

MENDIVE

REVISTA DE EDUCACIÓN

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Research in a professionalizing virtual postgraduate degree in the field of education

Investigación en un posgrado virtual profesionalizante del campo de la educación

Investigação num curso de pós-graduação virtual profissionalizante na área da educação

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Received: January 2nd, 2020

Approved: October 06th, de octubre
2020

ABSTRACT

Postgraduate studies tend to be identified with research and development or professional improvement, which has led to their classification, according to the emphasis that training assumes on those who are oriented to research and those who are oriented to the profession. The objective of the article is to evaluate the type of research that is

carried out in a postgraduate with professional orientation offered in virtual mode and located in the field of education, based on the products generated by its students as a result of the training process. This is the Master's degree in Innovation in Virtual Learning Environments, offered by the Autonomous University of Querétaro, in Mexico. The type of study is interpretive with the technique of content analysis applied to institutional documents, research-intervention projects and thesis to identify five categories that ordered the presentation of the results obtained. It is concluded that in the postgraduate courses that, like MIEVEA, are offered in virtual mode, with orientation to the profession and are located in the field of education, a type of research is endorsed that assumes a situated and applied character, which exceeds the limits established in the classification research-profession, research-innovation, training of researchers-vocational training.

keywords: educational innovation; and educational investigation; educative technology; postgraduate course.

RESUMEN

Los estudios de posgrado tienden a identificarse con la investigación y el desarrollo o superación profesional, lo que ha llevado a clasificarlos, de acuerdo con el énfasis que asume la formación, en aquellos que se orientan a la investigación y los que se orientan a la profesionalización. El objetivo del artículo es evaluar el tipo de investigación que se realiza en un posgrado con orientación profesional ofrecido en modalidad virtual y ubicado en el campo de la educación, a partir de los productos generados por sus estudiantes como resultado del proceso de formación. Se trata de la Maestría en Innovación en Entornos Virtuales de Enseñanza y Aprendizaje, ofrecida por la Universidad Autónoma de Querétaro, en México. El tipo de estudio es interpretativo, realizado con la técnica de análisis de contenido aplicada a documentos institucionales, proyectos de

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investigación-intervención y tesis para identificar cinco categorías que ordenaron la presentación de los resultados obtenidos. Se concluye que en los posgrados que, como la Maestría en Innovación en Entornos Virtuales de Enseñanza y Aprendizaje, se imparten en modalidad virtual, con orientación profesional y se ubican en el campo de la educación, se refrenda un tipo de investigación que asume un carácter situado y aplicado, la cual sobrepasa los límites establecidos en la clasificación investigación-profesión, investigación-innovación, formación de investigadores-formación profesional.

Palabras clave: innovación educativa; investigación educativa; tecnología educativa; posgrados.

RESUMO

Os estudos de pós-graduação tendem a ser identificados com investigação e desenvolvimento ou aperfeiçoamento profissional, o que levou a classificá-los, de acordo com a ênfase que a formação assume, naqueles que são orientados para a investigação e naqueles que são profissionalmente orientados. O objetivo do artigo é avaliar o tipo de investigação que é realizada num curso de pós-graduação profissionalmente orientado oferecido na modalidade virtual e localizado no campo da educação, com base nos produtos gerados pelos seus estudantes como resultado do processo de formação. Este é o Mestrado "Inovação em Ambientes Virtuais de Ensino e Aprendizagem", oferecido pela Universidade Autónoma de Querétaro, no México. O tipo de estudo é interpretativo, realizado com a técnica de análise de conteúdo aplicada a documentos institucionais, projetos de investigação-intervenção e teses para identificar cinco categorias que ordenaram a apresentação dos resultados obtidos. Conclui-se que nos cursos de pós-graduação que, tal como o Mestrado em Inovação em Ambientes Virtuais de Ensino e Aprendizagem, são ministrados numa modalidade virtual, com orientação profissional e localizados

no campo da educação, é endossado um tipo de investigação que assume um carácter situado e aplicado, que excede os limites estabelecidos na classificação investigação-profissão, investigação-inovação, investigação-formação profissional.

Palavras-chave: inovação educativa; investigação educativa; tecnologia educativa; estudos de pós-graduação.

INTRODUCTION

What is exposed below is part of the work undertaken by the research team that implements the project *Epistemic cultures, scientific-technological training and innovation in non-school graduate programs*, financed by the National Council of Science and Technology (CONACYT), in the Convocation 2016 *Frontiers of science*, in order to demonstrate the potential assumed by this educational modality to promote a type of research that assumes a situated and applied character. To do this, the results obtained when evaluating the type and scope of research generated by students and graduates of the Master's Degree in Innovation in Virtual Teaching- Learning Environments (MIEVEA), offered at the Autonomous University of Querétaro Mexico (UAQ) are presented.

Those who are trained at MIEVEA are education professionals who are located in various regional school contexts. The guidance assumed by this postgraduate course is not towards the training of researchers, during the course of the master design and implement intervention projects that are oriented to innovation of virtual learning environments, as well as the development of autonomous and significant learning. This training expands the margins for linking and transferring knowledge, which acquire

special connotations by assuming what CONACYT has called the "non-school" modality, to refer to a distance education that uses technological advances and various digital communication media.

Throughout their training process, the students of this master's degree venture into a type of research, specifically that related to the incorporation of educational technologies that currently offer new forms of social representation and symbolic systems that are incorporated into teaching (Area, 2009; UNESCO 2014; Cabero, Barroso and Llorente, 2015). Their training includes the knowledge of the resources that can be used to socialize and democratize knowledge through virtual teaching-learning environments, thereby influencing the generation of educational innovations that meet the needs and expectations of the inhabitants of the contemporary society being it information, informational, knowledge or network society.

The purpose of this educational program is to train "experts in the innovation of virtual teaching environments capable of developing autonomy in their learning so that they acquire the necessary skills to make decisions in the management, application and evaluation of educational projects mediated by ICT" (UAQ, 2015, p. 40). Its study plan contemplates that, over four semesters, its students define a topic of inquiry (in the first), design an intervention (in the second), execute it (in the third) and evaluate it to integrate a final document (in the fourth), which is presented as a thesis that must be presented and defended in front of a jury in a professional examination.

Then, the results are presented in one case study of evaluative qualitative character (Sandin, 2003) whose purpose is to assess the type of research that is done in this graduate with career counseling, which is offered in virtual mode and is located in the education field, from the

products generated by their students as a result of the training process.

Next, the theoretical framework of this study is exposed, in which the links between innovation and educational research, the material and method used, as well as the results and the discussion derived from them, are discussed.

Virtual training for educational innovation

Although the development of postgraduate studies depends on the political conditions that prevail in each country, its development has been marked by two general trends: the first refers to its traditional function aimed at the training of scientists and researchers (Páez, Gilimas, Díaz and Breijo, 2019) and the second refers to its growth, which has accelerated in recent decades with the virtual educational offer (Acuña and Pons, 2019).

In Mexico, according to the model of accreditation of the quality of graduate programs that the National Program of Quality Graduate (PNPC) of the CONACYT, I to guidance assumes a virtual graduate programs (recorded for this instance under the name "unschooled") establish, it is not directed to generate new knowledge (research) but the improvement of profession. This distinction prevails and guides the design and operation of virtual graduate school, although there are certain ambiguities. Example CONACYT itself assumes that the graduate programs of vocational guidance should have lines of research and knowledge generation established and justified this way:

These programs vary among themselves, some train for specialized professions, while others are more generic, some are full-time, but most are part-time (with short periods of attendance and / or elements of distance learning), some are fundamentally face-to-face [although there are also virtual programs], while

others are based mainly on field research, some with a greater emphasis on internships and others aimed at experienced professionals who require new skills and knowledge to apply them to the profession or occupation [...]

Higher education institutions have ventured into these programs due to the potential demand of the labor market, with actions that contribute to strengthening professional and occupational areas (CONACYT, 2018, p. 40).

Additionally, postgraduate career guidance is intended to "encourage links with sectors of society" (CONACYT, 2016, p. 6), which is the transfer of knowledge to society, and the conducting a certain type of research. The case presented here conforms to this definition, since it is a master's degree attended by students who investigate their educational practice and transfer their learning to it.

In the field of education, the distinction between profession-oriented or research-oriented graduate programs is related to an old discussion that was booming in Mexico in the 1990s, when the distinction between research and innovation gained strength. According to Latapí, the Educative Research (IE) is defined as the "consistent pattern of deliberate actions and leading to the development, design and production of new values and theories, models, systems, means, evaluations, procedures and guidelines of conduct in educational processes" (1994, p. 14), while the educative innovation (ie) is the "set of intentional and organized activities, aimed at implementing the results of EI in order to improve educational processes and systems (Latapí, 1994, pp. 14-15).

This approach is related to the classification that differentiates the theory research from the one applied, which is assumed in the field of educational research with the

use of prepositions *on* and *on*; use that has not been without debate. Inquire *about* education involves to identify an object extraneous to the investigator, who is presented as the subject who knows the principles of scientific objectivity and neutrality. Investigating *in* education implies that whoever intends to investigate is immersed in the problem and seeks to solve it by applying the knowledge that others have developed. In the latter case, the innovator or educational controller would be located, who is not conceived as a generator of new knowledge.

Behind these definitions have led to the debate which is alluded to here, is a broader discussion that has to do with the paradigms or research traditions and positioning of the researcher, leading us to recognize to those who assume that "The functionalist theories define education as an adaptive action, extraneous to any political position, while critical theories have a political vision of education, as a power relationship, as a conflict between domination and contestation" (Martínez, 2011, p. 51).

Then, an educational researcher who assumes himself as empirical, positivist and analytical, according to the classification taken from Guba and Lincoln (2012) will easily accept this distinction, stating that EI is one that generates theory using the hypothetical deductive scientific method, while an innovator is a controller who is dedicated only to apply (test) the knowledge previously generated by science.

But, whoever assumes himself as an educational researcher in a constructivist, socio-critical or participatory paradigm (in accordance with the proposal of Guba and Lincoln, 2012) will question this classification, since the axiological principles and ends that underlie the task of research are different. From this perspective, opposing paradigms

positivism, research and innovation can be understood as parts of the same process, being without a job, the differentiation between basic research (which corresponds to IE) and applied (which correspond to ie), given that knowledge occurs in a particular application context in which theory and actuality overlaps permanently.

An innovation project also es a research project that is designed with the intention of transforming the existing educational reality to improve it. And innovation can be carried out following the more technical premises of the research and development model or as a more participatory process that seeks to solve practical problems (Navarro *et al.*, 2017, p. 9).

The formation of graduate virtual or not in school that are located in the field of education assumes innovation as a research process creator and re-creator of theories detonate from objects of knowledge that is accessed in one context of concrete application, in which educational technology acquires meanings associated with the cultural framework in which it is produced, implemented and evaluated. In this sense, the purpose of the research is not to produce only general theories but to offer solutions in and for the concrete context in which it intervenes and interacts.

The research conducted for the purpose of intervention in context specifically requires a process Flexible that ADEC or to the conditions and provisions of the environment and meets the needs individuals of the same. This has to do with the Gibbons, *et al* (1994), they called Mode 2 knowledge production, which, unlike the traditional mode discipline, homogeneous and centralized, and following the arguments of these authors, assumes the following characteristics: the production of knowledge: serving the finding of solutions in context; the

heterogeneity and organizational diversity: allows the circulation and exchange of various knowledge, useful and that acquire sense in this context; social responsibility and reflexivity: central aspects to take into account, in contrast to the neutrality and dissociation of the researcher from what constitutes his object of reflection; the establishment of quality controls that respond to the perceptions that have the users of the knowledge produced.

MATERIAL AND METHOD

The Asum methodology is one interpretive approach aimed at the "contextualized understanding" (Sandex, 2003, p. 179) of the experiences and research products made by students, according to the progress of their studies (research projects -Intervention students and thesis grade of its graduates). Interest or "assessing the effectiveness or success of a program according to criteria and all in order to take decisions presumably optimist attempt to lift the situation" (Cabrera, 1987, in Sandín, 2003, p. 176) and assume as a comprehensive or interpretive evaluation seeking to understand the knowledge generated by the students of the educational program.

Is utilize or the technique of content analysis applied to two types of documents which, by their nature, require a different scrutiny. It will be reports on enrollment, graduation and completion rates and recovers n files generated in the area of school services and in the academic coordination; and the analysis of information obtained from these documents is quantitative. From the other hand, it will research projects and theses of students require laughed a qualitative analysis for which was identified at the

time of processing information, the presence or absence of the flag set. Projects presented by the eight students of the second generation and the seven theses of the graduates of the first (one in the process of development and seven concluded) are analyzed.

The content analysis required the definition of five topics or categories that, according to the type of information, were subjected to quantitative or qualitative scrutiny. The retrieval and inclusion of quantitative data made it possible to record, for example, the number of researchers-innovators who are trained in the program. For the qualitative analysis, a positive or negative orientation was established in relation to the fulfillment

of the training goals established in the study plan, based on the identification of "tension units of meaning that are built from the themes and structure of the contradictions, oppositions and implications around these issues" (Pochet, 1996, in Fernández, 2002, p. 40).

The five categories of analysis are as follows: number of researchers trained innovators; relationship between training objectives and objectives of the projects that students develop as theses; relation of the results obtained in the thesis with respect to the graduation profile of the study plan; contribution of the products presented to the Knowledge Generation and / or Application Lines (LGAC) of the program; impact of training (see table 1).

Table 1- Aspects considered in the content analysis to assess postgraduate results

CATEGORIES - TOPICS	DOCUMENT ANALYZED	ANALYSIS
a) Number of researchers - innovators trained	School control area records	Quantitative data
b) Relationship between training objectives and research project objectives	Thesis projects Thesis completed	Thematic evaluation Tension units of sense
c) Graduate profile and results obtained from the thesis	Thesis completed	Thematic evaluation Tension units of sense
d) Contribution of the products obtained to the LGAC	Thesis completed	Thematic evaluation Tension units of sense
e) Impact: scope , area of knowledge and level of the results obtained	Thesis completed	Thematic evaluation Tension units of sense

According to the above, and I content analysis was contemplated as a technique that allow know the type and scope that research in student training. According to Bardin, content analysis is "a set of communication analysis techniques aimed at obtaining indicators (quantitative or not) by systematic and objective description of the content of messages, allowing the inference of knowledge related to the

conditions production/reception (inferred variables) of these messages" (Bardin, 2002; cited in Díaz, 2018, p. 125).

The analysis period covered the first half of 2018 and included eight projects presented by students of the second generation, who then were enrolled in the third quarter and were in the implementation phase of the research project intervention and seven theses

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completed by graduates of the first generation, who were in the defense and presentation phase of their professional examination.

RESULTS

Like other virtual postgraduate courses that are located in the field of education, MIEVEA is presented as an innovative program due to its orientation towards the profession, which leads to the incorporation of digital educational technologies in the teaching-learning processes and generates changes in traditional teaching practices and models are prevalent in classrooms.

The MIEVEA was designed in 2015 and it was the first postgraduate course in virtual modality that the UAQ accredited to CONACYT; In 2018 it was positively revalued and is currently part of the national quality postgraduate register. Its first generation consisted of seven students who enrolled in January 2016. At the time of collecting the information for this research, the second and third generation were studying. The registered enrollment was 14 students, enrolled in the first and third semesters (January-June 2018). The first generation graduated in December 2017 achieving a terminal efficiency of 86 %, since six of the seven graduates of this program obtained their degree during the first months of the following year.

a) Number of researchers - innovators trained

At the MIEVEA entered seven students in the first generation, which remained until his graduation, in December 2017. Six of the seven that formed this generation obtained the degree between April and June 2018, leaving earrings and graduating one student, bringing the program it reached or 86 % of terminal efficiency.

Given that admission to the educational program is annual, at the time of carrying out the research, the results of which are exposed here, the second generation (eight students located in the intervention phase established by the study plan) and the third (seven students located in the design phase of their project). Eleven students entered the second generation, of which three requested their temporary withdrawal in January 2018; the third generation entered seven students, but at that time report ara some low. According to these data, the average entry to graduate school is between eight and nine students per generation.

b) Relationship between training objectives and research project objectives

As for the relationship between the training objectives (which establishes the curriculum) and the objectives of the intervention projects (proposed by the students) were analyzed the research projects that develop ban students of the second generation and completed by the graduates of the first.

In both cases it was observed that there relationship with the training objectives established by the curriculum (see table 2), which are discussed below:

- a. Analyze the possibilities of ICT as generators of new spaces for training and knowledge management.
- b. Generate projects that provide pedagogical foundations related to the use of ICT.
- c. Use the necessary conceptual and methodological tools that allow them to manage innovative projects in the use of ICT in the teaching - learning processes of their educational institutions.

d. Specialist forms that have tools and media with the use of ICT (UAQ, for design and development of materials 2015, p. 40).

Table 2 -Objectives of the MIEVEA research-innovation projects, first (2016-2018) and second generation (2017-2019)

OBJECTIVES OF THE PROJECTS	TRAINING OBJECTIVES				GENERATION
	to	b	c	d	
Develop critical thinking through the teaching of educational robotics in <i>b- learning</i> modality	Computer	↑	↑	↑	1
Implement an educational television model	T V	↑	↑	↑	1
Train teaching s digital skills for mode <i>b- learning</i>	Computer	↑	↑	↑	1
Develop an EVEA for teaching algebra	Computer	↑	↑	↑	1
Develop and apply didactic materials to evaluate EVEAS	Computer	↑	↑	↑	1
Design a methodology to implement a preparatory course in the blended modality	Computer	↑	↑	↑	1
Propose a virtual education model in a cultural center using the mainstreaming strategy	Computer	↑	↑	↑	1
Propose a techno-pedagogical guide for the virtual training of university workers	Computer	↑	↑	↑	2
Increase accessibility to educational technology in secondary schools with restricted internet access , through a mobile classroom	Computer	↑	↑	↑	2
Apply a multimedia program on a mobile device to arouse the interest of est u d iantes for learning	Mobile phone	↑	↑	↑	2
Integrate a virtual prototype in a preparatory course for entry to the graduate program	Computer	↑	↑	↑	2
Propose an instructional design to develop student competencies in an EVEA	Computer	↑	↑	↑	2
Promote collaborative learning by using online tools	Computer	↑	↑	↑	2
Implement a <i>b- learning</i> workshop on digital skills for teachers	Computer	↑	↑	↑	2
Implementing electronic portfolios as a teaching resource for assessment aut é ntica	Computer	↑	↑	↑	2

Note: ↑ = presence of the valued element

According to the analysis carried out, objectives *b*, *c* and *d* are recognized in the projects and the theses analyzed. Regarding objective *a*, compliance reflects that in the possibilities for the use of ICT in educational processes, a limited exploration is observed as the use of the computer is prioritized for the design of courses or workshops, as well as to propose didactic strategies and various technological resources.

c) Relationship between graduation profile and results obtained from theses

The graduate profile that is set in the curriculum suggests that graduates will be professionals capable of find, implement and evaluate educational projects mediated by ICTs, for which:

- a. Design an educational projects in virtual environments aimed at different educational levels.
- b. Evaluate a projects in virtual learning environments.
- c. Manage a projects training in virtual environments.
- d. Develop an attitude critical and innovatory with the use of ICT (UAQ, 2015, p. 44).

Content analysis conducted in the six theses presented by the graduates of the MIEVEA evidence it or that graduates applied in their thesis to the least three of the competencies you identified in the profile (see table 3).

Table 3 - Results presented in the theses presented by graduates of MIEVEA, first generation (2016-2018)

OBJECTIVES OF THE PROJECT S	COMPETENCES				GENERATION
	to	b	c	d	
Design and evaluation of an educational robotics course	↑	↑		↑	1
Evaluation and design of an educational television model	↑	↑		↑	1
Evaluation, design and management of a teacher training program in digital skills	↑	↑	↑	↑	1
Evaluation and design in virtual learning lathes	↑	↑		↑	1
Evaluation and design of teaching materials in EVEAS	↑	↑		↑	1
Diagnosis, design, application and evaluation of a virtual education model for a cultural center	↑	↑	↑	↑	1

Note: ↑ = presence of the valued element

It is observed that theses as students of the first generation of MIEVEA followed the guidelines established by the graduate profile of the curriculum, finding gaps in the field of project management. There is an emphasis on the design and application of educational proposals, which take evaluation as a

starting point. In all cases, a critical and innovative position is expressed towards the use of ICT for educational purposes.

d) Contribution of the products obtained to the training lines

Regarding the contribution of the projects developed by the students to

the Lines of Generation and Application of Knowledge (LGAC) established by the postgraduate, it is observed that the research-innovations that the graduates

of the first generation developed in their theses were located in some (s) of its two LGAC (see table 4).

Table 4 - Product placement research-innovation of the students before in LGAC of the MIEVEA

LGAC OF LA MIEVEA	PROJECTS
<p>1. Innovation of pedagogical processes with the use of ICT 1.1. Design of educational materials and resources for EVEAS 1.2. EE processes and practices in EVEAS</p>	<ul style="list-style-type: none"> • Teaching materials for EVEAS
<p>2. Technological innovation applied to education 2.1. Planning, management and evaluation of virtual educational models, plans and programs 2.2. Teacher training for the use of educational technologies in virtual environments</p>	<ul style="list-style-type: none"> • Teaching of educational robotics in <i>b- learning</i> mode • EVEA for teaching algebra • Educational T V model • Training of teachers in digital skills • Virtual education model for a cultural center

These results corroborate the importance that research assumes in profession-oriented postgraduate programs, which, like those that are research-oriented, are based on LGAC that CONACYT itself defines as the "existence of [perspectives] associated to professional work, consistent with the area of knowledge according to the curriculum, and these are real spaces approach to professional activity. The LGACs are related to the needs and priorities of the professional activity for the purpose of the postgraduate program" (CONACYT, 2018, p. 42).

e) Scope, area of knowledge and level of application of the results obtained

Analysis of the area, area of expertise and level of application of the results of the formation is evaluated from the results presented in the thesis (see table 5).

The scope of application refers to the type of educational content in which educational technology intervenes. It was determined that thesis attended the strengthening curriculum courses (three theses), teacher training (thesis) and education ng out of school (two theses).

The knowledge area groups together the topics that are addressed in the thesis and the users to whom the innovations were addressed. Three thesis is focused rum in the school curriculum, addressing do the teaching robotics, algebra and technology in high schools (two of the UAQ and a state high school). The development of competition s digital teaching management in the Campus Jalpan of UAQ was treated in a thesis; while the two remaining theses d eveloped educational proposals outside the school, a model of educational TV for the UAQ and the inclusion of virtual

education in a cultural center located in the city of Querétaro.

The level of implementation of the results of the thesis is addressed in two ways. The first refers to the school grades to which the proposal is directed or, in the case of non-formal education, to the public to which the educational services are directed. Regarding the educational level to which the results are directed, in the case of the MIEVEA it is observed that two theses are located at the university level (teaching of robotics in the *b- learning* modality and training of teachers in technological competences), three at upper secondary education level (teaching robotics,

algebra and technology). The remaining two theses are aimed at the general public (TV and online courses-workshops in a cultural center).

The second sense, in which the level of application of the thesis results is analyzed, has to do with the regional scope of the program. The theses presented by the graduates of the first generation of MIEVEA limited the entity in which operates Queretaro. Also it highlights the fact of four impact thesis in itself UAQ (training of students from two high schools, teacher training and a degree of programming on of TV-UAQ).

Table 5- Areas and levels of application of the results of the MIEVEA thesis

APPLICATION AREA	USERS	KNOWLEDGE AREA	EDUCATION LEVEL	REGIONAL SCOPE
Teaching-learning <i>b- learning</i> at school	Students group	Robotics teaching	Middle level S uperior	High School-UAQ
Teacher training in digital skills	Group of teachers	Digital skills	Upper level	Jalpan Campus - UAQ
EVEAS generation	Students group	Teaching Algebra	Middle level S uperior	High School-UAQ
EVEAS generation	Students group	Technologic education	Middle level S uperior	Queretaro High School College
Educational television	Viewers	Educational TV	Education outside of school	TV-UAQ
Cultural education	Visitors to the cultural center	General education	Education outside of school	Educational and Cultural Center of the State of Querétaro

DISCUSSION

The results presented in this show items that students in virtual graduate oriented the profession, makes educational innovations that result from processes of knowledge generation that cater to application contexts in which they are embedded as researchers-innovators. It is a useful and socially validated research, which breaks with the distinction established between

professional training and research training, while those who strengthen their professional training do so through *in-situ* research. This leads us to question the usefulness of the distinction that CONACYT establishes between profession-oriented and research-oriented postgraduate courses in the field of education.

The type of research carried out in the MIEVEA beyond technical rationality means that the mere introduction of

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technological advances and generates an educational change, assuming a critical perspective own paradigms posmodern years (Guba and Lincoln, 2012), which takes into account the cultural meanings present in the context.

In accordance with this perspective, and referring to the debate mentioned in the initial part of this article, the research carried out at MIEVEA offers a solution to specific problems in accordance with the purposes established by the researcher. This refresh knowledge that translates into intervention in respect a particular context (school, social organization, group, etc) and takes into account the motivations, dispositions, skills and expectations of people who will fall this action (students, teachers, managers, youth, seniors, etc.), which relates to the social relevance of proposed Gibbons *et al.* (1994) when characterizing Mode 2 of knowledge production.

The results obtained when evaluating the MIEVEA show an interest in approaching knowledge, explanation and in offering solutions to the problems that plague education in today's society. In student intervention projects, it is understood that the improvement of educational practice is related to the use and disposition of educational technology, a concept that encompasses "the media and information and communication technologies as forms of representation, dissemination and access to knowledge and culture in different educational contexts" (Area, 2009, p. 20).

Thus, the training of researchers-innovators in the field of education recognizes that:

The integration of ICT in training processes does not simply imply the incorporation of technological resources. Incorporating technological tools without considering in advance why they are needed, what they will be used for and what objectives you want to

achieve with them, could be useless and even bring counterproductive results. For a technology to meet the objective for which it was incorporated, its implementation must be supported by systematic planning within the framework of the Institution's Educational Project and in terms of improving educational quality" (Lugo, 2014, in UNESCO, 2014, p. 38).

To evaluating the results of the process of training of students of the MIEVEA shows, in accordance with the proposed by Cabero, Barroso and Llorente (2015) an interest in topics including " student satisfaction with the teaching situation mediated specified, the transformations produced in their processing styles as a consequence of exposure to the specific symbolic systems of certain teaching media" (Cabero, Barroso and Llorente, 2015, p. 3), as well as the need to raise real problems and study if s theme to put on the accent on the contextualization of research and learning scenarios, assuming that teaching and learning is no way but that is carried out in relation to variables teaching , technical, organizational and sociocultural.

The results obtained allow to vindicate the type of research that is carried out in MIEVEA, contributing elements to the discussion of the distinction that is made in the Mexican context between a professional orientation and a research, showing that in the field of education it loses relevance. This is an investigation that is not limited to produce knowledge in the abstract but to produce it and the context in which the students themselves involved and interacts.

The professional nature of the training in postgraduate courses virtual or not in school, such as MIEVEA, impels their students to intervene in a particular educational space in which they are immersed (most of the time as teachers), so the transfer the hard knowledge generated in theirs studies

tends to run almost immediately. From there that research-innovations developed allow to generate knowledge that focus on the improvement of the teaching-learning, selection, design and implementation of the s educational technologies according to the context in which they work, at the same time strengthen the LGAC, in accordance with the purposes of any investigation process.

In the particular case of the evaluation of the MIEVEA it is found that the projects of intervention and the results obtained by the students of the second generation, and especially for graduates of the first, are research results that fit the LGAC of the graduate and to I achievement of the objectives of training and the graduate profile.

The evaluation of other postgraduate courses similar to the MIEVEA is pending, transferring the methodological strategy followed for purposes of contrasting and generalizing the findings obtained in this case, which serves the support of qualitative evaluative research (Sandín, 2003). It is expected that by expanding the knowledge of what happens in other similar postgraduate courses, information will be available to guide actions of a greater scope.

In this regard, it is important to take into account the small number of researchers-innovators who have been trained in this master's degree, as well as the limited impact of the first theses, since the applications are focused on Queretan institutions and especially at the UAQ. This is explained, in part, by the youth of this postgraduate degree, a situation that extends to the virtual educational offer of postgraduate accredited in Mexico today, whose origin dates back only to 2015.

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Conflict of interest:

Authors declare not to have any conflict of interest.

Authors' Contribution:

Authors participated in the writing process of this article and in the analysis of documents.



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