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Undergraduate research competence: Perceptions of students and professors in health sciences

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Summary.

Introduction: Research plays a pivotal role within the university setting, fostering critical pedagogy among both students and educators. This study aims to elucidate the perception of competency acquisition across three health sciences programs.
Methods: A descriptive cross-sectional study was conducted at a higher education institution, encompassing 60 nursing students, 34 psychology students, and 55 veterinary medicine students, along with 31, 29, and 31 professors, respectively, from these programs.
Results: Research is acknowledged as a significant facet by both students and professors, with 85% of educators concurring that it constitutes a cross-cutting competence. Challenges encountered in the teaching process pertain to data processing, analysis, and Excel-based graphing (13%), as well as utilizing technology for data analysis (14%), and composing research-based texts (10%). Students also noted these challenges to a lesser degree.
Discussion and conclusions: The study's findings underscore the importance of furthering research integration into undergraduate education, despite some accepted research-oriented practices among both students and educators. Keywords: Competency-Based Education, Research, Educational Evaluation, Teaching, Higher Education

1 Introduction

Research holds a pivotal role within the academic landscape of universities, as it serves as the foundation for generating knowledge that contributes to societal advancement (Céspedes, 2009). The integration of research into the academic lives of both students and educators is essential, particularly from the perspective of critical pedagogy (Chambeaud, sf; Moreno, 2005). Furthermore, these research activities should align with national policies and

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be part of a strategic plan encompassing national, regional, and local initiatives (Colina, 2021). Consequently, formative research emerges as a pivotal, cross-disciplinary component within health sciences curricula. The objective of this study is to elucidate the perception of formative research, research skills, and research competence within three distinct health sciences programs.

2 Theoretical Framework

In recent decades, the expanding global body of literature in higher education research has consistently demonstrated that the majority of teaching and learning activities are intrinsically linked to direct engagement in research and closely associated training (Clark, 1998). However, it's noteworthy that many observers tend to focus solely on the latter form of teaching and learning, often perceiving research and teaching as incompatible endeavors.

The cultivation of research competence among university students necessitates the active involvement of educators across various arenas, including the classroom, curriculum development, and specific research programs within departments, schools, or faculties (López, 2006). It is imperative for universities to clearly define the competencies expected from individuals who will be certified as professionals by the institution, as a fundamental step in this process (Daza, 2021). Furthermore, at the institutional level, the implementation of policies and mechanisms facilitating concurrent evaluation of academic activities aimed at research training is crucial (Salinas, Aguaced, and Cabero, 2006, p. 190).

3 Method

This study adopts a descriptive cross-sectional approach conducted within a higher education institution. Two surveys, each containing Likert-type questions, were devised—one for teachers and one for students. The surveyed thematic areas encompassed information retrieval, the utilization

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of bibliographic management tools, data analysis techniques, citation standards, academic integrity, ethics in research, and effective communication. Additionally, the design and execution of research projects were explored.

The survey encompassed 60 nursing students, 34 psychology students, and 55 veterinary medicine students, along with 31, 29, and 31 professors affiliated with these respective programs. Data collection took place during the inaugural academic semester of 2023.

4. Results

Research emerges as a significantly valued aspect for both students and educators. A striking 85% of teachers affirm that research competence holds a transversal nature and should be nurtured across all courses. They have identified challenges in the teaching process related to data processing, analysis, and Excel-based graphing (13%), as well as the utilization of technology for data analysis (14%), and the composition of research-based texts (10%). These challenges were also referenced, albeit to a lesser extent, by students. Furthermore, there is evident interest among both students and teachers in implementing strategies to encourage participation in academic events.

5 Discussion

Several Colombian universities have shared their experiences in research skills training, such as the Catholic University of Colombia and the Industrial University of Santander. The former underscores the necessity for foundational competency training, which includes ethical orientation, decision-making, creativity, problem-solving, communication, teamwork, leadership, resource management, among others, before progressing to specific competencies like critical and autonomous thinking, scientific rigor, social responsibility, project management, innovation, quality commitment, communication, and scientific argumentation (Guerrero, 2007).

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On the other hand, the Industrial University of Santander reveals its approach, highlighting the multifarious factors influencing research competence acquisition, including instructional mediation, student attitudes, the teacher-researcher relationship, depth lines, research themes, degree projects, research seminars, classroom research, and academic events (López, 2006). Both universities emphasize the significance of research seedbed strategies.

The findings from previous research, coupled with those in the present study, underscore the need for further research to elucidate the stability of certain findings concerning research in higher education. The diverse perspectives associated with this relationship bear significant implications for the university institution. Emphasizing the role of learning as a bridge between teaching and research could potentially enhance overall institutional quality. It is imperative to understand the perceptions and motivations of teachers regarding their research activities (Pina, 2002).

6 Conclusions

The findings of this study underscore that while certain research-oriented processes have gained acceptance among both teachers and students, the promotion of research within undergraduate training remains essential. It constitutes a foundational aspect of the skill set required for professional practice, enabling individuals to effectively address the evolving demands of the healthcare landscape.

7 Limitations and Future Research

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It is worth noting that there is no prior precedent for evaluating the critical model with a competency-based approach implemented by the university where this study was conducted. Consequently, the findings cannot be extrapolated to contexts employing different pedagogical approaches. It is advisable to conduct cohort studies to continually monitor the efforts made by universities in assessing and enhancing their pedagogical models, along with tracking the development of competencies throughout individuals' professional journeys.

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