Prácticas académicas de estudiantes y profesores de posgrado en el contexto de la era Internet: Estudio de caso

Academic practices of students and professors from graduate school in the context of the Internet age: case study

Serafín Ángel Torres Velandia
Universidad Autónoma Estado de Morelos, México
angelt@uaem.mx

Resumen

En la sociedad de principios del siglo XXI es indispensable reflexionar sobre la función que cumple el sistema educativo, en su nivel de posgrado, desde la perspectiva pedagógica de las prácticas académicas de profesores y de estudiantes, mediadas por las Tecnologías de la Información y de la Comunicación (TIC). La investigación, como parte de una indagación interinstitucional más amplia, tuvo como objetivo aportar elementos para el diseño y desarrollo de un modelo educativo del posgrado mexicano, apropiado a una economía basada en el conocimiento y en la innovación, que tienda a un crecimiento inteligente, sostenible e integrador, con fuerte soporte en las redes telemáticas, en particular *Internet*, a nivel nacional e internacional. Uno de los logros del estudio fue ubicar la complejidad de los modelos innovadores del posgrado dentro de tres dimensiones interrelacionadas: la docencia, la tutoría de la investigación y tesis así como la gestión académica vinculada con factores individuales, organizacionales e institucionales.

Palabras clave: Prácticas académicas, mediación pegagógica-tecnológica, Modelo posgrado y redes digitales.

Abstract

In the beginning of the 21st century society, it is essential to reflect on the role that meets the educational system, in its graduate-level, from the pedagogical perspective of academic practices of teachers and students, mediated by the Information Technology and Communication (ICT). Research, as part of a broader inter-agency research, aimed to provide elements for the design and development of an educational model of the Mexican postgraduate study, appropriate to an economy based on knowledge and innovation, which tends to smart, sustainable and inclusive growth, with strong support in the telematic networks, particularly the Internet, national and international level. One of the achievements of the study was to locate the complexity of innovative models of the postgraduate course in three inter-related dimensions: teaching, mentoring of research and thesis as well as the academic management linked to individual, organizational and institutional factors.

Key words: academic practices, pedagogical-technological mediation, postgraduate study model and digital networks.

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Introduction

The phase of globalization in which humanity is currently has been possible largely thanks to the way in which the system of information and communications -especially computer networks- enable transcend barriers space storms and they lead to substantial changes in the forms of communication, relationship and teaching-learning. Conventions that these networks, will strengthen as well as the strategies employed to ensure its functioning are of vital importance in order to understand what was the origin of this new revolution and how is taking place, mainly in the fields of education in our country systems and in other similar of our Latin American environment.

In the beginning of the 21st century society is essential to reflect on the role that meets the educational system of higher education in general and specifically the postgraduate study1, as the highest level of the system, as well as rethink the academic practices of teachers and students in the scientific and technological production mediated by the Technologies of the Information and of the Communication (TIC), a primarily pedagogical perspective. In this context it is relevant to not lose sight that the top-level educational institutions have as one of its essential purposes: "the formation of people -researchers and practitioners- able to influence with proactive and innovative proposals and critical perspectives in the improvement of the living conditions of the population" (Sánchez, 2008:24).

Currently in many universities have created huge stockpiles of digital and experienced knowledge forms and methods of use of ICT in higher education that nourish the culture, politics and the economy of the countries of the developed world, primarily. The arrival of the Internet age has become imperative that institutions and entities working with knowledge rethink their strategies for academic scientific work. It is equally indisputable that - unlike a few decades ago, when the first experiences online university originated - at the present time the technology is more mature, able to ensure better results and is more widespread in the social environment. This context trace new challenges for universities and particularly for graduate and is constituted as a new subject of study with profound implications in teaching practices in higher education, mainly.

One of the central tasks of the university is achieving students improve their learning with the use of ICT. To do so requires, as Marchesi says, "set up a new stage in relations between teachers, students and teaching content, and do so in the evaluation of the whole process of teaching and learning (Marchesi, 2012 7). Educational reforms of the governments of the region concern the need to improve teaching and learning in relation to higher quality, equity and innovation, which involves changes in the curriculum structure and practices in the classroom as well as "transforming the content and pedagogical practices in light of new knowledge media and changes in the world of work, rethinking the role and training of teachers in school and introduce new technologies of information and knowledge" (Hopenhayn 2003: 8).

Justification

The evidiencia of the need for the importance of the implementation of such projects is invesstigación planet from two complementary paths:

The first meets the institutional requirements for designing new strategies for training and retraining of academic staff with high quality postgraduate modaliades diversified. Among the weaknesses identified in the Diagmóstico CONACYT Institutional Program (IP) in relation to the formation of high-level human capital, the low proportion of the population with graduate compared with other countries and the low number mentioned members of the economically active population (PEA) dedicated to work for Science, Technology and Innovation (CTI). Supports this limitation on the following: "The number of researchers per 1,000 inhabitants CTI EAP is 0.9, while in other countries this proportion rises to 9 in the case of United States and 7 in the case of average of the Organization for Economic Cooperation and Development "(CONACYT, PI from 2014 to 2018: 9). Looking CONACYT address this gap in that PI is committed to consolidate its role in guiding human resources and training programs to priority areas and improving the quality thereof.

The second path is linked to academic personal perspective of the authors of this study related to academic research groups or bodies[1] which participates in implementing studies on the introduction and impact of ICT in higher education in the state's public universities and educational policies, business processes and management.

In publications[2] Recent use, appropriation and experience of university professors in relation to the inclusion of ICT in the subjects they teach in their respective areas of expertise is discussed, specifically undergraduate and postgraduate level. To reveal the role of networks in academic teleinformáticas practices postgraduate programs of public universities (UPs), this project Aboca to investigate what happens with the use of ICT in the highest academic degree (master's and Ph.D.) offered by the Mexican education system and what alternatives can contribute to a better use of the potential of digital networks.

[1] Los Cuerpos Academicos (CA) es la figura bajo la cual opera el Programa de Mejoramiento del Profesorado (PROMEP-SEP) y en que está reconocido el CA mencionado. (cf. http://promep.sep.gob.mx/ca1/)

[2] Torres, A. y C. Barona (2012). *Los profesores universitarios y las TIC Uso, apropiación, experiencias*, Juan Pablos Editor y UAEM, México. Torres, A. y Lara, J. (2013). *Usos y apropiación de las TIC Experiencias en el proceso educativo,* Universidad Autónoma de Sinaloa (UAS) y Juan Pablos Editor, México.

Problematic

Many universities, especially in the United States are experimenting with new ways to make online education. Courses are spreading in Mass Line and Open (MOOC)[3] for its acronym in English) that is involving a larger number of students. Initiatives such as the free software application platform that is used for audio recording and editing are also developed, called Udacity[4]. Also, each day becomes more relevencia the Coursera program as a free virtual education platform born in October 2011 and developed by scholars from Stanford University, in order to provide mass education supply the world population with 63 universities, more 121 courses in various languages and nearly 2 million students[5].

The statistics state that the number of enrollments in graduate studies in Europe have multiplied despite the current economic situation and high unemployment, especially among the young. This context not only increased enrollment of undergraduate programs, but demand has soared in recent years masters. The increase of university students over the previous year is 1.7%, which highlights, to be particularly significant, the increase of students at the National University of Distance Education (UNED), up 14.7% (Mastermas, 2012) agency.

Technology enthusiasts tend to reduce the role of the university to the operation of transferring the ideas and notions in the minds of students, which, incidentally, is a feature that virtual universities are mainly able to offer. One can speak of a utopian and optimistic about the impact of ICT in education vision. For example, Shirky (2010), a professor at New York University, recently stressed the view that current technology allows a much more efficient way so that universities make a very expensive way (especially in the US.

[3] MOOC: Acrónimo en inglés de Massive Open Online Course y traducido al castellano como Cursos en Línea Masivos y Abiertos.

[4] La aplicación *Audacity* corre mediante la *Licencia Pública General de GNU* o más conocida por su nombre en inglés GNU General Public License (o simplemente sus siglas GNU GPL) que es la licencia más ampliamente usada en el mundo del software y garantiza a los usuarios finales (personas, organizaciones, compañías) la libertad de usar, estudiar, compartir (copiar) y modificar el software (Cf. http://es.wikipedia.org/wiki/Audacity así como http://es.wikipedia.org/wiki/GNU/Linux).

[5] *Coursera* ofrece cursos gratis en la modalidad MOOC con temas variados a niveles universitarios pero abiertos a todos los sectores de la población (Cf. http://es.wikipedia.org/wiki/Coursera).

UU). Moreover, it continues to operate a concept that can be defined as dystopian, but today largely mitigated, that claims a role of the university as an institution that plays a scientific and autonomous corporate paper (Babson College, 2012).

The decisive question is another: Universities are really factories for the inclusion of the concepts in the minds of students? The university, however, as it has been in its configuration for 200 years, is much more. Today is a space where they meet and engage people who have decided to dedicate his life to knowledge, teachers, other people who have the desire to learn and grow, students.

Teachers teach, but also make research and thus improve society's understanding of itself and the world, while keeping alive their teaching. In the same space, students, learning, teachers and peers, to use the brain to become not only productive workers, but also in human beings and conscious citizens. And always in the same teachers and students spaces open to the company to discuss - in public and rationality - the many topics of general interest related to the future of all.

The model of the Academy's own scientists (Himanem, 2001). This paradigm places the scientific work for others to use the work and develop it further. Model Academy pursues important values and high ethical content in research and research methodologies to educate members of the academy for the use of freedom, criticism and debate.

The university, in short, is offered as a space where it is grown, transferred and disseminates critical knowledge to benefit the community. The houses of higher studies constitute a profoundly redefined space and constant redefinition thanks to new communication and information technologies. In all this, the network is certainly a valuable ally of the university, on many levels, some of which are already clearly defined how and under what parameters online classes work and others, however, is yet to be discovered. This is the real challenge of extraordinary interest, facing the university in general and in particular graduate courses.

Development needs in Mexico graduate of the various actors require creativity and openness to propose and have strategies and new modalities for quality meet the challenges of this level. The information technologies have played an important role in the

development of new modes and options to cater to students, support the advancement of knowledge, exchange of experiences and to integrate networks of research and training to eliminate geographic and institutional barriers giving sustainability programs.

The overall increase in enrollment in the graduate program in Mexico (ANUIES, 2012)[6], although the public sector has decreased slightly in specialty and expertise (and increased in the private sector) in the PhD has been a strong increase of more than 50 %, underscoring the importance of carefully considering the role of this educational level.

In the case of the National Quality Graduate Program (PNPC) of CONACYT, he had in 2006 "with 680 records programs which 33.2% corresponded to doctorate, master's and 58.7% to 8.1% a specialty. Registration for 2012 increased to 1,583 programs, PhD 31.3% 58.5% 10.2% Masters specialty. In the same year, 65.1% of the programs under this standard corresponded to scientific and technological areas and 34.9% in behavioral sciences, social sciences and humanities "(PI CONACYT 2014-2018: 10). As reflected in the above data, the master's program in the standard of excellence CONACYT has had strong growth (58.5%), very much in line with what is currently happening in the European Community.

This leads us to ask some preliminary questions: What is the dialectic between technology and knowledge? What kind of relationship is established between technology and learning? What role do educational actors, internet and social networks in the context of the expansion of graduate of the UPs?

Theoretical references

It is pertinent to define the meaning of what is meant by academic routine practices. This concept is used to describe teaching activities established formal and informal learning in the different institutional graduate programs and corresponding to the activities conducted

[6] Con datos disponibles en la ANUIES (2012) se puede notar que en el año 2000, la matrícula de posgrado en el sector público representó un 60.3 por ciento y el privado un 39.7 por ciento; más tarde, en el año 2010 el sector público representó un 51.2 por ciento y el privado un 48.8 por ciento, esto significa un cambio en la distribución de la matrícula (ANUIES, Anuario Estadístico 2011). Cf. Tesis de doctorado "Implementación y efectos de las políticas de posgrado en dos universidades públicas estatales", Patiño, J., mayo de 2013, Posgrado en Educación, ICE-UAEM, p. 49.

within and outside the classroom. According Pineapple these practices are based on what requested by teachers to their students as essential requirements for the accreditation of courses and seminars and concern "at the frequency and how it is studied, the preparation of notes and papers throughout the semester , participation in class, the design of educational research culminating in a thesis, among other things "(Piña, 2013: 110)[7].

As part of the theoretical framework set forth the following constructs:

1. *The dialectic between technology and knowledge. Between technology and knowledge double interaction process develops. In light of the above, from the perspective of socio-constructivism Cultural theoretical and methodological aspects of the study are addressed since this approach technology is seen as a product of, by and for society, is a social construction which covers needs social.*

Technologies are not only vehicles to accelerate and facilitate the dissemination of knowledge but as an expression of knowledge, themselves become increasingly essence of the processes of diffusion of knowledge and social relations. In this sense, as Lopez says "it is essential to recognize not only that technology transforms societies produce and consume, but the technology is transformed by the societies in which it is used and generated" (Lopez, 2011: 335). Thus what establishes the pedagogical sense of technological devices is their use in a particular historical and cultural environment.

Therefore, the technology creates new knowledge and new learning tools, structure, production processes and diffusion of knowledge, enrich the educational model and learning modalities. Similarly, social relations are transformed from technological advances.

In the field of higher education and postgraduate substantive change is generated not only in ways of teaching and learning but also in the curriculum structure and university educational models. Digital tools as an extension of the production resources of knowledge and disiminación modified academic settings. For Dussel we face an innovation of major on ways to produce and circulate knowledge, this is "a restructuring of what we mean by

[7] Posteriormente en el desarrollo de la investigación se profundizará sobre conceptos similares como *prácticas de formación, prácticas educativas y vida académica*, entre otros.

knowledge, sources and criteria of truth, and authorized or recognized as producers subject knowledge "(Dussel, 2011: 16). A test of these changes is evident in the new-and proposed courses mencionada- free access to the Coursera system offers a global level through socio-technical networks.

2. *The relationship between technology and capabilities of access to resources. This involves a reciprocity between technology and not simply instrumental knowledge. In this sense, although the technology has an external function, a substantial part of the organizational structure of knowledge.*

The relationship between ICT and knowledge development is part of that process of training and Nobel prize Amartya -economista, he has highlighted the distinction between resources and capabilities. Capacity is an intermediate variable that allows the subject to optimize access to resources. The welfare of people depends not only on the amount of resources available, but also the ability to access and use these resources to create new processes and learning models (Amartya, 2007).

An innovative approach in higher education implies that students are no longer objects of the plans and programs of study to become subjects of their own educational work and can make a commitment to innovate and produce new knowledge that contributes to better themselves and transform their collective habitat, supported by new pedagogical and technological resources.

Training for a high-quality professional development involves not only the acquisition of technological skills but also the exercise of human communicative skills, teaching, research and management type that affect the paradigmatic changes in domestic graduate (Ministry of National Education, 2013)[8].

[8] Cf. MinEducación, Ministerio de Educación Nacional de Colombia (2013), *Competencias TIC para el desarrollo profesional docente*, Bogotá. Texto completo en línea: http://www.eduteka.org/competencias-tic.php

3. *Learning and cooperation processes. Education processes drive to participate in the growth and spread of knowledge. A process that provides information and qualified tools also must be accompanied by procedures to promote cooperation and tend to be more stable and less volatile and limited ways and ways of learning.*

T.Wagner (2011) (cited in Perez, 2012) emphasizes the need for teachers and students to consider "the importance of collaboration across social networks and virtual work groups" and says that "competition is required by the economy of the info as the requirements of the comtemporáneas democracies in the digital age "(Pérez 2012: 163). Current pedagogical developments foster new educational paradigms that change the methods of teaching and learning, which is a transit pattern historically focused on the teacher to another where the student along with their peer group, becomes the main culprit his academic progress, generating more than likely find collaborative and innovative to face successfully the educational and cultural challenges of this new century forms.

General purpose

The project aims to contribute to the design and development of a suitable to an economy based on knowledge and innovation, tending to smart, sustainable and inclusive growth model for postgraduate education and to encourage the creation of a virtuous circle useful to the state's public universities, with strong support in the networks, including the Internet, with national and international coverage.

Specific objectives

- Characterize the institutional framework - universities object of study regarding educational policies and institutional guidelines that regulate and direct the academic activities mediated by ICT.

- Analyze academic practices in which more collaborative methodology virtual work between teachers and students in masters and doctoral programs is used.

- Identify and understand the role that electronic networks and communication strategies in building-projects and thesis, academic work, including groups of graduate students at state universities, under study.

- Understand and characterize their own vision of the coordinators, teachers and students of graduate programs in education, through semi-structured interviews networked around the way in which the processes of appropriation and application of ICT in graduate programs impact - from a vision pedagógica- academic performance of students graduate.

Methodology

To access the object of study a predominantly qualitative methodological approach to the analysis of the factors involved was used. A feature of university academic work is its complexity seen from three fields: teaching, conducting research and management work subject to individual, organizational and institutional factors.

Without good measuring quantitative type is relevant when it comes to addressing objects large study in this research focused on the method of case study as strategic is to use a qualitative methodology that allows, according to Goetz and LeCompte (1988), analyze the academic activities of teachers and graduate students in the context in which they work is further facilitated because the knowledge of his vision of the university and its academic practices. According to the authors just mentioned, the qualitative methodology to be within the interpretive school investigates the construction and reconstruction of social reality of the actors through interaction with others in the academic community, from the interpretation they themselves made (Goetz and LeCompte, 1988).

In this context, Walker (2005) case study is a more than a combination of methods strategy. It is a way of thinking about research, study design and the relationship with the evidence. The case study recognizes a variety of techniques, as Torres et al, (2013), participant observation, interviews, focus groups and documentary sources, among others..

This research uses two of the above techniques: descriptive documentary sources, with projection insertion in empirical reality. According to Bisquerra in descriptive studies no variable is not handled, only observe and describe the phenomena studied; in addition to this author, documentary or bibliographic research involves the search, collection,

organization, assessment and criticism on specific topics (Bisquerra, 2000). The second technique refers to the semi-structured interview, from the perspective of qualitative case study, as this is a strategy that includes methods that seek greater understanding of a phenomenon from the same experience (Yin, 1994).

The case study method can be conceptualized as an intensive and in-depth examination of various aspects of the same phenomenon. This method of analysis of social reality is frequently used by the humanities and social sciences with predominance in educational research (Soto, s / f). For experts in the field, the case study is a particularly suitable design in situations where it is impossible to separate the variables of the phenomenon in context (Yin, 1984).

We have chosen this type of study in the interest of an approach to intuition, the discovery and rather than hypothesis testing and understanding of interpretation; Also, the validity and probative character depends on its nature, its authenticity, not its frequency or its representative regarding a statistical average. Another quality of this method is that the studies tend to focus on "micro" levels of the system, without marginalizing the discussion of broader perspectives related to the structures of society.

Outline of activities

The development process of the research projects do not have a linear character, it builds spiral excluding rigid, unchangeable programming. However, to achieve results in a timely manner is appropriate to determine phases and periods of progress. The following are noted:

Search phase, systematization and analysis of documentary sources for the construction of educational policies on the use of ICT in graduate programs at national and institutional level in four doctoral programs of state public universities.

- Stage design, selection and implementation of reporting via email questionnaire-interview semi-structured coordinators, teachers and students from four lanes doctoral programs in state public universities.

- Phase of integration results of the first and second phase and preliminary processing of the progress report.

Of available resources for financing of this project will participate in national and international scholars to present and disseminate the progress events.

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