

Research Culture among Students in On-Line Graduate Programs

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Abstract. One of the most important factors in training new researchers is developing a research culture based on the transmission of knowledge and values for the research practice. This paper explores the extent to which research culture is transmitted from teachers to students in on-line graduate programs in the area of education. An exploratory research was carried out using a mixed method approach in two sequential phases. A set of instruments was used for the quantitative approach, in order to find out the values, knowledge and practices characterizing research culture, using a convenience sampling of teachers and students of three on-line master programs in education imparted by a private higher education institution in Mexico. For the qualitative approach, semi-structured ethnographic interviews were carried out, as well as a documentary analysis of several theses projects. The results of this study show that teachers are a factor that influences directly the development of knowledge and practices that are part of a student's research culture in on-line graduate programs in the area of education. Findings are less clear in the case of the transmission of research culture values, since no consistent evidence was found showing that such values are transmitted significantly from teachers to students.

Keywords: research culture, on-line education, graduate studies

1. Introduction

The importance of educational researchers lies mainly in their role as agents of change through their contributions to new knowledge and linking of their research to the teaching-learning process. (e.g., [1], [2], [3]). In this sense, the Knowledge Generation in the educational milieu has been forced to face the challenges of the rapid changes in science, technology and society of the 21st Century. Besides requiring a permanent updating of educational researchers, these changes make it mandatory to review and redirect academic graduate programs in education to train educational researchers to be able to generate, scientifically grounded, original and relevant knowledge for today's educational times.

Nevertheless, while recognizing the importance of focusing on production quality and research contents, a paradigm change is taking place, not only in the way new knowledge is generated, but in the way new researchers are trained and prepared when passing from a traditional learning paradigm in situ, to one constituted by a new virtual model, in which formation is done on-line by means of information technologies (e.g., [4], [5]). Given that many of the future educational researchers are being prepared by means of on-line graduate programs, it is important to confirm the effectiveness of such programs in the development of a research culture giving priority to basic skills and attitudes for analysis, synthesis and evaluation, since these factors are essential in quality research [6].

There are a few studies on the effectiveness of on-line environments for training and preparing researchers. There are even fewer studies, [7], [8], [9], on the effectiveness of this learning modality for both the development of a research culture and for the specific training of educational researchers. This situation reflects an important gap in the field of educational research related to the evaluation of the quality of the

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researchers who complete on-line graduate programs. This is particularly true in the current and future conditions of educational research in Mexico.

One of the fundamental concepts for the development of researchers is research culture [10]. This study centers on the analysis of factors that may prove helpful to design and implement on-line programs that attempt to develop a research culture in the students. According to Hodges Persell [11], the main mechanism for developing culture in new generations is cultural transmission, defined as “the socialization process through which the patterns and values of a culture are developed and internalized by the next generation of individuals” [11. p. 101]. According to this author, culture is developed by the formal and informal transmission of skills, knowledge and values shared by a previous generation onto the next generation.

Based on these ideas, a study meant to answer the research question: “To what extent research culture is transmitted from teachers to students attending on-line master programs in the area of education?” was carried out.

In order to answer the above question, an exploratory research study on aspects of values, knowledge and practices influencing the concept of research culture was conducted. This study intended to find out to what extent these aspects are transmitted by teachers and are developed by students in on-line master programs in the area of education.

2. Method

A mixed methods research was used in this study, following a sequential model in which the quantitative paradigm had a dominant status over the qualitative paradigm [12].

2.1. Participants

179 students and 168 teachers from three master programs offered 100% on-line by a Mexican higher education institution participated in the quantitative approach. Nine students and nine teachers participated in the qualitative approach of this research, selected from a stratified, non-random sampling of the participants from the quantitative approach.

2.2. Instruments

Three instruments oriented to the evaluation of three areas associated to the so called research culture were used in the quantitative approach. For the values area, a questionnaire based on the instrument “Research Development in Nursery” [13] was developed. For the knowledge area, an instrument to evaluate knowledge on research methodology was developed, based on a table of specifications on the different levels of Marzano’s taxonomy [14], [15]. For the area of practices, an instrument based on the works of Banks & Banks [16] was developed. For the qualitative approach, a basic questionnaire was developed for a set of semi-structured interviews using Pham’s questionnaire [17] on the research culture in English language teaching as reference.

2.3. Procedures

The quantitative approach consisted on the application of the three instruments mentioned above to students and teachers. Statistical measurements of the obtained data were performed using path analysis [18]. Based on the research questions, an initial conceptual model was defined with five latent variables for the analysis, showing a hypothetical relationship among the different aspects of the research culture in teachers and students (Fig. 1).

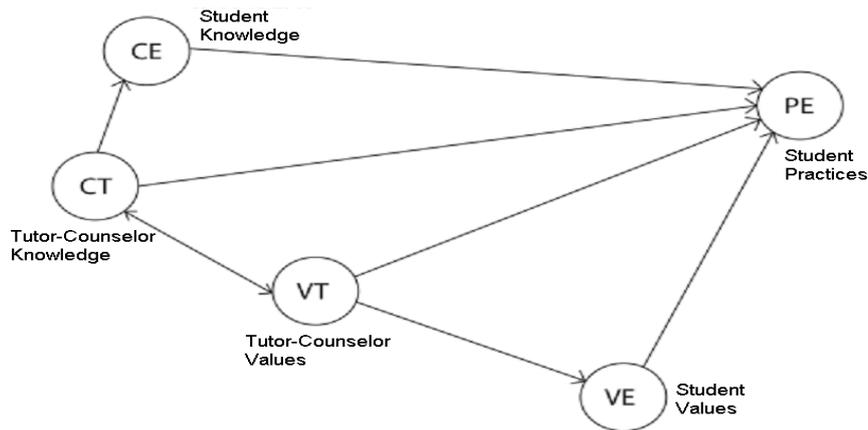


Fig. 1. Path Analysis Conceptual Model

The qualitative approach of this research was undertaken by means of a virtual ethnographic study based on Spradley’s model [19] and supported by on-line ethnographic interviews. In addition, an evaluation and documentary analysis of the master’s theses of some students interviewed was carried out. For the data analysis of the interviews, a matrix using the format suggested by Miles and Huberman [20] was developed, based on the analysis of the interviews’ contents [21], [22].

3. Results

3.1. Quantitative analysis

The statistical hypotheses to be proven using path analysis come from the conceptual model. Based on the conceptual hypotheses and on the three evaluation instruments applied to students and teachers, 11 observed (measured) variables were identified which are the basis for building the measurement model of the path analysis. The evaluation model comes from these variables, and once adjusted, it contains a total of 37 relationships among the distinct, measured variables (Fig. 2).

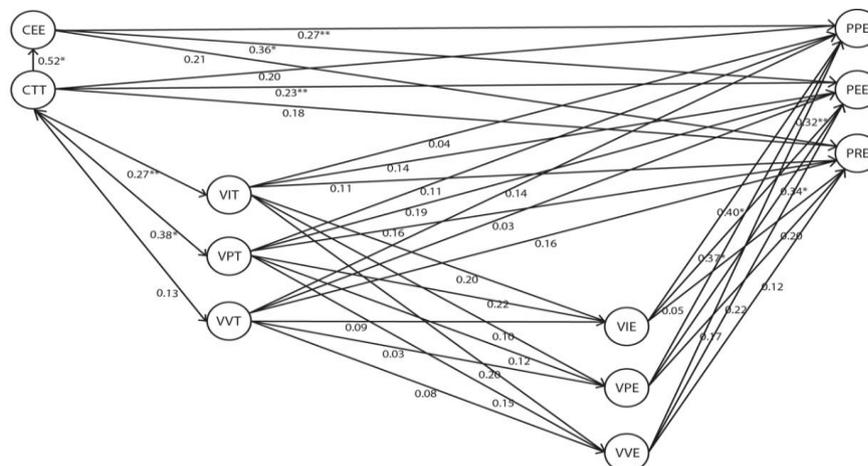


Fig. 2. Effects among the distinct measured variables of the measurement model.

The analysis carried out showed the standardized coefficients β (adjusted correlations) that exist among the different variables in the measurement model. Schumacher and Lomax [23] suggest that the results of the standardized coefficients should be presented in a graph showing the existing multiple relationships in the measurement model. This graph is shown in Fig. 3. As it can be seen, path analysis shows that there are some significant effects among the distinct variables.

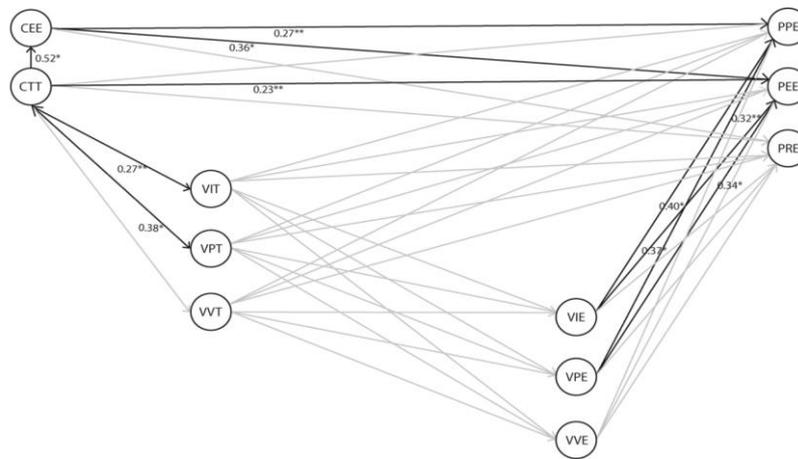


Fig. 3. Significant effects among the distinct variables of the measurement model

3.2. Qualitative analysis

Four main topics emerged from this analysis: (1) research vision: definitions of research and of the most appropriate models and techniques; (2) research process: practice and methodology issues; (3) importance of research: value of research, be it in itself or linked to educational practice; and (4) teacher-student relationship: practical aspects as well as transmission aspects of research culture.

4. Discussion

The results obtained in this research show that, regarding research knowledge, teachers are a direct factor in the development of knowledge in students. This is confirmed in the quantitative analysis as well as in the interviews and in the theses analyses.

The results from this study indicate that the opportunities to observe teachers in action, and to actively interact with them in research projects, beyond the thesis project, are practically null, therefore, it is expected to see lack of clear and direct transmission of values. These results did not show the effect that teachers may have in the transmission of values to students. The quantitative analysis does not provide clear answers in this sense, and the qualitative studies do not provide more information. This is consistent with Hodges Persell [11], who states that the transmission of values takes place through constant interaction and behavior observation of the transmitters.

The results of the present research make us reflect on the implications of this study in the development of on-line programs seeking the transmission and development of aspects such as values, knowledge and practices as part of the research culture in students:

- Values: The same as in traditional programs, teacher's training and levels of experience and expertise are a central factor in the transmission of some aspects of research culture. Given the diversity of epistemological approaches of the participants in this research there is a variety of visions on the relative importance of positivist, phenomenological, or action-research models, and qualitative or quantitative methodologies. No clear mechanisms were found that would facilitate the transmission of these values to students.
- Knowledge: methodological knowledge is developed through a combination of conceptual learning and its practical applications [24], [25]. Data obtained in this study show that there are successful students that complete master programs with solid bases in research methodology and that this allows them to carry out profound work that takes them to important analysis and synthesis levels in this area. However, it was also found that many of these students complete their programs with serious methodological deficiencies. It is possible that there are meaningful differences in the student levels from the beginning of their graduate studies and that some students may be carrying conceptual bases from their undergraduate studies.
- Practices: One of the main principles of constructivist models is that learning happens through action: applying and putting concepts into practice and not only receiving them, be it in the classroom or through the computer (e.g. [24], [25], [26]). The development of a true research culture that integrates

and comprehends all the different aspects that conform it, depends on the opportunity to put this culture into practice. Otherwise, it is kept as inert knowledge, useful only to the students as trivial information. From the results of this study, it can be concluded that there are few opportunities for the student to carry out research projects as part of the on-line programs; and there are even fewer opportunities to observe and interact with teachers.

On-line education plays a fundamental role in the future of education. It is therefore elementary to be able to understand what the strengths and weaknesses are in this type of programs. This is particularly important for graduate programs, which have the highest academic level in the entire educational spectrum. Therefore, the results of this research constitute a contribution with implications and a scope that help us understand one of the most important factors related to on-line graduate programs: the transmission of research culture.

In conclusion, on-line graduate programs, in general, and particularly in the area of education, offer many advantages to students for their growth and professional development, and to society as a mechanism to generate high-level professionals and a national culture of excellence. However, given the constant progress taking place, both in our understanding of the learning processes and in the development of new technologies, we must abide by a continued improvement and evaluation model of these programs, particularly in graduate programs whose objective is to train and prepare quality researchers.

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