Development of Research Competences in University Professors: A Bibliographic Review

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Abstracts: The research aimed to analyze the contribution of scientific publications regarding the study of the development of research skills in university professors. The bibliographic review and documentary analysis of scientific articles published in different scientific databases were used as a study method. For the theoretical approach regarding the definition, importance and classification of research competences in university professors, the contributions of researchers who have published scientific articles in different databases were used; and for the study of background, the articles published in the Scopus database between 2018 and 2022 were used as a source of information. It was concluded that there are different studies that address the importance of developing their research skills in university teachers, which are associated with the improvement of their professional profile, teaching conditions in the training of professionals and their contribution to increasing the scientific production of universities through the formulation of scientific research and technological development projects and the publication of scientific articles in academic databases.

Keywords: Competences, Research Competences, Professors.

1. INTRODUCTION

From a focus on the quality of university higher education, in different parts of the world, university management policies based on quality conceive research as a university process that requires the design, application, evaluation, innovation of strategies, resources, incentives to develop research activities, scientific development, innovation and technology transfer (Becerra et al., 2019). That is why the formulation of research policies must be oriented to the planning, implementation and evaluation of training activities and development of research skills in teachers, students and administrators in order to promote the employment, generation and transfer of scientific knowledge (Colás and Hernández, 2021). In this context, it is required that university institutions develop continuous actions for the acquisition, development and improvement of the research skills of professors that are aimed at updating, training in the management and mastery of scientific literature search skills, use of digital tools for research such as the use of bibliographic managers and use of specialized languages with computer support to improve the activities of scientific research, development of strategies for teaching-learning formative research in university classrooms, as well as for advice and accompaniment for the preparation of research work in students; and, in particular, development of intellectual production capacities that enable teachers to disseminate the results of their research work through scientific articles in indexed that increase the production of universities (Cárdenas et al., 2021).

It is important to bear in mind that, in the Latin American context, contextual needs such as those experienced during the period of health emergency in the world (COVID-19) have emphasized the need to develop new programs or activities for training and development of research skills, mediated by digital technologies, so that professors can incorporate new research skills that allow them to ensure the sustainability of the formative research, end-of-program research, teaching research and the increase of indicators of scientific production of their institutions through the sustainability of the publications of scientific articles of their professors in the Scopus database (González et al., 2022).

In Peru, Yangali et al. (2020) propose that in order to promote the research culture of university professors, research skills development programs should be implemented that contemplate both the cognitive abilities of the scientific domain, the procedural capacities for the management of scientific methodology and attitudinal capacities that imply assuming ethical and honest conduct in planning practices, execution and dissemination of research activities.

Along the same lines, Vargas and Sito (2021) and Madueño et al. (2020) argue that, at present, given the needs to strengthen the relationship between the university and Peruvian society, it is of great relevance for universities to have research professors who are carriers of university social responsibility and generation, production and transfer of scientific knowledge. On their own account, Turpo et al. (2021) concluded, having conducted a comparative study regarding scientific and innovative activity between Peru and Latin American countries, that both the indicators of investment in research and development in science and technology, as well as in scientific production (scientific articles) and technological (patents), Peru compared to other South American countries has lower results, A situation that suggests the need to invest more in the development of science and technology in the country, as well as in the training of researchers in universities.

In this context, the study of the development of research competencies turns out to be of great relevance in the management of research in universities not only because it allows a situational diagnosis of the profile of the teacher who teaches research, but also because it allows to identify what are the actions that must be undertaken to form and develop their skills and attitudes for research and develop their research culture (Díaz and Cardoza, 2021), but mainly to promote the capacities of adaptability and assimilation to new environments, the development of creativity and innovation, the development of digital transformation using different strategic resources in the different research processes in a framework of university management inspired by quality and continuous improvement (González, 2022).

From a methodological criterion, the research is relevant because it systematically presents the contributions of the scientific literature published in the scientific databases on the findings related to the development of research competencies of university professors in the global, Latin American and Peruvian contexts published between 2018 and 2022.

The goal of the study was proposed to analyze the theoretical contribution of scientific publications regarding the development of research skills of university professors through the method of bibliographic review. The specific goals are aimed at identifying the methodological contributions and research findings of publications related to the development of research competencies of university professors published between 2018 and 2022.

2. METHODOLOGY

The study was based on the application of literature review using academic databases. In this sense, for the search of scientific information, the descriptor: development of research skills was used as a search criterion in the Scopus and Scielo databases. Subsequently, once the results were identified in these two databases, the process of selecting articles ("Development of research skills") was carried out, considering as a criterion that the articles are related to (AND university professors).

3. DEVELOPMENT

3.1. Development Of Research Skills in University Teachers

In the current century, the panorama of university higher education worldwide is focused on investment in resources and technologies for the generation, development and dissemination of scientific knowledge that increase the social impact of universities, which no longer only focuses on quality teaching to their students, but in fostering the professional development of their professors through research (Gonzáles-Díaz et al., 2021).

In this context, research competencies are conceptualized as a series of theoretical and practical knowledge that facilitates the application of the method of science and scientific research for the generation of new scientific knowledge whose products are research projects and reports and scientific articles published in scientific journals indexed in academic databases (Tapia et al., 2018). This set of research competences implies the deployment of a set of knowledge, skills and ethical attitudes in university students and teachers in the activities of formulation of research projects, systematization and presentation of research results, as well as their dissemination through indexed scientific publications that increase the scientific production of universities (Reiban, 2018).

At the level of university teaching, the importance of the development of research skills is fundamental for its contribution to the improvement and continuous improvement of professional teaching activity, in the improvement of the quality of university education in the humanistic, scientific and technological axes and for its role in the promotion of scientific production and technological development (Ruiz, 2020; Henry et al., 2020).

That is why, faced with the new demands of quality in higher education, universities in recent years in order to position themselves and contribute to the sustainable development of countries, are in permanent processes of design of professor training actions in research and in the implementation of improvements in the programs of development of research competences of their professors, as well as allocating resources to promote the formulation of scientific research and development and technological innovation projects and encourage scientific publications by their professors (Soto and Sana, 2020).

Regarding research competencies, there are different models that approach their classification from different perspectives. Thus, in 2002, Partington states that these are divided into competences on philosophy and epistemology, on the process or technique of research; in 2003, Gallardo typifies them into: investigative, innovative, communicative, managerial and technological; in 2004, Berkeley typifies them into 21: Possess and have specialized knowledge about a discipline, philosophical mastery of epistemology, scientific literature search skills, strategies for the design and execution of research, knowledge to obtain quantitative data and qualitative data, skills of understanding and application of quantitative and qualitative methods, scientific writing skills to summarize and produce expository and argumentative texts, rhetorical skills for persuasion and logic, oral communication skills, technological skills, time management skills, skills to generate collaborations between units and subjects involved in research activities, capacities for participation and generation of research networks, knowledge of research standards, creative, originality and innovation capacities, emotional intelligence, ability to work in long times, capacity for improvisation; and, in 2011, Lart proposes 9 research competencies related to the approach of a research problem, establish a contextual framework for study, know how to explore, review and analyze the state of the art, capacity for the generation and validation of intervention models and data collection instruments, management of qualitative and quantitative techniques for data analysis, mastery of foreign languages and universal culture (Moscoso and Carpio, 2022).

3.2. Documentary analysis on the development of research skills in university professors

In the Scopus database when the review process was carried out using the keywords and the use of Boleanan operators through the following search equation: TITLE-ABS-KEY (development AND of AND investigative AND competences) nine results were found that address from different perspectives the research competences in university professors, some directly related to the development of these competences and others with their applicability In the training of university students who do not stop analyzing themselves from the perspective of the teacher because they start from the teaching work for its design, implementation, execution, evaluation and improvement. It should be noted that, although it is true, 9 results were found, only 6 of them are included in this review given their periodicity of publication between 2018 and 2022.

In Honduras, Paz and Estrada (2022) conducted a mixed study in which they used quantitative methods of linear regression and a multilevel model and as a qualitative method to textual analysis to analyze the characteristics, challenges of teacher research training, as well as the research competencies of university teachers. They concluded that in the training of teachers there is a positive perception regarding the conception and model of

university research, as well as the student's entry profile and the sequence of the curriculum that favor the acquisition and development of research skills. Likewise, it was found that the role, profile, academic degree, teaching performance, quality of research teaching of the university professor play an important role in the formation and development of research skills in students and at the level of the entire university community.

Hernández et al. (2021) conducted a study to evaluate the effectiveness of a classroom project based on cooperative learning to develop investigative skills through psychometric evaluations using four groups of psychology students from a university as a study sample. The findings showed that this pedagogical experience formulated by university professors demonstrates the effectiveness of their research skills and their contribution in the development of skills of search for scientific literature, analysis and processing of information, use of resources and research methodologies, development of skills for the design and execution of psychometric studies in university education.

In Colombia, García-Gutiérrez and Aznar-Díaz (2019) developed mixed-approach research to analyze the findings of the development of research competencies in the training of teachers at the level of early childhood education. The results revealed that at the level of authorities, students and university professors there is a positive assessment of this program because they allow strengthening analytical, reflective and practical capacities on early childhood education; Although it is presented as a limitation that there is a need to implement improvements in the program to develop reading and writing skills in the training of early childhood education teachers. These findings allow us to identify the need to develop pedagogical and research competencies in university professors to design intervention programs in improving comprehension and text production skills.

In Mexico, Cardoso and Cerecedo (2019) developed exploratory basic research to evaluate research competencies in research design and execution, as well as scientific dissemination in graduate students. They concluded that students have an insufficient mastery of these competencies and only present a moderate level of personal competencies for research. These results reveal the need for universities to have research professors capable of developing the research skills of their students, as well as developing scientific writing skills so that their students disseminate the results of their research in research articles that are accepted by scientific journals and published in academic databases.

In Venezuela, Paredes et al. (2019) conducted a qualitative study in which they applied documentary analysis and grounded theory to formulate a curricular transversality design of the research component in vocational training. The results revealed that this proposal should be conceived as a process that is developed during the different moments of vocational training, as well as it was demonstrated that the research axis acts in a transversal way to dynamize and facilitate the process of understanding, application and transfer of the specialized contents of the different subjects of vocational training. In this sense, trained professors with an optimal level of research skills are required to favor the development of formative research activities that enable students to acquire different knowledge, skills and abilities in their professional field.

In Mexico, Tapia et al. (2018) analyzed under a quantitative methodology the general research competencies in graduate students. The findings showed that both the competencies of formulation of the study problem and the design of the methodology in the formulation of the project and research report are the competencies that present less development in graduate students. Likewise, it was found that factors such as age and previous training of the graduate program student affect the ability to correctly formulate the formulation of the research project. In this sense, there is a need to have in universities teachers who have the expertise and competencies to teach students to develop their skills in problem formulation and mastery of research methodology for the design and execution of their project and end-of-degree thesis report.

CONCLUSIONS

The study of the development of research skills in university professors turns out to be very important in the management of universities because it determines their levels of quality in teaching, their articulation with the policies of promotion towards research and the practice of university social responsibility.

The bibliographic review reveals that there are different studies that address the importance of developing their research skills in university professors for different reasons, which are associated with improving their professional profile, improving teaching conditions, contributing to the increase of scientific production of universities, contributing to the training of integral professionals who conceive research as a tool to improve their learning and transform their scenarios of social and professional performance. Likewise, it was found as a result of the documentary analysis that scientific publications related to research competencies in higher education disseminate experiences related to the formation of research competencies in university students, in postgraduate students, pedagogical experiences to develop research competencies in university students.

Finally, it highlights the need to increase scientific production in universities related to the results of training programs and development of research skills for university professors, programs for the training of research teachers, programs for the incorporation of research professors at the international level and their impact on the generation of alliances and research networks, among others.

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