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IMPORTANCE OF DIGITAL COMPETENCES AND ATTITUDES TOWARD RESEARCH IN MEXICAN TEACHERS

Pedro José Canto Herrera, Hugo Salvador Flores Castro, & Sergio Humberto Quiñonez Pech
Faculty of Education, Autonomous University of Yucatan (México)

Abstract

The aim in our study was to determine the importance of digital competences and attitudes regarding research to teachers, according to various variables such as gender, age, and level of studies. A questionnaire was used to gather information from 28 teachers at the Escuela Normal de Educacion Primaria "Rodolfo Menéndez de la Peña", in México. The questionnaire was developed based on Aldana y Joya (2011), and the GIDU-EDUTIC/IN research group from the Universidad de Alicante. The questionnaire comprises 48 questions on the importance of digital skills and 50 questions on attitudes towards research. All questions use a Likert scale with 5 answer options. Cronbach's Alpha was used to determine the reliability of the instrument. It was found that the questions related to the importance of digital competence an alpha equal to 0.912 and for the questions of attitudes towards research an alpha equal to 0.854. It was found that teachers considered important the five digital competences dimensions. It also was found that they considered that creativity and innovation as the most important dimension and the use and access of information as the less important. The participant teachers' attitudes towards research were more neutral. It was found that the cognitive dimension was the one with the highest score, while the behavioral dimension the one with the lowest score. It is concluded that training needs are detected to improve their digital skills and their attitude towards research, the need for further research on the effect is perceived that could have for the development of research groups in this institution.

Keywords: *Digital competences, attitudes, attitudes toward research, teachers, Mexican teachers.*

1. Introduction

In the literature it is possible to see many studies on the importance of teachers' digital competences and teachers' attitude towards research. Over the last few decades, the concept digital competence has been used more frequently and are increasingly discussed (Spante, Soflova, Lundin and Algers, 2018). In addition, the scientific production about digital competence is a relevant topic at international level due to the growing interest of researchers in this area of study (Rodríguez and Martínez, 2018).

According to Spante and others (2020), digital competence is defined as the confident and critical use of Information Society Technology (IST) for work, leisure, and communication; It includes the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet. Today's teachers are expected to integrate digital technologies to improve the quality of their learning-teaching activities (Guillén, Mayorga, Bravo and Escribano, 2020).

Research attitudes play an important role in the whole process of research (Khan, Hussain and Khan, 2018). Aldana and Joya (2011) define attitudes as an enduring and persistent organization of beliefs that predispose one to react preferentially in a certain way. In the last ten years there have been many studies related to the attitude towards research. One of them was developed by Khan, Hussain and Khan (2018), who reported a positive disposition towards scholarly activities, viewed themselves as researchers, felt professional satisfaction in research activities, and showed a positive attitude towards research activities.

In Mexico basic education teachers are formed by Escuelas Normales, universities also offer educational programs that are studied with the main expectation of occupying, upon graduation, a teaching position.

The following research questions are addressed in this study: 1) What is the opinion of teachers regarding their digital competences? & 2) What is the teachers' attitude regarding research?

2. Method

In this quantitative study, a cross-sectional survey model was used. The cross-sectional survey model is a research model which aims to know individuals' opinions on the subject being examined at a given time (Fraenkel, Wallen and Hyun, 2014).

2.1. Population

The population consisted of 33 teachers who worked at the Escuela Normal Rodolfo Menéndez de la Peña at the time the instruments were applied. Of the total number of teachers, 28 answered the digital competences questionnaire and 29 answered the questionnaire on attitudes towards research.

2.2. Instruments

Two questionnaires were developed to collect information from teachers: Digital competencies questionnaire, and Attitudes towards research questionnaire: the digital competencies questionnaire was developed based on the DigComp framework, and the GIDU-EDUTIC/IN research group from the Universidad de Alicante. The questionnaire is organized in 48 statements, using a five-choice Likert-type scale with answers ranging from "Not important at all" to "Very important". The instrument considers five factors with respect to the assessment of digital competencies: technological literacy (11 items); access to and use of information (8 items); communication and collaboration (8 items); digital citizenship (8 items); and creativity and innovation (13 items). The questionnaire of attitudes towards research was designed based on the questionnaire adapted from Aldana and Joya (2011), is organized into 50 statements and, like the previous questionnaire, uses a Likert-type scale, with responses ranging from "Strongly disagree" to "Strongly agree". The instrument considers three factors of the construct: affective (20 items), what the subject feels, the emotions that the research produces in him/her; cognitive (10 items), what the subject knows or thinks he/she knows about the research; and behavioral (20 items), what the subject does or is willing to do with respect to the research.

Cronbach's Alpha was used to determine the reliability of both instruments. It was found that the questions related to the importance of digital competence an alpha equal to 0.912 and for the questions of attitudes towards research an alpha equal to 0.854.

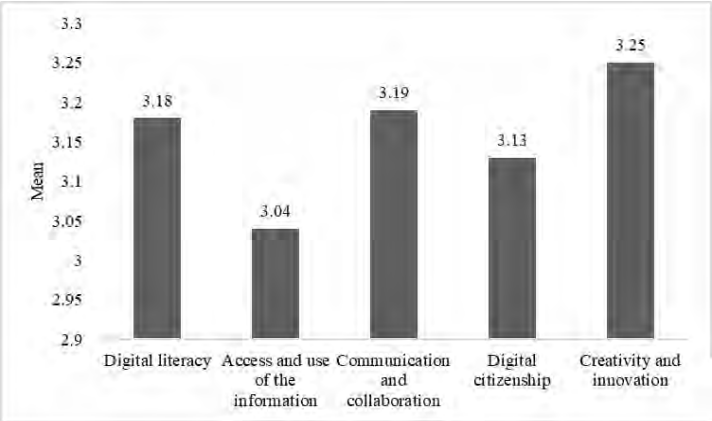
3. Results

3.1. Teachers' opinion on digital competences

All the teachers said they had a computer, only one of them said they did not have internet; in the aspect of hours spent with the computer per week, one of them used it one hour or less (3.6%), 14 (50%) used it more than one hour and up to five hours, 7 (25%) used it more than five hours and up to twenty hours and the remaining 6 teachers (21.4%) used it more than twenty hours. Regarding the development of their subject with computer support, 27 out of 28 teachers stated that they use it.

Regarding the type of training, they have received in the use and handling of computers, only one teacher stated that he had not received any type of training, 96.4% stated that they had received basic computer knowledge, 82% on the use of programs (word processing, presentations, spreadsheets) and 64% on the learning of specialized software in their area of study. In addition to the previous question, 8 teachers reported receiving less than 10 hours of ICT training, 10 teachers reported receiving between 10 and 20 hours and one teacher reported receiving more than 20 hours.

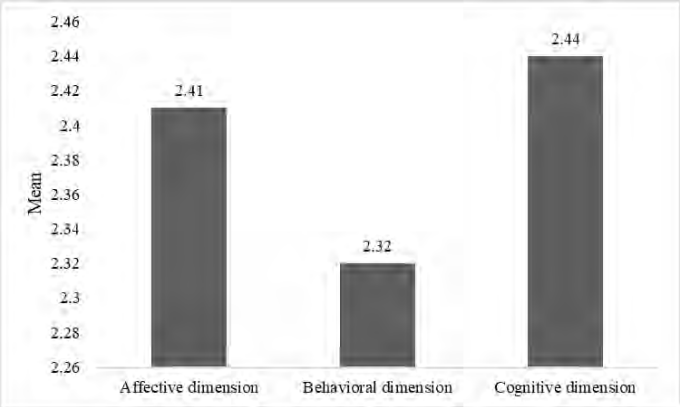
Figure 1. Mean obtained in the dimensions of the questionnaire "Digital Competencies".



3.2. Teachers' attitudes regarding research

In general, teachers showed a positive/low attitude towards research. In addition, as shown in Figure 2, a better attitude was found in the cognitive dimension and a lower attitude in the behavioral dimension. With respect to the latter dimension, four statements had a significantly low score: "I often find myself consulting scientific information" with a mean of 1.86; "To do research it is necessary to be methodical" with a mean of 1.62; "Research contributes to the recognition of institutions" with a mean of 1.86; and "Research, teaching and social projection have no relationship" with a mean of 1.31.

Figure 2. Mean obtained in the dimensions of the questionnaire "Attitudes Towards Research".



4. Discussion and conclusions

The results of the study regarding teachers' attitudes towards research coincide with the results reported by Aldana and Joya, 2011; being that in those studies it was found that the interest that teachers might have in developing their research competencies do not have the desired impact on their attitudes.

From the analysis of the results obtained from both questionnaires, it is possible to point out, in the aspect of the assessment of digital competencies, that the teachers of the Escuela Normal have the tools to develop their digital competencies and have received training for their development, which translates into the high levels they say they have of digital competencies, particularly in terms of creativity and innovation.

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