to Resolution 849 since 2006.

The promotion of research with a formal purpose of deepening involves studying with limited scope and results some of the "problems typical of training scenarios with E-learning" of formal and non-formal education, as well as the promotion of E-learning from "the perspective of management, instructional design and teaching, in any educational sector" by managers, designers and teachers. And especially, the promotion of technological innovation associated with online learning, from its different modalities (E-learning, b-learning, m-learning), by promoting teachers capable of "designing educational materials for E-systems learning", counting for it with pedagogical skills to create, select resources and promote E-learning environments (Ramos, 2010, p. 64-65).

These limitations have not prevented some of the graduates from reaffirming the fields of action and investigative skills that characterize the professionals trained to direct or manage training processes or instructional designs that, from E-learning, lead to innovations in: virtual teaching environments. and learning, in the instructional strategies and educational activities mediated by Tic, and especially, to identify research problems and "… contribute to the development of public policies in E-learning that contribute to the progress of the country and its insertion in the society of information and knowledge "(Ramos, 2010, p. 68). However, after ten years of this study, the appropriate notions and improvement alternatives proposed by the E-learning masters through their research have not been contrasted or studied in depth.

Such contrast between constructs and results is presented below from the comparative analysis of research papers supported, approved and preserved in the UNAB repository. Of which the virtual objects or the instructional products proposed with each investigation are presented first, their contribution being positioned based on the relationship between the typology of online learning and the ICT-mediated training models described in the subchapter, according to the planned projection for the

educational community intervened by each researcher graduated from the master's degree.

Analysis complemented in the following discussion section with the comparison of notions, definitions or conceptualizations about E-learning and innovation that have been used in some final reports that considered the importance of these constructs for the structuring of frames of reference and the formulation of improvement actions proposed as results. When comparing the one hundred final research reports that are kept and have access to the academic public in the compact disc repository of the central library of the UNAB, of the total of 175 reports presented during the fifteen years of existence of the Master's Degree (2004-2019).), it was evidenced that 30% correspond to proposals and interventions associated with training actions in the online learning typology defined as E-learning.

The proposals of environments, courses or resources that from virtual education support face-to-face teaching actions as part of the mixed typology known as B-learning correspond to 53%, added to an explicit proposal in Mobil-learning. Five proposals (5%) proposed business developments for business training as part of Open-learning, as well as 9 reports (10%) made reviews and theoretical approaches for the institutional promotion of E-learning, without experiences or specific technological interventions being their concern to investigate the possibilities of plans and strategies of appropriation and technological adaptation for their organizations. Being to highlight the absence of proposals in ubiquitous learning or virtual reality.

From the vertical perspective of the psychological paradigms and pedagogical models that have justified the actions of exploration, intervention or development of environments or virtual learning objects, the search for teachers and action trainers is preponderant about the behaviors, actions and strict behaviors and necessary to be followed in educational, business or service organizations as to what should be understood and should be done with regard to virtual learning. This strict training aim of graduate educators and their directors is evidenced in twenty-eight behavioral projects (31%), which aim to establish guidelines, strategies, environments, resources, etc., on what online learning should be for teachers and students from their learning communities.

24% of the supported reports that appeal to these same training regulations with the cognitive purpose of improving results or strengthening the teaching and learning processes promoted by the authors of those proposals. The rest of the reports promote constructivist learning processes (24%) through the different types of online learning through environments or resources proposed by teachers and developed with the support of other educational actors, as well as flexible processes from connectivism of resources and learning alternatives (19%) regulated by institutional platforms (LMS), but with access to social networks and massive resources on the internet to improve interactions between users. It is also worth highlighting a proposal for open and shared connectivism by promoting the exchange of perspectives and experiences.

4. Discussion.

To characterize the notions, descriptions and recommendations of the graduates of the master's degree in E-learning from the UOC-UNAB agreement on what innovation should be, the four categories proposed since 2004 are analyzed below as necessary

conditions for the formulation of innovation projects for online learning in the last decade. These conditions, following Salinas (2008), have been: to guide students in the use of technological training resources; encourage the self-directed learning process among both teachers and students; plan and manage learning environments when reaching agreements between principals, teachers and students, and with it, access the work of students to provide feedback and accompaniment on a regular and meaningful basis.

When the innovation processes are associated with the self-directed learning process, both between teachers and students from their respective roles (Gutiérrez, 2013), it is pertinent that the notion of innovation for the improvement of education reaffirms the educational constant of conceiving new innovations following, according to Freile (2010), "…the principle of qualitatively and quantitatively surpassing its predecessor and the functions it performed" (p. 40). This requires facing ignorance or resistance to change, and with it, the search for information, procedures and solutions independently.

E-learning is considered a "learning motivator" by using dynamic tools that stimulate in students: "skills in the development of interactive models through educational software, with association activities, concentration" (Hernández, 2012, p. 8). Being usual, from the perspective of the Metropolitan Technological Institute of Medellín (ITM), the carrying out of activities such as: "...the carrying out of practices with computer support for the development of application activities, the use of the Internet as a teaching aid by using educational platform or website (virtual teaching) and the use of the Internet as an educational complement, this study also refers to the acceleration in the learning process "(Díaz, 2012, p. 16).

An alternative to promote a constant attitude in favor of promoting innovation is learning communities (González, 2014, p. 30). Understood as the collective interactions between the participants of the estates in charge of quality or institutional improvement, who by worrying about consolidating actions in pedagogical and curricular innovation motivate the other estates to review the instructional content, as well as the tools and alternative resources required for this (Vargas, 2015). This leads to reflecting and specifying in the area plans as in the institutional educational projects the definition of: "… the conceptual and epistemological foundations in which the inclusion of ICT as a didactic resource in pedagogical processes is framed" (Cruz, 2011, p. 39).

Rodríguez (2009) established, in his pioneering study on E-learning strategies for universities in Colombia, that the first attempts to promote innovations mediated by online learning failed because the pedagogical objectives focused on: "solving problems inherent to technology such as the availability of computers and Internet access, leaving aside the pedagogical component "(Rodríguez, 2009, p. 115). This practice led to promoting environments where the techno-centrism of the computer room prevailed and the resources they should contain to meet official standards, before planning pedagogical methodologies for transition and interaction from the face-to-face environment to the virtual environment, as well as the expected learning and skills of the students and teachers that were trained (Laverde, 2015).

The instructional design of training in environments mediated by E-learning by minimizing the importance of operational technicality (Hoz & Herrera, 2012) has been

proposed for a decade that should therefore be oriented to the planning and selection of "...an interface that fosters constructivism in its activities, maintaining, among other criteria of flexibility, organization and creativity in such a way that it manages to encourage students' desire to learn" (Arenas, 2009, p. 20). These initiatives are complemented by promoting pedagogical innovation from the understanding and adaptation of the processes of change or improvement of the educational communities (Castañeda, 2012) considering "the specific contexts for which said innovations are designed," as well as from the socialization of the environments and innovative experiences promoted when using ICTs, through which "student participation (Cruz, 2011, p. 39).

The regular and responsible use of technological training resources are essential for strengthening learning processes from virtual environments and resources. However, the educational technicality and techno-centrism that is usually associated with online learning must lead to permanent reflection on the role of technological innovation as a structural component of all innovation in education, but not the reduction of education to use resources technological.

At the same time as choosing and operating learning technologies, according to the needs and contexts of the learners, as well as the expected results of the appropriation of the benefited educational community, it is also necessary to plan and evaluate the impacts that They project with them, considering for this that: "... social development must be the central objective of all technological innovation processes and not an added value of the innovation chain" (Gil, 2011, P. 47).

This interest in putting social and community innovation before technological innovation over any innovation process for education implies recognizing that: "… when people access the information network from anywhere, they show their cultural origin and this is decisive for success in achieving the proposed educational objectives "(Gaviria, 2012, p. 253). Thus, institutional innovation that requires pedagogical innovation supported by novel technological tools requires: identifying educational models that make practices more flexible and start from the realities of the context to be relevant; promote participation strategies that put community needs, interests, problems and solutions before training plans. And especially, to promote a "real integral inclusion that generates a new social justice" by projecting the training results and social impacts that are expected to be achieved with new tools and content (Gaviria, 2012, p. 253).

By prioritizing the social fabric of learning before the social information networks, an educational and pedagogical model is required that fosters the balance between technology and instructional processes with the interactions and social transformations derived in the educational process. This is not possible if educational institutions prevent "… open environments for the recognition of reality, which, contrasted with the world of ideas, resize the role of participation as a generator of active methodologies, assigning the student a leading role in the construction of knowledge, own identities and intersubjectivities charged with meaning, guaranteed by the apprehension of linguistic competences and tools for autonomous learning "(Gaviria, 2012, p. 253).

Although e-learning emerged in the productive sector by seeking to "… maintain a continuous offer of training for the human resource of companies" (Vargas, 2015, p.4), when being articulated to the educational sector it is necessary to think about the The target audience for learning, rather than the learning devices, resources or environments, has led to instructional design plans shifting from product projection to reflection on learning contexts and needs.

5. Conclusions

Education mediated by electronic devices and networks has become a benchmark for change and innovation in educational practices, as well as an alternative to give continuity to training processes when attendance is interrupted by crises such as natural disasters, armed conflicts or pandemics such as the associated one with COVID19 (RedDOLAC, 2020). The sample review analyzed as part of an ongoing research work and the discussion of findings show that the use of E-learning to adapt or improve face-to-face educational processes from virtual education, have revalidated that the device, the application or the technological network only they are a means of accessing or building learning, the purpose and purpose of their use being to achieve the competencies, achievements and learning results established by each educational community in advance.

The results obtained among a hundred research projects in the Master's Degree allowed us to identify the distortions that exist in the mediating definition of E-learning as it is considered comparable to b-learning and m-learning, as well as assuming classroom designs and proposals as innovative or entrepreneurial projects. Another of the findings of the research carried out also allowed us to reaffirm that the studies of teachers on Colombian universities for innovative purposes require greater definition and conceptual precision since most of them propose instructional changes, without having a learning platform (LMS) to Through which the pedagogical models on E-learning as educational and institutional innovation are formalized (Guerrero, 2011).

The innovations promoted by university professors from different regions of Colombia have also contributed to proposing significant transformations in the processes mediated from distance learning between higher education institutions in Colombia. During the last decade, the post-graduate training of professionals interested in training mediated by channels, objects and electronic resources has led to the deepening of E-learning as a field of knowledge to make proposals for interdisciplinary and social innovation among educational institutions. higher, basic and community training.

Some innovative proposals of university teachers who completed the Master in E-learning of the UNAB-UOC agreement have been aimed at solving educational or training problems of their organizations and for the design of instructional plans associated with improvements inherent in comprehensive educational innovation . Plans that are regulated by innovative typologies of an institutional, pedagogical, technological or community nature, with a minimum number of investigations that focus on making specific educational innovations when considering from E-learning actions to improve critical thinking, follow-up of graduates and support for dropouts from the university education system.

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Cover letter

University innovation in Colombia from online learning (E-learning). Contributions of the UNAB-UOC agreement (2004-2019).

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We declare that:

Our manuscript should be published in International Journal of Educational Technology in Higher Education because is product of research about relation between E-learning and University from experience of the Universitat Oberta de Cataluña (UOC), allied of ETHE.

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