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Evaluation of the professional and scientific development of graduates of a PhD in Educational Sciences in Cuba

Evaluación del desarrollo profesional y científico de egresados de un doctorado en Ciencias de la Educación en Cuba

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Abstract

Objective: Describe the professional and scientific performance of graduates in the Doctorate Program in Educational Sciences, developed at the University of Matanzas, during the period 2016-2023. Method: A type of survey was used to collect information about the relevant aspects of the doctoral training of the graduates. Results: In the responses to the survey, information was obtained on intellectual growth, professional growth and level of satisfaction that facilitates revealing their levels of development as graduates. Discussion: the critical assessment of the information offered in the closed and open responses facilitated an evaluation of the results in the case of the University of Matanzas that have applicability for the improvement of the training process. Conclusions: The need to improve the procedures for monitoring graduates of doctoral training processes is recognized, which would ensure their qualit.

Keywords: professional growth, intellectual growth, satisfaction, doctorate, education

Resumen

Objetivo: Describir el desempeño profesional y científico de los graduados del Programa de Doctorado en Ciencias de la Educación, desarrollado en la Universidad de Matanzas, durante el período 2016-2023. Método: Se empleó una encuesta tipo de recopilación de información acerca de los aspectos relevantes de la formación doctoral de los egresados. Resultados: En las respuestas a la encuesta, se obtuvo información del crecimiento intelectual, crecimiento profesional y nivel de satisfacción que facilita revela sus niveles de desarrollo como egresados. Discusión: la valoración crítica de la información ofrecida en las respuestas cerradas y abiertas facilitó una evaluación de los resultados en el caso Universidad de Matanzas que poseen aplicabilidad para la mejora del proceso formativo. Conclusiones: Se reconoce la necesidad de perfeccionar los procedimientos, para el seguimiento de egresados de los procesos formativos doctorales, lo que permitiría asegurar su calida.

Palabras clave: crecimiento profesional, crecimiento intelectual, satisfacción, doctorado, educación

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Introduction

The accelerated processes of social, ecological and digital transformation mark the singularities of doctoral training in the world, therefore, it is necessary to generate permanent evaluation processes that allow identifying the training needs of doctoral students who graduate from the programs and their positioning in the scientific and labor context in different parts of the world; Hence, it is essential to consider and assess the features of university education in Cuba, in a necessary and essential articulation of research and innovation, as expressed by García (2006) López et.al. (2008) and Saborido (2018), but based on service to society, which is the result of a deep process of reflection and study (González and Castillo, 2020), which must be addressed from the perspective of multi processes, which as part of the postgraduate program "must contribute with their impact, both to the training of a highly qualified professional, and to the solution of problems linked to social practice" (García and Addine, 2024, p. 2).

In this sense, achieving professional, intellectual and human qualities in the graduates of a doctoral program implies the existence of a high level of awareness and commitment to the immediate and medium-term future, as a way of sustainability, while the training process "enables them to develop complex research projects and to fulfill a role of intellectual leadership that allows them to radiate in concrete situations, an appreciable amount of knowledge" (Hernández, et.al., 2009, p. 1).

In the quest to assess the quality of university processes, studying graduate behavior through monitoring professional activity is essential, as it facilitates the evaluation of programs in educational institutions in order to refine training strategies at a specific level. In this regard, it is becoming increasingly necessary to monitor the management of this process within the responsible institutions (Vargas et al., 2023). Added to this is the consideration that knowledge must be accompanied by personal and professional qualities that enhance leadership work to solve specific problems in the field in question.

Training at this level demands research as one of the substantive activities since "having academics, professionals and technicians of excellence, who acquire the skills for scientific and technological development, innovation and entrepreneurship" (González and Jiménez, 2014, p. 133), in conjunction with the teaching-administrative functions in the workplace, creates a suitable, integral professional who can face the requirements of the social environment in which he or she is linked.

Monitoring the processes and their results in postgraduate training activities, according to Valencia-Gutiérrez et.al. (2015), allows for their reproduction and an impact on scientific-technological development, supported by theoretical, methodological and investigative preparation (Matos-Columbié et. al., 2019).

In the graduate profile referred to by Valencia et al. (2015), it corresponds to what Núñez et al., (2019) highlights: "a tool to evaluate the acquisition of competencies of a specific professional" (p. 164), with activities aimed at facilitating this process (Vargas et. al., 2023); it is important to consider the intellectual growth that accompanies the acquisition of these competencies, as well

as the levels of satisfaction that must be generated with this type of activity of high reflective, analytical, ethical capacity that are basic and essential for social transformation.

An interesting perspective is the one that identifies that "the university of the 21st century assigned a place of great relevance to research, constituting this as a trademark" (Núñez and González, 2019, p. 166), and the orientation of the doctorate based on improvement, research at the undergraduate and postgraduate levels, attending to different training scenarios, the necessary collaboration and alliance and focused on scientific work within research projects and the achievement of levels of satisfaction to the extent that academic and professional excellence are linked to social transformation (Matos, et. al., 2019).

Undertaking doctoral studies is assuming it as a life project (González, et. al., 2019), while its subsequent involvement requires giving continuity to what has been studied, which confers high levels of satisfaction.

In the sociocultural contexts of Cuban education in the 21st century, a graduate of the doctoral program must achieve in the formative process a professional and scientific development in which intellectual growth is identified (Pacheco, 2014; Ortiz, 2019; Matos, et al., 2019, Vargas, et. al., 2023) research as a substantive activity, a professional growth, as agreed with Díaz (1998), González and Jiménez, (2014), Santos, et. al., (2018); Vargas, et. al. (2023), and the level of satisfaction of the referents (Figueredo, 2012; Núñez, et. al., 2019, González et. al., 2019), show that satisfaction is an emotional and cognitive response, which is produced from its subsequent activity, which impacts quality academic professional performance, namely:

Intellectual Growth: with criteria for essential aspects between knowledge and practical demonstration, which reveals the creative appropriation of knowledge in the doctoral training process: namely: knowledge of regulatory documents related to the process of obtaining a scientific degree in the Republic of Cuba; the use of technological resources that enable access to and processing of scientific information; development of research competencies as a continuation of the doctoral training process; and management activities related to science, technology, and innovation.

Professional Growth: This is expressed in the process of providing feedback through systematic action to improve the activity in which they work and their academic career. This is expressed in: participation in academic and/or scientific networks, as well as in scientific events, leadership in research projects, and scientific publications in medium- and high-impact databases.

For its part, the level of graduate satisfaction referred to is related to the perception held by the graduate, linked to the motivation that involves what is provoked at a personal level in which they identify: relevance of the training received for the work they do, levels of motivation with the training received.

The synergy between the newly acquired skills is a function of professional training that enables us to respond to the needs of social transformation. This study contributes to the improvement of the scientific and methodological work of the doctoral program in Educational Sciences at

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the University of Matanzas by offering guidelines for an evaluation based on three aspects that enhance the improvement of the activity carried out.

Methodology

The type of research assumed in this study is mixed, qualitative and quantitative, with a census sample, considering the period to the graduates in representativeness of the years and the functions they perform, a descriptive study was carried out based on the application basically of two recognized techniques (González, 2024): a questionnaire to graduates organized in three dimensions that collected 10 items, in four categories: “agree”, “disagree”, “neither agree nor disagree” and “totally agree”, and open questions that made it possible to complement the information from the answers to the closed questions. (table 1).

1. On Intellectual Growth

Indicators	4	3	2	1
Knowledge of the regulatory documents related to obtaining a scientific degree in the Republic of Cuba.				
The use of technological resources for the access and processing of scientific information.				
Development of research skills as a continuation of the doctoral training process				
Development of management activities, science, technology and innovation management				

Other ideas to express:

2. Professional Growth Dimension (Indicators):

Indicators	4	3	2	1
Participation in academic and/or scientific networks.				
Participation in a research project				
Scientific publications in medium and high impact databases				
Participation in scientific events				
Admission to a postdoctoral training program, as part of your growth				

Other considerations to keep in mind about:

a. Academic and scientific networks, you participate in:

1_____, 2____, more than two, mention them

b. Research projects:

1___, 2____,mention level to which it belongs_____

c. From the publications: Databases:

3. Dimensión Nivel de Satisfacción

Indicadores	4	3	2	1
Pertinencia de la formación recibida para la labor que realizan				
Niveles de motivación con la formación recibida.				

4. Three aspects to consider in doctoral postgraduate activity

A sample of 24 graduates of the program was taken between 2016 and 2022 over a period of time, to whom a survey was administered using a Google form. The questionnaire was validated using Cronbach's alpha coefficient, obtaining a value of 0.95, which indicates an excellent level of reliability (Tuapanta et al., 2017). Excel programs were used for data management..

One of the program's assessment mechanisms for verifying the relevance of the training of PhDs who graduate from the Education Sciences program is the objective evaluation by graduates. This allows for a consolidated input that becomes an assessment tool for developing a continuous improvement plan to reconfigure quality perspectives.

It was considered appropriate to learn the graduates' opinions on the content and methods of their doctoral training, as well as their appreciation and assessment of how much they contributed to intellectual and professional growth, and their level of satisfaction, in their performance, commitment, and motivation to participate in social transformation based on scientific foundations, given by the acquired capabilities.

The processing of the information captured in the survey is informed by the reflections of members of the doctoral committee that manages the program, as well as the authors, based on the challenges posed to Cuban higher education in response to the country's aspirations and aligned with the UNESCO Roadmap for Higher Education.

Results

As explained in the Methodology section, a survey was sent via Google forms, which was answered in a timely manner by 24 graduates of the program, whose origins were as follows: 5 from Ecuador and 19 from Cuba. When asked whether the program from which they graduated contributed to their intellectual growth, professional growth, and level of satisfaction, the responses behaved as shown in the graphs.

Regarding Intellectual Growth, the responses for each item behaved (Graph 1 a, b, c, d) with a predominance of the responses "agree" and "Totally agree" (1 a, b, c).

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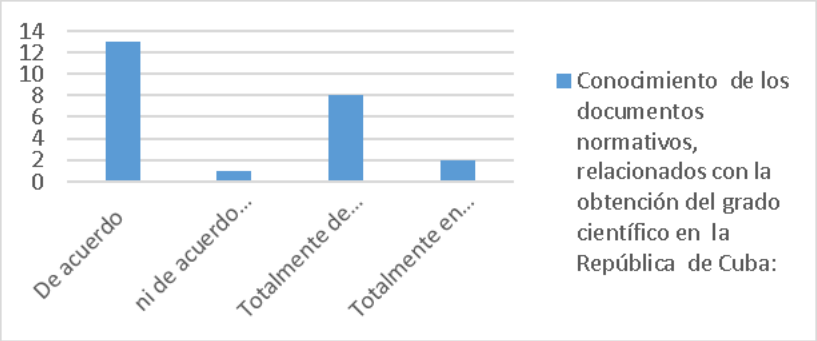
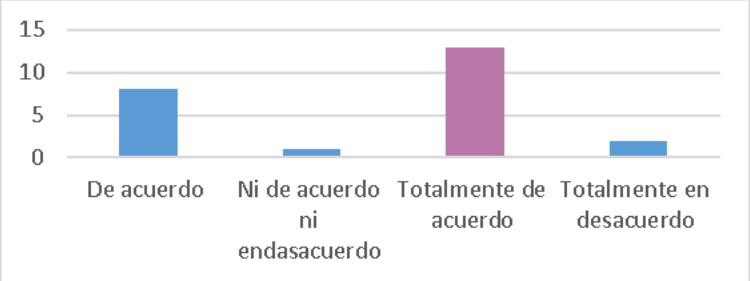
Graph 1ª

Knowledge of the regulatory documents related to obtaining a scientific degree in the Republic of Cuba



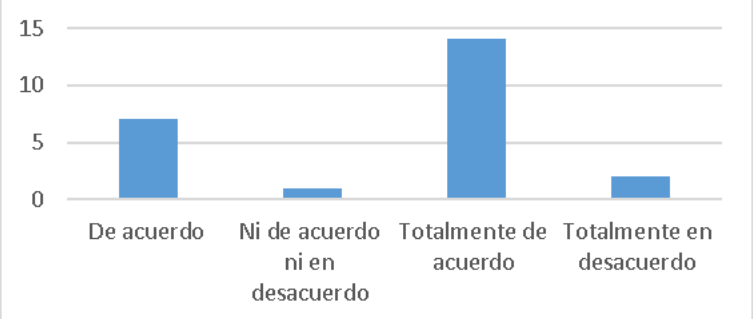
Graph 1b.

Use of technological resources for accessing and processing scientific information



Graph 1c.

Development of research skills as a continuation of the doctoral training process



Regarding knowledge of the regulatory documents for obtaining a scientific degree, the highest percentage of affirmative responses stands out. Likewise, the results collected in the remaining items of this dimension revealed the rise in the use of technologies to access and process information. Regarding how the training process contributed to the development of research skills in the continuity of the doctoral training process (Chart 1c), in the responses to the open

question of this item, 87.5% stated: advising on undergraduate and postgraduate work, member of evaluation committees for master's and doctoral work, direction of research projects, member of the editorial committee of journals, Scientific Councils and other activities (Chart 1d).

Graph 1d.

Direction and management of science, technology and innovation activities

As shown in Figure 1d, there is an increase in participation in new research projects. Although the results in project management, academic committee membership, and doctoral thesis supervision are concentrated in a small group of trained doctors, two key aspects are distinguished: members of evaluation committees for doctoral projects at different stages, and evaluators in the program's thesis workshops. Participation as advisors on government programs is also highlighted as a favorable aspect, in line with Cuba's policy of government management based on science, technology, and innovation.

Regarding Professional Growth, the survey on participation in academic networks showed a membership rate of 87.5%, with Redipe (Red iberoamericana de Pedagogía y Educación (Ibero-American Network of Pedagogy and Education)) and the APC (Asociación de Pedagogos de Cuba (Association of Cuban Pedagogues)) being the most frequent. Interesting in this regard is the active participation in the networks, which was confirmed in the events and publications: Ibero-American Network of Pedagogy, Association of Pedagogues of Cuba, Episteme, International Network of Research on Educational Law, Society of Psychology, Cuban Society of Internal Medicine, as shown in graph 2.a:

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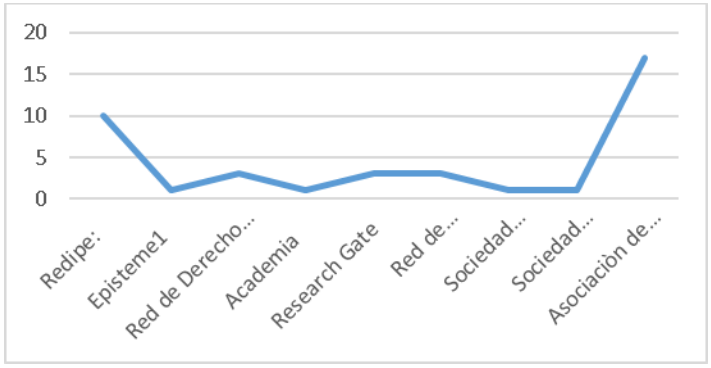
Graph 2.a

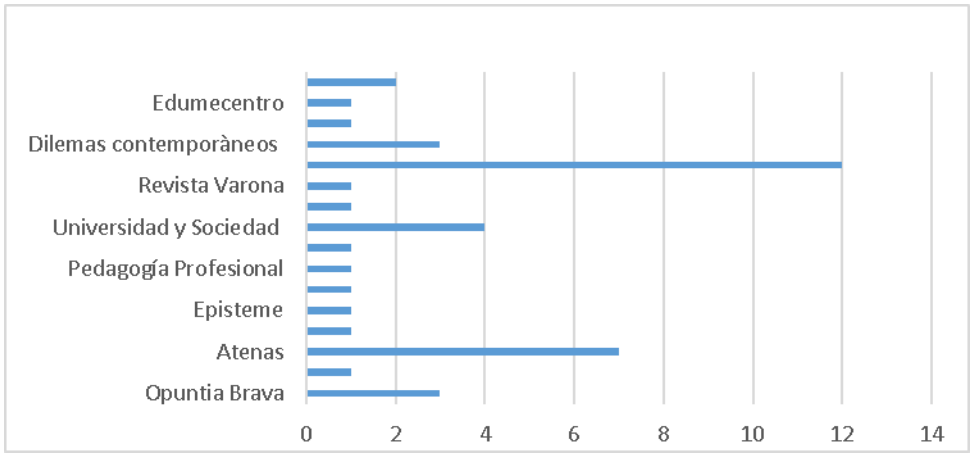
Academic networks with which graduates associate



The data in Figures 2b and 2c show that a high percentage of articles were published in journals indexed by SciELo, followed by Scopus and Redalyc, while the group of journals from other prominent databases (Doaj, Latindex, and nationally certified journals) accounted for 29.26%. The productivity of graduates who have pursued careers in research/teaching/management demonstrates a qualitatively superior integration of functions and new activities.

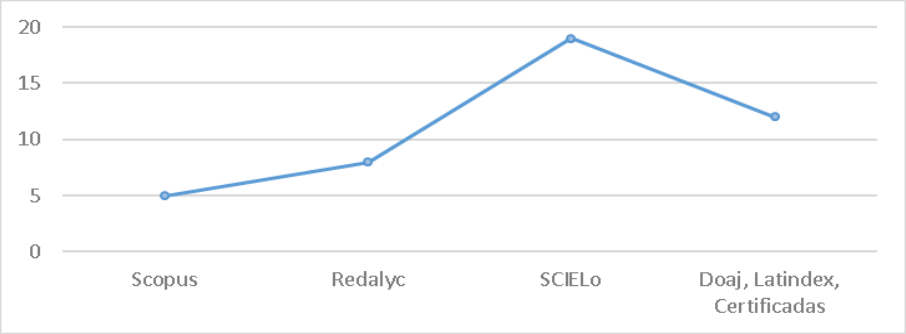
Graph 2b.

Journals in which graduates' articles are published



Graph 2c.

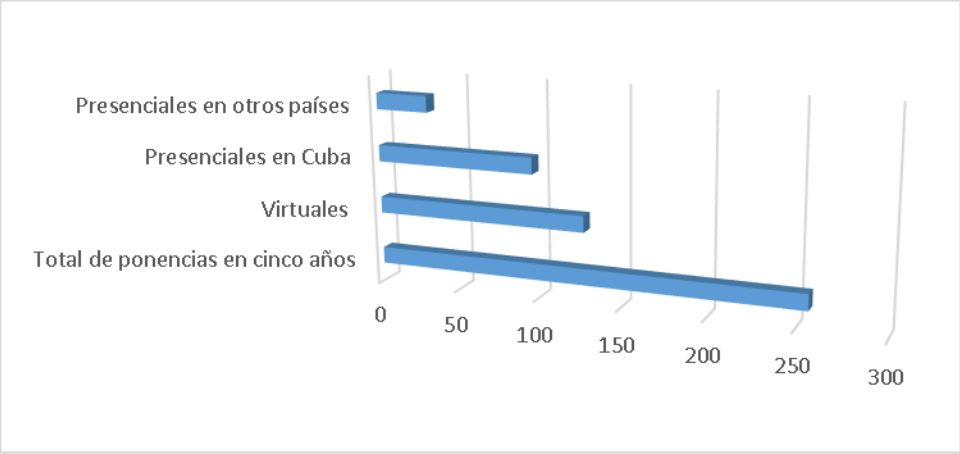
Behavior of publications in databases



Graph 2d shows the behavior of speakers at events over five years. It is one of the most dynamic indicators. As can be seen, there is a high percentage of participation in virtual events, corresponding to the years of the Covid-19 pandemic, given that virtuality was presented as a response to maintain the vitality of the program. In-person participation in events outside of Cuba is shown to be insufficient, mostly only possible for the majority of foreign doctoral students (of the five, one of them did not participate), and a lower number of Cubans, only two, which represents data to be considered in training strategies.

Graph 2d.

Event participation behavior



Regarding the level of satisfaction with the training received, two items related to relevance and motivation were included. Both items show a high percentage of favorable responses, which corresponds to the previous dimensions: 87.55 (“Strongly agree” and “Agree”) in each case, confirming the idea that this level is associated with success in the work they perform and high motivation for the activity they perform, in which the positive impact of doctoral training is appreciated.

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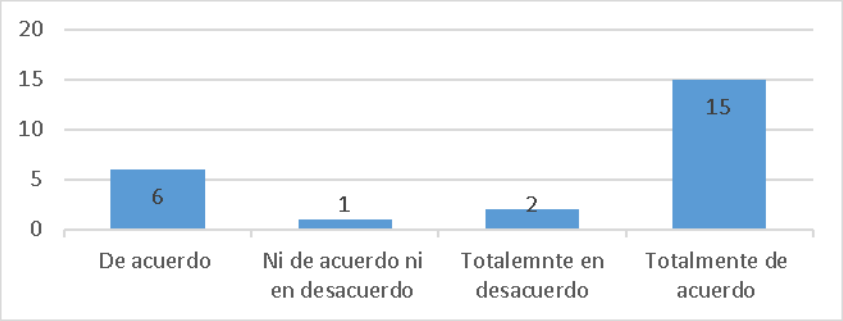
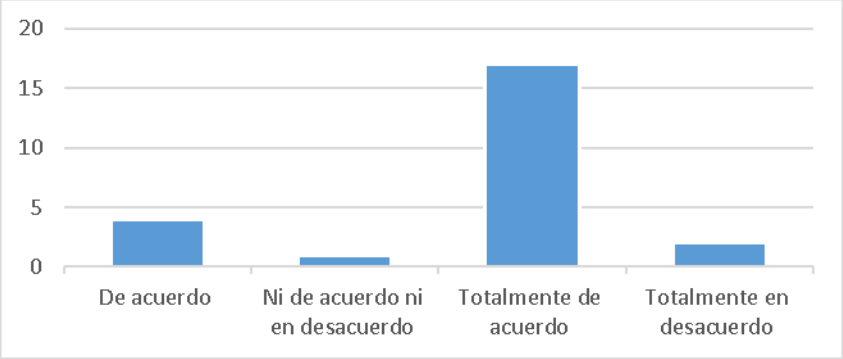
Graph 3 a.

Relevance of the training received for the work they do



Graph 3b.

Motivation levels with the training received



In response to the open question about aspects that should be taken into account in doctoral postgraduate activities, the responses offered various ideas for improving the program, levels of professional and intellectual growth, as well as satisfaction. The greatest emphasis was placed on postdoctoral studies, increasing preparation regarding the country's scientific policy in the face of its new challenges, monitoring, personalized attention, and access to up-to-date information to develop adequate management based on science, technology, and innovation.

In the scientific career of graduates, it is an excellent finding that a high percentage of them express in their responses an intellectual growth given by the knowledge of the country's scientific policy that they apply to their performance. An increase in scientific and academic management activities that they face is highlighted, articulated with the research skills they demonstrate, as well as the systematic and growing participation in research projects, and as government advisors for the application of science and technology to government management, although greater involvement as leaders of new projects is desirable.

Significantly, the results indicate a high percentage, 87% in all cases, of professional growth, by participating in scientific events with work derived from their doctoral thesis research and publishing scientific articles in national and international journals, as a result of research projects.

Likewise, it is identified that a percentage of theses, serving as master's thesis advisors at their respective institutions and at other institutions in the country, are integrated into doctoral training activities within the program, serving as advisors, members of evaluation committees for the partial results of doctoral research in thesis workshops, and as final versions at pre-defense events and on scientific degree defense panels. The indicator of active membership in scientific associations and societies both within the country and abroad is noteworthy.

Conclusions

According to the evaluation process conducted regarding the professional and scientific development of the PhD graduates from the Doctorate in Educational Sciences at the University of Matanzas, issues related to the program's value proposition were identified. The population participating in the study is currently performing roles consistent with those studied, which allows us to affirm that the program aims to enhance the professional development of each individual. Similarly, it was possible to identify that academic and scientific activities continue to be carried out, including participation in academic networks and presentations at academic events where PhDs can disseminate the results of their research.

On the other hand, regarding the scientific output of the PhD graduates, it was possible to identify that the graduates remain active in terms of academic output derived from the research they conduct in their workplaces. What is necessary to verify is the impact and frequency with which they achieve publications in high-impact journals worldwide.

In exploring the training process of the Doctoral Program in Educational Sciences at the University of Matanzas, from the perspective of its graduates, new aspects were identified for continuous improvement in the management of the program: the need to perfect the mechanisms so that publications reach a higher level of visibility and ensure the changes that contribute to raising their quality, promote the management of leadership in research projects in accordance with the priorities of the Ministry of Science, Technology and Environment of Cuba, and international calls, to produce new qualities in graduates that enhance the sustainability of the teaching staff and the quality of the educational processes they develop.

As an expression of the levels of satisfaction with the postdoctoral training process, improving the management and granting of doctoral scholarships, the direction of research projects, and participation in international calls for proposals, in accordance with the country's scientific policy, is an issue that requires attention.

Based on the results of the items, a correlation of responses and a grouping were performed, which imply new challenges to be considered in professional and scientific development in doctoral training:

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Regarding Intellectual Growth, the need to plan actions aimed at calling for research grants for knowledge updating and periodic postdoctoral training activities is highlighted; competition for publication of the best theses by the publisher; participation in the program through mentoring and scientific debates; expanding access to other academic networks and maintaining exchanges with graduates from other programs; and projecting the offer of postdoctoral fellowships and scholarships abroad.

Regarding Professional Growth, the emphasis is on open-minded responses regarding the assignment of tasks that contribute to professional and personal development, fostering the sustainability of the doctoral program, inclusion in research projects, diverse sharing of scientific results, and joint publications by graduates and doctoral students from different institutions.

Finally, regarding the level of satisfaction, the responses refer to the sharing among faculty members or research lines of research advances presented by doctoral students at each workshop, the intentional promotion of postdoctoral studies, and the monitoring of the introduction of scientific results.

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