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Artículos Científicos

La formación de docentes normalistas: De la tradición pedagógica a los entornos virtuales de aprendizaje

Teachers' Training: From Pedagogical Tradition to Virtual Learning Environments

A formação de professores normalistas: da tradição pedagógica aos ambientes virtuais de aprendizagem

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Resumen

Los cambios son inevitables, sobre todo en un escenario tan complejo y dinámico como en el que se vive actualmente. Ocurren en diferentes momentos y circunstancias históricas. En el ámbito educativo, el auge de las tecnologías de la información y comunicación (TIC) en el proceso de enseñanza y aprendizaje ha traído consigo varias repercusiones. Entre ellas ha alterado el modelo formativo de los futuros docentes. ¿O acaso es factible transformar la práctica educativa o mantener la tradición pedagógica a pesar de las demandas educativas del presente siglo?

En este estudio se planteó como objetivo analizar cómo se está dando la transición del modelo tradicional de formación docente a un nuevo modelo que responda a las necesidades educativas del siglo XXI: si se mantiene en un marco de resistencia por abandonar añejos esquemas de práctica docente o se transforma a partir de las circunstancias en que este modelo se integra a entornos virtuales de aprendizaje (EVA). También documenta y analiza diferentes perspectivas de docentes normalistas sobre la práctica docente basada en el uso de las TIC a partir de su propia formación profesional, intereses personales o paradigmas.

Para cumplir con ello se tomó una muestra de 60 estudiantes de primer grado de la Licenciatura en Educación Secundaria de la Escuela Normal de Atlacomulco. Los participantes contestaron una encuesta en línea centrada en el uso de las TIC, así como en el análisis de planes de clase y observaciones de las prácticas pedagógicas. Como parte de los resultados se encontró que, a pesar de que los estudiantes tienen acceso a diferentes dispositivos electrónicos, no todos los maestros tienen la disposición y capacidad para integrarlos a su práctica docente como herramientas para favorecer el aprendizaje, especialmente aquellos que son de avanzada edad. Esto refuerza la hipótesis de que a mayor edad del profesorado, menor el interés por utilizar los EVA que ofrecen la TIC.

Palabras clave: entornos virtuales de aprendizaje, formación docente, modelo educativo, paradigma, tecnologías de la información y la comunicación, tradición pedagógica.

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Abstract

Changes are inevitable, especially in such a complex and dynamic scenario that humanity lives in today. They occur at different times and historical circumstances. In the educational field, the rise of information and communication technologies (ICT) in the teaching and learning process has brought several repercussions. Among them, it has altered the formative model of new teachers. Or perhaps is it possible to transform the educational practice or maintain the pedagogical tradition despite the educational demands of the present century?

This study aims to analyze how the transition from the traditional model of teacher training to a new model that responds to the educational needs of the 21st century is taking place: if it is kept in a resistance framework by abandoning old teaching practice schemes or is transformed from the circumstances in which this model is integrated into virtual learning environments (EVA). It also documents and analyzes the different perspectives that teacher teachers have on the teaching practice based on the use of ICT from their professional training, personal interests or paradigms.

To accomplish this, a sample of 60 first-grade students from the Secondary Education Degree of the Escuela Normal de Atlacomulco was taken. Participants answered an online survey focused on the use of ICT, as well as in the analysis of class plans and observations of the pedagogical practices. It was found that, although students have access to different electronic devices, not all teachers have the disposition and capacity to integrate them into their teaching practice as tools to favor learning, especially those who are of advanced age. This reinforces the hypothesis that the older the faculty, the less interest in using the EVA offered by ICT.

Keywords: virtual learning environments, teacher training, educational model, paradigm, information and communication technologies, pedagogical tradition.

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Resumo

As mudanças são inevitáveis, especialmente em um cenário tão complexo e dinâmico quanto o que está sendo vivido atualmente. Eles ocorrem em diferentes épocas e circunstâncias históricas. No campo educacional, o surgimento das tecnologias da informação e comunicação (TIC) no processo de ensino e aprendizagem trouxe várias repercussões. Entre eles, alterou o modelo formativo dos futuros professores. Ou é possível transformar a prática educacional ou manter a tradição pedagógica, apesar das demandas educacionais do século atual?

Neste estudo, o objetivo foi analisar como está ocorrendo a transição do modelo tradicional de formação de professores para um novo modelo que responda às necessidades educacionais do século XXI: se ele é mantido em uma estrutura de resistência, abandonando velhos esquemas de práticas de ensino ou É transformado a partir das circunstâncias em que esse modelo é integrado aos ambientes virtuais de aprendizagem (EVA). Também documenta e analisa diferentes perspectivas dos professores normalistas sobre a prática de ensino com base no uso das TICs com base em sua própria formação profissional, interesses ou paradigmas pessoais.

Para tanto, foi realizada uma amostra de 60 alunos da primeira série do Ensino Médio da Escola Normal de Atlacomulco. Os participantes responderam a uma pesquisa on-line focada no uso das TIC, bem como na análise de planos de aula e observações de práticas pedagógicas. Como parte dos resultados, constatou-se que, apesar de os alunos terem acesso a diferentes dispositivos eletrônicos, nem todos os professores têm vontade e capacidade de integrá-los à sua prática de ensino como ferramentas para promover o aprendizado, especialmente aqueles avançados. idade Isso reforça a hipótese de que quanto mais velhos os professores, menor o interesse em usar o VAS oferecido pelas TIC.

Palavras-chave: ambientes virtuais de aprendizagem, formação de professores, modelo educacional, paradigma, tecnologias da informação e comunicação, tradição pedagógica.

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Introduction

The 21st century society is characterized by the vertiginous changes brought about by information and communication technologies (ICT). His foray into all fields of human activity is undeniable. As for the education system, it has had a great impact directly. As Lacruz (2002, p. 10) points out, almost all the elements surrounding the technological revolution are not only production tools, but their influence reaches the beliefs, thoughts and values of the society in which we live.

In the context of the normalist schools, this new era has brought students who belong to a generation with a profile of digital competences (for being a community of human beings who from their birth have contact with the management of digital devices, a situation that generates changes in thinking, coexistence, access to knowledge and information and the way to face the situations of the world). A generation to which different denominations are assigned but all of them are oriented to describe common characteristics of those who have contact with the technological devices from the moment of birth. Rubio (2010, p. 202), citing several authors, refers to the following appellations generation @, digital natives (Prensky, 2001), Net-generation (Tapsccot), interactive generation (Bringuéy), Internet generation (generation I), generation Z or byte to designate people born between 1994 and 2004, and who are now part of the enrollment of students who travel through normal classrooms preparing to be teachers. This scenario of new social conditions demands the transformation of the teaching practice model that has distinguished these educational centers for many years.

During the study we found different positions of teacher trainers with respect to the integration of virtual learning environments (VAS) in teaching practice, which in turn are contradictory depending on what the variety of digital tools can offer in the training activity These teachers' perspectives can be an obstacle or the principle of a transformation of the educational model.

Likewise, with the arrival of a student generation characteristic of the digital era to the normalist classrooms, and the incursion of ICTs to the field of teaching practice, either as a tool or as a strategy, they demand to rethink and rethink the ways of organizing and developing the formative model of the teaching profession. However, the data collected

through the study show, on the one hand, that teachers, given the circumstances of the integration of technology into the educational process, are forced to use ICT to generate VAS when developing the training curriculum for teachers and, in turn, show difficulty and resistance to their management; perhaps because they are part of a very different generation to which today's students belong, in addition to their professional training did not have the slightest contact with the use of ICT. And on the other, when visualizing some attempts to introduce changes in the pedagogical model of normalist tradition based on the technification of teaching, the alternatives offered by ICTs in the incursion of VAS to promote learning, whose principle begins to manifest Empowerment of learning modifies the epistemological referent of the traditional model about how a student learns.

The essential objective of transforming the traditional model of teacher training bets on the construction of meanings by students through experiences such as: conversations, reading documents, exercising procedures, asking questions, inquiring to discover situations, generating and apply knowledge to situations or problems, and the interaction with those involved in the process, in which spoken and written language acquire relevance to share the knowledge generated or acquired and, through a continuous process, deepens, dominates and transforms.

In this way, it is about the future teachers, who have had little participation in the construction of their knowledge through the traditional educational model, to occupy a leading place in their training process, and what better than from the VAS that offer ICT; It is, in other words, that the academic activity of normalist students is basically centered on learning. However, the difficulty lies in the willingness of the trainers to change the notion of how they learn, especially in the more experienced and older teachers, who have a harder time innovating or changing their teaching systems, since, according to The study is the group that is most resistant to the integration of pedagogical innovations demanded by the society of the present century. With this we want to show that to transform entrenched teacher training schemes it is necessary for the trainers of continuous and permanent training to achieve the desired quality in future teachers and at the same time enrich the paths of their professionalization.

The educational model of the normalist tradition in teacher training

Normalism, according to Arnaut (1998) in his study on educational federalization in Mexico from the period from 1889 to 1994, has played a fundamental role in the education of Mexican society and in the construction of the nation state after its two great social movements , Independence and the Revolution, since it emphasizes that the normalistic profession was built as a state profession, whose intention was to train citizens under national identity values. To comply with the ideology of both movements that are enshrined in the constitutions of 1857 and 1917, the State had to intervene to ensure first literate a large number of the Mexican population living in ignorance and then offer elementary-primary education with the basic knowledge and values of Mexican society from a context of federalism that proposed building a national education system on common bases for the entire republic (Arnaut, 1998, p. 15).

Given the difficulty of who and how they could meet this challenge of such dimensions, the Mexican normalist system for teacher training, which gave rise to the creation of the Normal School, is adopted with the increase of State intervention in education for Teachers, “inaugurated on February 24, 1887, in the street Closed of Santa Teresa, nowadays, Primo de Verdad. The President of the Republic, General Porfirio Díaz, attended with his Cabinet and the honorable Diplomatic Corps ”(Benemérita National School of Teachers, 2018).

New regional normal schools were founded from this event. The first in Tacámbaro, Michoacán, and then in Jalapa, Veracruz, and San Luis Potosí. Thus they spread throughout the country. Sáenz for 1928 declared that the rural normals “were a great success in the construction of modern Mexico, because they lay the foundations of the organization of the rural normal schools, configured from the discourse of the SEP” (Normal Schools of Mexico, sf, para. 3). Following a family structure, where the principal was the father, his wife the mother, the teachers the older brothers, all of them in the care of the younger brothers, the students, these educational centers were built with the purpose of training teachers with skills for the The exercise of education and thus fulfill the ideal of transforming the peasant masses who lived in the production of self-consumption and achieving the transformation of capitalist Mexico within the framework of revolutionary demands and desires.

The intention of recapitulating this brief origin of the conformation of the Mexican normalist system and its scope in the educational system, which is not a subject of study here, is only to set a starting point with a view to analyzing whether the educational model of normalistic tradition that has undergone some transformations in its historical trajectory is still favorable to train teachers that meet the educational requirements of the 21st century.

Talking about the educational model of normalistic tradition, centered on teaching and where the leading role is assumed by the teacher, places us in the context of its rational intentionality, which essentially has as its mission the training of teachers to meet the needs of a given time and society Thus, in the context of modernity, in an industrialized society in the West, it was devised as an alternative to train individuals suitable for production, with a ductile and faithful character for production owners.

Conforming an independent nation state in Mexico under a capitalist system with an imaginary of social progress through education inspired post-revolutionary governments, who determined to adopt the normalist system devised in the West in order to train a large number of teachers in The profession of teaching. A system founded in European countries such as the United Kingdom, which initially resumed the pedagogical model of the Lancasterian school, based on monitoring, to give the most advanced students the function of teaching small groups of classmates the most elementary knowledge. This was one of the first strategies used to teach reading and writing (García, 2015, p. 15).

This education system in the West was designed to mitigate all kinds of conspiracy or creation of subversive societies to the forms of government of the industrialized countries of Europe. When we refer to subversive societies, it is because at that time the powers took advantage of the ignorance of the peoples to formulate a plan that, as time went by, modeled until it reached what is now the school and the world education system . The educational model of the normal Mexican school does not escape these ideals.

According to the blog Richard Chambers (September 25, 2016), in ancient Prussia, in the mid-eighteenth and early nineteenth centuries, King Frederick I, requiring an army of meek and obedient soldiers for war, He devised the creation of an educational system to prepare troops of individuals who were mostly illiterate, ignorant and unhelpful for the monarchy. He was convinced that a well-tamed and disciplined army was able to accept

orders at breakneck speed to win a battle on the battlefield. “But it was only Frederick II who came up with the great idea of removing all essence of individualism; soldiers must execute and not reason ”(Richard Chambers, September 25, 2016, para. 3).

What does this have to do with the traditional educational model? The answer is surprising because in the Prussian model the educational model of many modern institutions and nations of Latin America, including Mexico, is concretized. A model based on the idea of iron and normative discipline. Hence the name of the normal term, and of the French école normale, which means 'educational institution responsible for the training of school teachers': a conjunction of the establishment of teaching standards and the French concept of providing a model of school with Model classrooms for pedagogy students, combined with the Latin term normalis, which applies to everything that is in its natural state, which serves as a norm or rule, which conforms to standards set in advance; which is common, usual or frequent.

Based on this meaning, normalist institutions were established to teach children at the elementary (primary) level; Children who exceed certain levels and gain certain knowledge with the idea of preparing for the modern world. The mission of a modern school in charge of training the next generation: a multitude of soldiers ready for war or workers with expertise for the workforce of business life. At that time, however, the figures of Karl Freiherr or Vom Stein arise, who improved the Prussian model and turned it into what is now known as school education.

Within this traditional educational model, the Mexican normalist model, based on the educational contributions of the West, is founded. And although in its historical trajectory it has had several reforms is its curricula, it retains a pedagogical paradigm focused on the teacher and teaching, backed by psychotechnics and the formulas or manuals offered by the didactics, all of which formalize a Instrumental technical model strongly linked to the behavioral paradigm, which pays attention to teaching skills, methods, forms, procedures and teaching resources.

Palmero (2001, p. 78), citing Hull, emphasizes the educational character founded on behavior change: When we are in a "state of need" increases the impulse, or motivation, to carry out a behavior that we know from experience that satisfies her. In this case, to observe an expected result, the educational practice works the exercise of the behavior so that it acquires strength

and that, through reinforcement, motivates the subject either positively or negatively from the flow of reward or punishment to modify a behavior previous.

So when we refer to the educational model of the normalistic tradition, we refer to the teaching practice of teacher training that is based on the contributions of behaviorist theory, psychotechnics and didactics, mainly, and that prioritizes the teaching of the teacher based on methods , procedures and techniques that graduate the activities of the students according to their degree of development; In addition, it reinforces the scheme in which the teacher constitutes the axis of the teaching process, he is the one who almost completely decides what and how to learn and what to evaluate, while the students participate only in the execution of the activities selected by the teacher, thus depending on decisions that are taken externally to him. In the traditional model, the acquisition of knowledge is the main objective of the teaching and learning process and the teacher's presentation occupies a preponderant place. Only the degree to which students have acquired knowledge is evaluated, and although the development of skills, attitudes and values is not ruled out, this aspect is not an explicit purpose of the curriculum. The maximum academic activity focuses on the teaching staff and the treatment of the contents (process-product model). The methodological aspects and the context, the students and the learning, go to the background. The traditional model is basically characterized by the following:

1. The academic activity is centered on the teacher.
2. The teaching practice of teacher training is focused on teaching.
3. Learning is more individualized.
4. Attend complementary skills, attitudes and values.
5. Teacher exposure is the teacher's predominant teaching technique.
6. Employs technological resources sporadically and additionally.
7. Disciplinary content is treated primarily of a conceptual nature.
8. Content separated from the practice and educational context are reproduced.

Without detracting from the contributions of this normalistic educational model to the educational process, much less without discarding the experience of these teacher training centers, the study findings constitute useful knowledge to understand what needs to be

changed before a generation of students very different from those of the twentieth century and the complexity of the educational needs of the present century.

The digital generation, a new generation of normalist students

The digital generation to which we refer here are those born in the period 1998-2000; students who have entered normal schools as of 2018. Tapscott (1996; cited in Rubio, 2010, p. 202) names this generational group as a NET generation. And we have considered it in the study because they are students who have grown up in a totally technological environment, very different from those of previous generations, who lived formative processes detached from technological devices and more focused on the scholastic procedures of access to knowledge through of the written text and the task and the role of the teacher.

On the category of digital generation, Rubio (2010, p.202) refers to the concept of generation in Karl Mannheim (1928) and Wilhelm Dilthey (1865), and argues that the term is fundamental to the understanding of a historical moment: a method useful to study the culture of an era, highlighting the growth in common and the influence of collective experiences of each generational group. From these points of view, a generation brings together a group of individuals born in a space or period of time belonging to a community with similar forms of relationship, common concerns that end with the generating force of the previous one. For contemporary authors such as Claus Tully (2007; cited in Rubio, 2010, p. 202) this analytical category needs to be reviewed while the experience with technical innovation is a fundamental aspect, and that clearly distinguishes each generation from the immediately previous one and later, just like the enjoyment of the radio, the initiation in the turntables, the television, the mobile phone.

The study does not deal with a more acute reclassification of each generation of students by a set of characteristics that are homogeneous to them; we are only referring to a digital generation that constitutes a group of students that invariably coexist daily with the digital devices and the applications offered by the web pages. It is a question of visualizing some connotations that characterize it in terms of the fact that its reception in the face of the formative processes of tradition that normalist education implements can be transformed in accordance with the expectations brought by its members, who, together for various authors,

together express common particularities. and differentiated with the generations that preceded them (Prensky, 2001; Oblinger y Oblinger, 2005; Pedró, 2006; Tapscott, 1998, 1999; Bullen *et al*., 2008, citados en González Martínez (2010).

In this regard, to differentiate students from previous generations and those from this digital age, living with them tells us that the latter are more critical; used to express their opinion out loud; very creative; resistant to teaching methods that they consider boring and outdated, such as dictation, monologue, grammar exercises, listening and taking notes or copying texts; that is, what, to this day, is still observed in our normalistic classrooms. His attitude manifests a greater indiscipline; they are very restless to the extent that they do not stay long in the same place and speak without authorization; they dare to suffer measures for their indiscipline that are the result of the impotence of teachers, school authorities and non-teaching staff.

Palfrey and Gasser (2016, pp. 6-9, cited in Martín and Rubio (2015)) agree that the students of the digital generation have enormous potential to be more creative and, above all, to want to do the things of another way. This confirms why today's normalist students want to learn actively, by doing and interacting. They are multitasking, prefer to be active in their learning process and seek teamwork, love to inquire and discover on the digital network, for which they manifest extraordinary technical skills. Undoubtedly, adults born in the 90s back were stunned by the speed and agility of these young people in relation to their mastery of the management of technological devices. They are not lonely and lonely, as many adults believe or as expressed by teachers or elderly parents, rather they have other ways of socializing and living together, which are the product of social circumstances and that the educational activity requires consideration.

Method

We conducted a descriptive and quantitative study in a universe of 70 teacher educators and 105 first grade students of the Bachelor's Degree in Teaching and Learning of English, History and Spanish in Secondary Education of the Normal School of Atlacomulco Professor Evangelina Alcántara Díaz, located in the State of Mexico. The procedure consisted of implementing an interview for a representative sample of 24 teachers, whose

ages ranged from 25 to 60 years, and with a service experience of between 8 to 40 years. The instrument took care of knowing their perspective on the transformation of their teaching practice based on the incursion of ICTs within the normalist institution. A questionnaire was also applied to 60 students of an age range between 17 and 19 years. The instrument in this case inquired about the daily use of technological devices. The representative sample of both cases was probabilistic, given that in the procedure the characteristics of the studied universe were identified, they established concrete behaviors and showed the possible relationships between their variables.

In addition to interviewing teachers and applying a questionnaire to students, we also interview some parents in order to collate information, and in turn we exercise the analysis of class testimonials such as plans, resources and products generated, as well as newspapers of the participant observation, devices that contributed to the collection of data on those involved, the processes and the teaching culture in the same space where the study phenomenon took place. The analysis of the findings is shown in the description of the results; There we try to establish relationships between the quantitative and qualitative data found.

Results and Discussion

From the group of 60 new students to whom we apply an online questionnaire, all of them have at least one electronic device, laptop, PC, tablet or mobile phone. As for the age at which they started using an electronic device, on average 80% mention that between 3 and 6 years old, 15% between 6 and 10 years old, 3% between 10 and 15 years old, and 2% don't know at what time

When interviewing the parents of these students, 65% of them considered having introduced their children to electronic devices, PCs or mobile phones, as a means of entertainment from the first three months of life; 12% said that at 3 years old, when they entered preschool; 8% said that at age 6, upon entering primary school, and 15% did not remember at what time. The data reveals that this generation at an early age was exposed to electronic devices, mainly for the purpose of entertainment. Prensky (2001, p. 5) calls the

members of this generation digital natives, because, being exposed to various technologies from their first days of life, they possess a series of skills and expertise for their management.

About the social networks used, 100% of the sample claims to have Facebook and WhatsApp; while the percentage varies with respect to YouTube (92%) and Twitter (25%). It should be noted that they do not use networks such as Instagram, Linkedin, Waze, among others, and, on the contrary, the totality expresses the handling of the Internet and email. This means that students make use of these networks to have contact with others, so that their forms of socialization are modified considerably, it is no longer only the person-to-person contact physically, but a few seconds, at great distances, for The path of the virtual.

As for what they consult when surfing the ocean of the Internet, the results indicate that 92% look for pages to find information, news and various publications of a youth and fashion nature. Likewise, 100% frequent entertainment spaces, videos, music and games; 84% use this technology to have contact with family and friends; 24% to know routes and places of the world; 56% to connect instantly with people from other places and abroad; 12% consult shopping spaces for various items. As can be seen, the data reveals a variety of uses of technological devices. However, the lowest percentage, 5%, refers to page inquiries and professional applications, on the grounds that it is done only by indication of a teacher or because of the need for a homework assignment in the study program. This means that the use of technology for training and learning purposes is still a fertile field.

As for the time spent by students using these devices, 95% of the sample indicates that they remain at least 5 to 10 hours on average; Only 5% say less than five hours. This is an indication that in a high percentage of the life time of this generation they maintain contact with the technology as they are regular users of mobile devices; They go with them at all times to solve diverse situations in their lives immediately, such as making purchases, maintaining contact with friends, visiting places, doing financial operations, among others.

An interesting factor is how they use these digital devices. In general, the most frequent activities are chatting, communicating, sharing events of your life stage and playing (98%); search for fun information, hobby and app updates (80%); share diverse photos (78%); email (50%), and talk with friends over long distances (95%). Another important fact is the type of

consultation content: purchases with 46%, advertising messages for young people with 78%, hobbies with 88% and study with 16%.

In summary, the highest power of the indicative of the figures indicates that contact with technology is more linked to distraction than to access to general, professional and learning culture information. These findings allow normalist institutions to understand and contact academically with future generations of normalist students based on knowledge of how and for what they use the devices and the benefits obtained from them when developing their training process; to know their activities and their favorite hobbies to use social networks, as well as the importance they give to the content they manage and their opinion on the use of these for learning.

Under this scenario, it is important to note that access to knowledge and information today is no longer reduced exclusively to work in the classroom and in an educational center, but, with the voracious display of technology, new access possibilities arise to knowledge and professional development. Therefore, it is convenient to ask ourselves the following question: To what extent does the educational model of teacher training of normal schools require to be transformed according to the characteristics of this new generation of students and the applications offered by digital devices?

Prensky (2014, p. 13) shares that new generations of students show resistance to the traditional forms of the instrumental technical teaching model: they do not accept lectures or theoretical exhibitions; they demand that they be respected, trust them, that their opinions be valued and take into account their creativity in the processes of learning construction; they demand more activity in the construction of learning, being the protagonists to channel their passions and interests; they insist on generating and leading their learning using the technological tools and devices of their time; They want to be partakers of the decision-making process and take control of what they learn, and ask for an education that changes the role of the teacher for the action of the students, that empowers them in the construction of their learning connected with their reality.

Roxana Cabello (2009) defines this context as follows:

> A technocultural environment consisting of a variety of technological devices and practices associated with these devices, which is characterized by a dynamic of permanent change and becomes more than a backdrop: the scenario becomes medium and assumes an enveloping character that it materializes in each of the spaces and moments in which people interact with each other, carry out their activities and also interact interactively with the machines (p. 83).

From this social reality, the contributions of research on the integration of ICTs to the educational field already mentioned above coincide in generating a new way of seeing the students of the 21st century, and normalist institutions are no exception, since That's where future teachers are formed. Prensky (2014, p. 18) proposes as support a new educational model of teacher training based on a co-association pedagogy or partnering pedagogy, which involves doing something with someone, a partner or partner. This pedagogical perspective is based on constructivism as a means to teach digital generations. According to the same author, he appeals to the need to grant students the necessary tools that serve as scaffolding to build their own procedures to solve a problematic situation, which implies that their ideas can be modified and continue to learn (Prensky, 2014) . This pedagogy admits to working with any technology, available or not both in school and in the classroom, and raises where and when teachers can use it, and where not. This offers a less rigid and exclusively schooled educational perspective given the evolution of the forms of access to knowledge that become diverse from the incursion of technology.

Given the prospect that the digital generation is increasingly integrating the Web into its life, even beyond the recreational functions, because, as the findings of this study clarify, new ones are added such as information, integration and socialization, and access to the variety of cultures, and training and search spaces for youth employment offers. The Internet has not only captured the different teaching spaces: classroom, libraries, work and study places and the Network itself, but has also ventured into the educational methodology, with the various applications offered by the evolution of the Web, 1.0, 2.0 and 3.0, while contributing to the integration and cooperative learning in networks among students, with

quite wide platforms that offer various services such as Google Docs, Google Translator, YouTube, Google Scholar, Google Chrome, Gmail, and so we can name a cluster of services and applications that this company provides to users, and that become potential sites to generate EVA. Precisely linked to this, according to Prensky (2014), the co-association pedagogy constitutes a totally opposite way to theoretical teaching. It is a rethinking of teaching where the teacher provides students with a wide range of attractive procedures to learn, questions to answer, in some cases including suggestions of possible tools. The responsibility lies in having students individually or in groups search, formulate hypotheses, investigate and find answers to generate explanations that later with the teacher in the class value and examine for their context, rigor and quality.

The focus of this pedagogy is on the task of the students. The role of teachers is to prepare themselves to ask better questions linked to the learning objectives, and for their disciples to work in the search for answers, taking the role of researchers, users and technology experts, thinkers and creators of senses, agents of change, and teachers of themselves, among others. It is to remember that the "educational system should favor the continuous and permanent training of teachers in each of the educational levels, in order to respond to the needs, interests and challenges of the student population" (Barreto, 2017, p. 16).

It is not about eliminating the contributions of the educational model of the normalistic tradition, rather, strictly speaking, of promoting pedagogical assistance through co-association, in line with the thinking of Prensky (2014), which stimulates the participatory action of who learns as a component of transformation of the model centered on the teacher and teaching by another focused on the student and learning. It is about moving to a learning model based on everyday problems, projects or cases of reality and research; It involves designing a new, more creative, constructive active and learning normalist scenario. To become an academic device for teacher training that transcends and transits through different levels of performance to adapt to different types of students, teachers, situations and contexts.

A new scenario where future 21st century education professionals learn a new role as teacher, counselor and guide; one who sets goals and reflects their scope; to design and manage learning; to suggest controlled activities by providing context, with rigor and guarantee of learning. Otherwise, following Morin's question (1999, p. 34), "how to reform education if mentalities have not been previously reformed, and how to reform mentalities if the education system has not been reformed?" In the strict sense of the complexity of the act of educating, it induces to coalesce the dimensions referred to everything that is linked to the educational process and involves several actors of the learning process, beyond teachers, students and technology, between they to those responsible for the education system in their leadership role, facilitators and partners, and parents or guardians, all of them co-participants. Hence the content of the co-association pedagogy acquires meaning, because the transcendent aspect of this 21st century world stage is how willing teachers are to change to face the new educational challenges.

The digital era scenario for the transformation of normalist centers

Without the desire to discard the reach that historically the normal schools have had in teacher training and in Mexican educational development, the transformation of their social function is a matter of urgent analysis. In a framework of new social and production relations that are linked to the vertiginous change of knowledge and technology, Perrenoud (2004) refers to new skills. One of them referred to the teacher as a cultural conductor and organizer of the constructivist pedagogy, which goes beyond the forms of learning that takes place inside the classroom, in the clearly schooled systems and in the purely informative master class: it is about “ an ability to mobilize various cognitive resources to deal with a type of situation ”(Perrenoud, 2004, p. 8).

In this sense, when facing a new generation of students with an overwhelming ability to handle the technological devices that regulate the different areas of their lives, the challenge is to look for the strategy that helps us close the gap in the domain of this ability, with the mastery of the learning content that belongs to the teacher. For this, it is necessary that teacher trainers be trained in the field of digital skills and resize the generational conflict

that Prensky refers to (2014) between the generation that they call digital natives to refer to the students of this moment and migrants or digital visitors, qualifiers granted to teachers. For a differentiation with greater precision, the first are the individuals who from an early age had the opportunity to interact with the technological devices of greatest influence today, and the second are those who did not have this opportunity until late age; and by extension, it seems, students manifest a greater capacity than professors for their use, but not in the disciplinary domain.

In addition to this generational contrast, we find another divergence. The students of the digital generation show great mastery in digital skills, however, they lack the competence to manage learning, and that is where the teacher can guide them in the use of technological tools to enhance their training process. And thus become a true manager of learning environments based on digital devices and applications, although this requires vigorous training.

Access to the domain of digital skills by teachers is unavoidable, since ICTs are already in the public domain and have a great contemporary influence that is definitive in the generation and exploration of knowledge, which has been considered as a main factor for the development of society, because it has caused a revolution in various fields: governmental, educational and business. His foray into the exploration and generation of knowledge is a determining factor at present for the development of society, and in all the orders of daily life, which does not escape the training of teachers. There it is specifically required that, by including them in the training processes, they be used with the aim of enhancing the competences of the students, in such a way that it enriches the forms of mental representation both orally and in the auditory, written and visual; in its diversity of modalities and supports that facilitate the approach to knowing and give an account of the organization of their ideas through expressive means among their peers, in the classroom or in non-school spaces.

Of course, it is about redefining an educational model focused on the student and on learning, which responds to the prominence demanded by this digital generation. However, particularly for normalist educational centers, it represents a great challenge, especially for one of its main actors: teacher educators, responsible for providing the curriculum. And in

that process the study reveals three different positions linked to technological devices that can slow or accelerate their transformation.

1. *The indifferent:* a figure of 14 teachers out of 24, representing 58% of the sample interviewed, and that due to their advanced age in the service and training with an educational model focused on teaching and paper Protagónico of the teacher show resistance to the change with respect to the incorporation of the TIC to the educational practice. His point of view revolves around the fact that technological tools, devices and applications hinder and distract the educational process: they are a waste of time and make it impossible to develop thinking and cognitive skills. They assume that the instrumental psychotechnical approach that prioritizes the teaching method, procedures, forms and techniques to generate master classes based on the presentation of disciplinary content are the most effective mechanism for teacher training.
2. *The moderates:* a number of 6 teachers out of a total of 24, representing 25% of the sample interviewed, small number of teachers who give credit and value to both the teaching practices of an educational model that focuses the training activity on the teacher and teaching as to those of a model that focuses on the student and learning. They point out that the benefits between the two complement each other and, in turn, that the incursion of technology and its devices are just one more resource that contributes to both teaching and learning. Hence they suggest not abusing her.
3. *The innovators:* only 4 teachers of the total of 24 of the interviewed sample (15%), a very small number that is convinced of the change and the need to generate innovations in pedagogical knowledge through technological advances, since these They offer a variety of forms of access to knowledge and the same variety through which students can activate their cognitive potential to self-form. These teachers, perhaps because they are very young in the teaching exercise (a range of 5 to 10 years of service), are committed to enhancing the digital skills that students manifest to create effective and supported VAS in technological devices and their variety of articulated applications to connectivity networks. They ensure that learning is more effective in more flexible, attractive, interesting and more active scenarios for students than in classroom processes where only information is received from the teacher.

These three contradictory positions were verified in the review of different teacher class plans, who, out of a total of 24 teachers, only five of them use an educational platform for the organization of the subject; of these, four of them work with a learning management system specifically designed by the publisher of the bibliography that is managed in the institution for the learning of a language; Six other teachers include in their planning the use of videos, blogs, web pages, smart screens, presentations in PowerPoint or other format, preparation of infographics, preparation of videos, etc., which represents 45.83% of teachers. The rest of the teachers apply the study program without considering a technological tool more than some word processor in which the students elaborate the assigned tasks.

As you can see in these contrasts, and despite the demands of the new generation of students who insist on getting involved in their learning process, the role of teacher training continues to face the dilemma of transforming the normalistic tradition into the formative processes even though we are facing a crucial moment that demands new forms of access to knowledge. In this regard, Perrenoud (2001, p. 2) emphasizes that, although the 21st century is already over a decade old, at the moment it looks terribly like the 20th century in the ways of facing educational processes; and therefore, to continue like this, in the short term, the desirable orientations for teacher training will not be radically different from those that could be proposed five years ago. This means that, given the circumstances of the incursion of a different generation of students as a result of the current social context of normal schools, and taking into account the discrepancies that teacher educators have to transform educational practice into a digitized society, These educational centers are facing a situation of change of the pedagogical tradition model to respond to the educational demands of the globalized world. It is about rethinking academic activity in order to recover its essence, which is the noble task of educating, of educating in the strict sense of developing human potentialities in difference and equity, but without neglecting advances in knowledge and technology in education.

It is important to point out that the nodal idea of the inclusion of technologies in teacher training is not to convert spaces into automated classrooms, but that teachers avoid using them as another tool to develop lectures and information classes, and that through from these potential EVAs are built, where students can generate effective learning, taking

advantage of their great capacity for handling electronic devices. As Prensky (2014) points out, today's students:

> They demand to receive the information in an agile and immediate way, they are attracted by multitasking and parallel processes, they prefer images and graphics than texts, they prefer random access from hypertexts, they work better and they perform more when they work in a network, they are more aware that they are progressing, which brings immediate satisfaction and reward to them, they prefer to instruct themselves in a playful way to embark on the rigor of traditional work (p. 6).

In these circumstances, teacher training will soon be forced to change the receptive methodologies, which have become routine, for others that promote the generation and innovative application of knowledge.

In that line of thinking, Paredes (2018) points out the following:

> Four types of competencies are required to integrate good practices in the use of technologies within the classroom; the first one is pedagogical, focused on the application of ICT in the subjects of the curriculum as a means to support and expand learning; collaboration and networking, which emphasizes the communicative potential they have; the social aspects, which refers to the rights and responsibilities that the use of technology brings; and finally, the technical aspects, that is, the knowledge of hardware and software that you have" (p. 181)

Due to the social and educational changes, the progress of this study invites us to stop and perform a reflective act on the role that normal schools will play in teacher training over a period of 25 years. We can imagine that they become spaces equipped with state-of-the-art technology capable of designing EVA, where, based on taking advantage of students' skills, educational knowledge is built and with a variety of networks of interpersonal interactions beyond a simple school process; or failing that, remain in the educational backlog by preserving current practices based primarily on the word and on the interaction between a

teacher and a group of students, even if it is a virtual class where they remain physically dispersed, in a different place to the classroom, each speaking in their language and sharing with others thanks to a simultaneous electronic operation device. The uncertainty that this generates allows us to share the point of view of Perrenoud (2014, p. 6) when considering that it is more useful and reasonable to return to the social conditions of the 21st century to (re) think about the desirable orientations for teacher training in a short term to 2025 to assess its results.

The challenge is latent in the hope that normal schools will move towards teacher training to build a better world. This from an exercise in reflexive transformation, collaboration and human co-association that helps to gradually eliminate the anchoring of the paradigm of the isolated professional (Fullan and Hargreaves, 1996, p. 23), which remains trapped in the vision of forming for the world of work, and recognize, as expressed by the United Nations Educational, Scientific and Cultural Organization [UNESCO] (2002, p. 43), the importance of teacher preparation for innovation, given that, according to this organization, educational innovations fail due to little human effort or the scarce resources that are destined for this purpose.

Conclusions

The circumstances of the new generations of students with competences linked to technological devices, the vertiginous changes in the productive processes, social relations and access to knowledge and information, exhaust the conflict between teacher educators who resist the paradigm shift educational and predict that, sooner or later, the change of an era takes for granted that it will end up transforming its educational model. This holds for the teaching in the 21st century a formation of the figure of the teacher with both individual and social potentials, which focuses attention on what the training professional or students are capable of doing, and not on what they have done at the level of the experience, study or credentials obtained. Because at this time it is unfeasible to live under the reproduction of knowledge of figures of the past.

The new century seeks that teachers can be considered as critical and supportive professionals who, at the same time, facilitate training for free, creative and capable people to assume the risks of being transformative subjects of society by combating poverty, unemployment, Insecurity and environmental deterioration. Take on the challenge of ensuring, whatever the mechanism of teacher training or from the technological virtues, the knowledge of a reality and a responsible attitude, with an ethical sense of service and profession. And to form a new professional profile to influence the results of the context of social reality at all educational levels.

In strict adherence to the conditions that involve higher education institutions, we believe that the transformation of normalist scenarios is possible, without underestimating the environments helped by the benefits offered by ICT. From this reality it is appropriate to rethink teacher training that is built in spaces of continuous training for and throughout life, where advanced knowledge and technology resources for problem solving are problematicized and strengthened, especially in less favored sectors of society.

The present world demands an educational transformation, which can no longer be treated under the old teaching practice schemes, because in the 21st century, in times of epistemological abundance in cognitive matters, and in a networked society, new ones emerge challenges for the teacher, who must be aware of the new skills that his teaching role implies, and whose figure makes more sense the transformation that the future of normalism in teacher training. In this case, ICTs have a contemporary and definitive influence on the generation and application of knowledge, which has been considered as a main factor for the development of society, since it has generated a revolution in the multiple spheres of human life.

It is important to recognize that teaching in unconventional modalities, such as the use of technology, is not static, has a changing nature subject to the expectations that students have. What, at the same time, puts teachers in the dilemma that is the subject of analysis. Under the suspicion that teachers with a greater number of years of service are characterized by a more still conception of the learning process. Contrary to the youngest teachers, who easily integrate technologies into their teaching practice. An effective way to change the positions that older teachers show about the possibility of making ICT tools to create VAS

has to do with a greater incursion in the management of technology, and with the integration of teams of teachers that allow move from a traditional training in normal schools to the inclusion of different resources and technological means to strengthen the learning processes of normalist students.

The space that is suggested for the gradual integration of these teams of teachers is in the teaching groups, where training experiences are shared and where ICTs are included or not depending on the perspectives of each teacher. However, it is pertinent to point out that facing this dilemma requires a committed attitude on the part of teachers, as well as visualizing the possibility of taking distance from the paradigms with which we were trained.

The present study reveals that the use of ICTs within the classroom does not guarantee the effectiveness of learning processes, but rather the ability of teachers in co-participation with students to design VAS in the virtual habitat, where students Normalist students use the ICT and the multiple applications of the Web for the elaboration of tasks, products or problem solving, without this becoming a conflict for the teacher. What is essential is to take them to the classroom without further delay, since the training of education professionals currently requires that it meet the expectations of the students, the demands of a postmodern society, and that they can, in the not so future. far away, adapt to new challenges and unimaginable scenarios.

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