



Original article

Analysis of the management process of doctoral training in three Cuban universities

Análisis del proceso de gestión de la formación doctoral en tres universidades cubanas

Análise do processo de gestão da formação doutoral em três universidades cubanas

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ABSTRACT

Doctoral training is the integrating nucleus not only of substantive university processes (teaching, research and extension) but also of the different forms of postgraduate and guarantor of university quality and, especially, of higher education graduates; hence the need to achieve a more efficient and effective management of this process. The objective of this paper is to identify the factors that limit the management of the doctoral training process at the University of Pinar del Río "Hermanos Saíz Montes de Oca", the University of Cienfuegos and the University of Oriente. Empirical and theoretical research methods were used, as well as the integration of quantitative-qualitative methods and techniques (interview, survey), whose results were triangulated to make the final assessments. The main barriers that limit the management of the doctoral training process in the universities studied are: there is no systematic monitoring of the doctoral training strategy in the areas/departments; lack of objectivity in preparing the doctoral training plan; insufficient communication between the faculty of the doctoral program and the immediate superiors of the doctoral students; little feedback with doctoral program coordinators and doctoral committees; The alliances established between the tutors of different administrative areas/institutions based on the progress of the doctoral student in their research process are not enough; The organization of doctoral students and tutors in research groups and projects is still insufficient; as well as the actions that are carried out based on the internationalization of doctoral training.

Keywords: diagnosis; doctoral training; management.

RESUMEN

La formación doctoral es el núcleo integrador no solo de los procesos sustantivos universitarios (docencia, investigación y extensión) sino de las diferentes formas de posgrado, garante de la calidad universitaria y, especialmente, de los egresados de la Educación Superior; de ahí la necesidad de lograr una gestión más eficiente y eficaz de este proceso. El objetivo del presente trabajo es identificar algunos factores que limitan la gestión del proceso de formación doctoral en la Universidad de Pinar del Río "Hermanos Saíz Montes de Oca", Universidad de Cienfuegos y Universidad de Oriente. Se emplearon métodos empíricos y teóricos de investigación, así como integración de métodos cuantitativos y cualitativos y técnicas (entrevista, encuesta), cuyos resultados fueron triangulados para realizar las valoraciones finales. Las principales barreras que limitan la gestión del proceso de formación doctoral en las universidades estudiadas son: no se le da seguimiento sistemático a la estrategia de formación doctoral en las áreas/departamentos; falta de objetividad en la elaboración del plan de formación doctoral; insuficiente comunicación entre el claustro del programa doctoral y los jefes superiores inmediatos de los doctorandos; escasa retroalimentación con los coordinadores de programas doctorales y los comités doctorales; no son suficientes las alianzas que se establecen entre los tutores de diferentes áreas administrativas/instituciones en función del avance del doctorando en su proceso de investigación; es insuficiente aún la organización de los doctorandos y tutores en grupos y proyectos de investigación; así como las acciones que se realizan en función de la internacionalización de la formación doctoral.

Palabras clave: diagnóstico; formación doctoral; gestión.

RESUMO

A formação doutoral é o núcleo integrador não só dos processos substantivos universitários (ensino, pesquisa e extensão), mas também das diversas modalidades de pós-graduação, garantidora da qualidade universitária e, principalmente, dos egressos do Ensino Superior; daí a necessidade de uma gestão mais eficiente e eficaz deste processo. O objetivo deste trabalho é identificar alguns fatores que limitam a gestão do processo de formação de doutorado na Universidade de Pinar del Río "Hermanos Saíz Montes de Oca", Universidade de Cienfuegos e Universidad de Oriente. Foram utilizados métodos de investigação empíricos e teóricos, bem como a integração de métodos e técnicas quantitativos e qualitativos (entrevista, inquérito), cujos resultados foram triangulados para fazer as avaliações finais. As principais barreiras que limitam a gestão do processo de formação doutoral nas universidades estudadas são: não há acompanhamento sistemático da estratégia de formação doutoral nas áreas/departamentos; falta de objetividade na elaboração do plano de estágio doutoral; comunicação insuficiente entre o corpo docente do programa de doutorado e os superiores imediatos dos doutorandos; pouco feedback com coordenadores de programas de doutorado e comissões de doutorado; Não são suficientes as alianças estabelecidas entre os tutores de diferentes áreas administrativas/instituições a partir do andamento do doutorando em seu processo de pesquisa; A organização de doutorandos e tutores em grupos e projetos de pesquisa ainda é insuficiente; bem como as ações que se realizam com base na internacionalização da formação doutoral.

Palavras-chave: diagnóstico; formação doutoral; gerenciamento.

INTRODUCTION

The academic degree of Doctor is the highest that the university has conferred since its origins. It is in the 20th century when the studies necessary to obtain the degree of Doctor are regulated by different regulations. Regardless of the successive changes of these regulations based on their improvement, it is valid to note that this scientific degree continues to be the highest that the university confers in all countries. In addition, it allows access to the highest hierarchical positions in the teaching career and progressively also constitutes a positively valued merit in the professional career; and, undoubtedly, it represents one of the most important moments of academic and professional life.

In any part of the planet, universities face the task of research and, as part of this process, an important element corresponds to doctoral training in response to both the needs of science itself and the demands of society. University professors carry out projects that allow them to defend their results to be recognized as doctors in science, which implies demonstrating the ability to generate knowledge and models to innovate, develop and direct new or existing projects in the science to which they are dedicated. To achieve this category, they must go through a training process where multiple actors participate and where the applicant or doctoral student and their advisor, tutor or director are protagonists (Arias, 2020).

The doctorate is conceived as part of the research-development-innovation strategy of each university. All doctoral programs are based and articulated in lines of research that are supported by research teams and projects and seeks for the doctoral student to acquire transversal and specific skills that favor their employability conditions inside

and outside the University (Rubio and Hernández, 2018).

Doctoral training is not made up of doctoral courses, but activities aimed at the appropriation of certain skills. As part of the doctoral training process, universities and programs establish their own prerequisites for the defense act.

Aguirre, Castrillón and Arango (2019) offer a grouping of doctoral training trends in terms of accreditation and quality of the best universities in Latin America, identified based on criteria of relevance, context and possibilities of implementation. As part of the emerging tendencies oriented towards accompaniment and support, these authors identify management (optimization and impact) as the increase in the demand for quality control of academic processes and the harmonious integration with administrative ones, in order to: favor the academic community and meet the standards required for accreditations; accompaniment to professional performance and monitoring of the impact; strengthening of the postgraduate collegiate bodies; articulation of different pedagogical models for new skills and self-assessments and accreditation with dynamic and open approaches.

In this sense, considering the relationship that must exist between the objectives of Higher Education and the social requirements that determine its social responsibility, the improvement of the management of the doctor training process is a current need (Funcia and Albuja, 2016).

The training of doctors in Cuba has been the object of study by researchers such as Llanio, Peniche and Rodríguez (2008), who offer some guidelines for professors and researchers, related to admission to the doctorate, the development of the thesis

work, essential requirements, exams, acts of pre-defense and defense, just to name a few.

Getting teachers who are part of the faculty in Higher Education institutions to enter the doctoral training process has been a challenge to raise the levels of professionalization and the quality of the educational process. In this regard, Hernández, Rodríguez, Piñón, del Canto, Guerra and Portela (2009) state that this "qualifies them to develop complex research projects and to fulfill a role of intellectual leadership that allows irradiating in specific situations, an appreciable accumulation of knowledge Hence its importance for the development of a country" (p. 1).

An element of great significance in the Cuban context has been the creation of the Preparatory Schools for Doctoral Training (EPFD), aimed at achieving the preparation of teachers, mainly the youngest, for admission to a doctoral program, of in such a way that once enrolled they achieve a successful progression, which allows them to conclude in the planned time. According to Jiménez (2017), in the European context the experiences in this regard have been very valuable.

Among the main institutions in Cuba that present favorable results with respect to Preparatory Schools, the universities of Guantánamo (Durand, Hernández and Matos, 2015) and Pinar del Río stand out, although currently almost all universities have formalized some type of program at regard.

In the current contexts, doctoral training in Cuba is in an updating process, based on Decree-Law No. 372 "Of the National System of Scientific Degrees" (Council of Ministers, 2019), dated March 25, 2019 and Resolution No. 139/19, of the Minister of Higher Education, where the organization and operation of the National System of Scientific

Degrees (MES, 2019) is established, as well as the structure, composition and operation of the National Commission of Scientific Degrees (CNGC), by proposing new guidelines that enhance the training of doctoral students from collective work in groups and in research projects.

Based on this, it is necessary to carry out a transformation process within the universities and their doctoral programs, which allows them to appropriate the best national and international practices that, creatively implemented, will form a new culture in the actors of this complex and particular training process, to ensure that future graduates have a scientific performance at the height of the historical moment in which they live.

This problem is present in the three universities participating in the project "Improvement of doctoral training and its contribution to development", belonging to the Higher Education Sector Program "Higher Education and sustainable development". These universities are: the University of Pinar del Río "Hermanos Saíz Montes de Oca" (UPR), the University of Cienfuegos "Carlos Rafael Rodríguez" (UCF) and the University of Oriente (UO).

Project meetings have been held on a monthly basis, with face-to-face elements, which allow exchanges between researchers from the three aforementioned universities. In this space, an initial exploratory study has been organized and socialized, through face-to-face interviews and mediated by technologies (WhatsApp groups, email, among others), which allowed an approach to the protagonists of the investigated formative process, to determine some of the causes that caused the problems identified, with the use of the Vester Matrix as a research technique. In this sense, the universities participating in the project agreed to identify the following causes:

- Even when there are high levels of enrollment of doctoral students, both internal and external, an efficiency in the process that allows guaranteeing the reproducibility and replacement of doctors in the university context is not achieved.
- The insufficient preparation of the cloisters to assume the implementation of the changes and transformations approved for doctoral training.
- Low level of computerization of the doctoral training management process in each program.
- Insufficiencies in the management of the doctoral training process.
- Non-compliance in the times of the scientific research process, which lead to not carrying out evaluation processes of the effectiveness of the results in social practice.
- Insufficient dedication to the doctoral training process by doctoral students (time to research and study), faculty and institutions of origin.
- Insufficient application of science and technology in solving the problems of production and services, leading to conducting research for a scientific degree.

Based on this problem, an empirical diagnosis was made that allowed us to delve into the problems of the doctoral training management process in the three universities involved, which constitutes the objective of this work.

MATERIALS AND METHODS

A qualitative investigation was carried out, which uses qualitative and quantitative methods (mixed approach) in an integrated way, as well as techniques, the results of

which were triangulated to make the final assessments.

For the development of the diagnosis of the management process of doctoral training at the University of Pinar del Río "Hermanos Saíz Montes de Oca", the University of Cienfuegos "Carlos Rafael Rodríguez" and the University of Oriente, two instruments were applied: an interview and a survey. The diagnostic study lasted approximately three months, in the period between April, May and June 2022.

Purposive sampling was used to determine the sample size; Subsequently, stratified random sampling was applied, considering each university as a stratum.

The interview was applied to directors of the authorized institution and administrative areas and the survey to coordinators of doctoral programs, members of doctoral committees and faculty.

At the University of Pinar del Río "Hermanos Saíz Montes de Oca", the interview was applied to:

- Vice Chancellor for Research and Graduate Studies.
- Research Director.
- President of the Commission for Scientific Degrees.
- Vice President of the Commission for Scientific Degrees.
- Dean of the Faculty of Economic Sciences.
- Vice Dean of Research and Graduate Studies of the Faculty of Social Sciences and Humanities.
- Head of the Accounting and Finance Department.

At the University of Cienfuegos "Carlos Rafael Rodríguez", it was applied to:

- Coordinator of the Doctoral Program in Educational Sciences.
- Coordinator of the Doctoral Program in Social Studies of Science and Technology.
- Coordinator of the Local and Territorial Development Doctoral Program.
- Coordinator of the Doctoral Program for Sustainable Energy and Industrial Technologies.
- Coordinator of the PhD Program in Physical Culture Sciences.
- President of the Commission of Scientific Degrees of the University.
- Graduate Director.
- Quality Manager.
- Director of the School of Doctors.
- Two professors from the Group of Scientific Degrees.
- Rector.
- Vice Chancellor for Research and Graduate Studies.

At the Universidad de Oriente, this instrument was sent by email to the following areas:

Area	Amount
Vice-Rector for Research and Graduate Studies	3
Grades Commission _ Scientists	2
Program Coordinators _ doctoral	6
Program Secretaries _ doctoral	5
Directors of ECTI and Study Centers	4
Members of the project, belonging to the CGC	2

Informally, other doctors and researchers who participated as members of doctoral committees were interviewed, in a total of seven. From the interviews sent by mail, 15 responses were received.

RESULTS

Results of the interview application

The main results derived from the application of the interview are shown below:

Assessment of the doctoral training strategy of the university/area

Most of those interviewed agree that the doctoral training strategy is designed to increase the number of doctors in the faculty with the highest possible quality, and takes into account the logic of the management process: planning, organization, execution and control. It is characterized by its flexibility, which makes it possible to update it permanently.

The strategy is very adequate and pertinent. Work has been going on for a long time, with adjustments based on the changes in terms of new resolutions, although this does not mean that its derivation to the grassroots level is in line with the strategy. It is not given a systematic follow-up in the areas as it is done from the University (there is no evidence in this regard).

It reflects in a qualitative and quantitative way the guidelines for meeting the goals of admissions and doctoral defenses, although it needs greater awareness on the part of the actors and decision-makers and prioritization of the activities that guarantee their fulfillment.

It is based on the voluntariness of the professors and not on the need that all university professors must get to do a doctorate. Sometimes interest is not given to the area of knowledge in which the teacher must be trained to guarantee relief in each of the disciplines of the career, many times it is due to office work and not to a participatory exercise where teachers plan their life project at the University, so there is not

always justice in terms of who is given the opportunity first and who is given the opportunity later.

Other criteria reveal that work must continue on its improvement at the level of each department. The process of shaping the strategy should not be just an administrative process, the doctoral committees should be involved. There are causes and conditions that are not specific to the faculty or the university. Some professors do not want to become doctors, they are not motivated by this process, beyond its administrative and scientific component.

Compliance with the annual defense plan for doctoral theses in the area/institution

According to the criteria of the interviewees, none of the three universities complies with the doctoral training plan. The factors that most influence in the breach are:

- A defense plan is prepared by the administrative departments, without having contacted the doctoral program to find out their real situation.
- Lack of objectivity when preparing said plan, since doctoral students still lack the requirements to move on to the final stage of pre-defense and defense.
- Full-time releases for doctoral training are exceptional.
- Insufficient communication between the faculty of the doctoral program and the immediate superiors of the doctoral students.
- Cuban migration abroad and to other sectors of the economy.
- The individual responsibility of the candidates.
- Changes in the work system, caused by COVID-19.

- Lack of projects at the level of departments and faculties.
- Problems with admission to doctoral training.
- Non-compliance with the doctoral training strategy in the teaching departments.
- There is bureaucracy and delays in the decisions of some of the Doctorate Committees, as well as difficulties in forming courts.
- The mismatch in discourse and practice between a strategic task in the institution such as doctoral training and the actions that must be carried out to comply with this strategy.
- The deviations of the planning, execution and control of activities that doctoral students must carry out by the administrative managers of their areas, which cause little availability of time to complete the activities that are required in doctoral programs and the consequent slowness in the advancement of doctoral students
- The statement of strategic objective and priority is considered and reaffirmed at the level of the directions and strategies, but the behavior is not the same at the level of the areas.
- At the level of the faculties and areas, there is little feedback with some doctoral program coordinators and doctoral committees.
- Doctoral students have not been instilled in the personal responsibility they assume when joining this process and many wait until they are released to put themselves in function of the culmination of the doctoral process.

Institutional support mechanisms to contribute to scientific production (publications), participation in events and obtaining doctoral research grants

In the opinion of the interviewees of the diagnosed universities, the following actions are carried out in this regard:

- The event plan approved by the MES for the entire country is socialized and international events that each university holds every year in different areas of knowledge are taken advantage of.
- Universities support doctoral students with expenses for participation in events.
- Workshops are held in all areas to develop skills in searching for journals, writing scientific articles and their publication, the use of bibliographic managers, bibliographic consultation in English that help the doctoral student in the publication and socialization of the results.
- Calls for doctoral scholarships are publicized, giving priority to professors in doctoral training who research topics related to strategic sectors, based on a procedure for granting scholarships (UPR).
- Socialization of scientific journals by areas of knowledge.
- University journals are presented as a possibility to publish at least one of the two articles that are required as a minimum; although the UO considers that the journals they have do not cover all the doctoral programs they have. In the check-up meetings between the rector and the doctoral students, this is one of the aspects that is monitored.

Assurance in the areas to facilitate doctoral training

It is the opinion of the interviewees that, in principle, insurance is available to facilitate doctoral training, mainly in some areas (social sciences, education). In the technical sciences, the necessary requirements for the development of their investigations are not always available.

With respect to physical assurances, these are available in fewer and fewer areas, although it is always a question of finding a solution, but the availability of computers in most departments is increasingly scarce; likewise, laboratory equipment and reagents, means of transportation and fuel for field work, among others.

The financial assurance that research projects could previously provide is now practically nil, due to the limitations in this sense and the high prices of registration fees for events, for example, or for participation in networks, where it is the institutions that must register and arrange payment for your teachers.

Participation in networks is part of the credits that doctoral students must achieve at UCF and, currently, management is practically personal. This activity is not only important for doctoral students, but for scientific research in general, they are very important exchange spaces for national and international scientific updating. The institution should project itself in this sense as other universities do.

In the UPR, the interviewees express, there is motivational support and from the material point of view by the senior management of the center. Work should be concentrated on monitoring the heads of areas of their doctoral students, based on accountability of the progress of their investigations.

At the UO they have excellent conditions for the progress of the doctoral training process: face-to-face and telepresence rooms for the development of work sessions, pre-defenses and defenses. All programs are assigned a PC and a Data Show for the development of process activities. All faculties have at least one postgraduate classroom, where daily activities are carried out.

Logistics required to carry out acts of pre-defense and defense with elements of telepresence

pre-defense and defense acts with elements of telepresence, although the UPR considers that the computer scientists in the areas should be trained so that these activities can be carried out successfully.

At UCF, it is proposed that these conditions could be improved due to the significance they have in the process and their growth in the current circumstances, characterized by power outages and connectivity problems.

Control of documentation of doctoral students

Some interviewees from the UPR consider that what is established is that the control of the documentation is carried out by the teaching secretary of the faculty; however, in various programs it is the coordinators who have part of the documentation, which is why there are difficulties with it.

There must be greater control by the Doctoral Committee of each program, although it is planned that these records will be concentrated in a postgraduate secretariat at the University level. The computerization of these processes will also help in this sense.

The heads of areas must control the files of the doctoral students in a more systematic way. At the UO, all documents are kept

through the postgraduate secretary of the institution and at UCF in the teaching secretaries of the faculties to which the Doctoral Program belongs, which are periodically audited by the Commission for Scientific Degrees of the institution.

Alliances between tutors from different administrative areas/institutions based on the progress of the doctoral student in their research process

It is considered, by the interviewees of the UPR, that when doctorates are carried out with co-tutorship, in most cases, collaborative relationships are established between the tutors, especially when they are from different areas of the university itself.

Others consider that not enough alliances are established. This topic should be prioritized. Ideally, in the faculty of the programs there are doctors from different areas of knowledge, contributing to a greater integration of the research process.

It is important to maintain institutional communication with tutors and coordinators of doctoral programs of the institutions where UPR professors are enrolled. Monitoring the progress of doctoral students' theses, especially those enrolled in other institutions, must be part of the area's work system.

At UCF, professors from other areas and institutions are part of the cloisters of the doctoral programs and alliances are taken advantage of, they have excellent relations with the University of Havana, the University of Matanzas and the "Marta Abreu" Central University of The Villas, among others.

For their part, those interviewed from the UO consider that in all doctoral programs there are members of the faculty and/or the doctoral committee who belong to other institutions of the MES system and other

organizations and institutions. In all the programs, tutoring is carried out by more than one tutor and, in some cases, between doctors from different areas and institutions. In the case of basic and technical sciences, they agree on the use of test ranges and laboratories from other institutions to carry out experiments that require specific certifications.

Actions that are established with the candidate examination boards

At the UPR there is an agreement with the courts to only examine those who have already entered doctoral training, as well as to make an offer of dates and integrated preparation for all programs annually, and the quality of their work is monitored by the Commission of Scientific Degrees. This facilitates the design of the individual training plan for each doctoral student. Readjustments to the annual planning are made if necessary. Similarly, credits for validation are granted, as established by the regulations, when the case requires it.

The UO has a certified language center in the case of doctoral students who carry out research grants in foreign institutions that require it.

Assessment of the organization of doctoral students and tutors in research groups and projects, based on their doctoral training

Organizing the training process based on related research projects is essential to achieve the development of the necessary investigative skills, to advance without difficulty in its process, since it allows the exchange between doctors and doctoral students of different preparation, without any of them I fell behind.

Most of the interviewees from the UPR and UCF consider that the organization of

doctoral students and tutors in research groups and projects is still insufficient. Sometimes, participation in projects is merely formal. Not all projects work the same way; It has not been systematic, in general. They do not constitute a space for exchange, from the multidisciplinary point of view.

It is necessary to gain awareness from the project and the research group in that, as part of the team, there are doctoral students who are being trained to defend a thesis and, based on that, they must be given prioritized attention and ensure that they are constantly exposing their results in scientific sessions, that the sessions established in the program are met to achieve the granting of credits.

There is no evidence that all areas work in the same way.

At the UO, the majority considers that work is carried out by lines and research groups, which does not mean that in the projects the participants are accountable and hold scientific sessions or that they, where appropriate, participate in the work sessions of the doctoral students in question.

Follow-up that is given to doctoral students in the stage that goes from the pre-defense to the defense of the thesis

At this stage, the fundamental action corresponds to the review commission and the follow-up of the delivery dates by the coordinator of the doctoral committee.

It is necessary to gain more in the way in which the thesis is reaching pre-defense, it is necessary to be more rigorous in the thesis workshops, so that enough progress is made and when it is decided that the doctoral student is in a position to pass to pre-defense it is because he really is ready to defend. This is influenced by the fact that time is running out, that they want to comply with their

training plans, but this cannot influence the quality of the process.

Actions for the internationalization of doctoral training

The interviewees state that actions are being carried out for the internationalization of doctoral training, although it is not yet possible to speak of generalized results. Among them are : _ _

- jointly supervised training agreements for doctors.
- Make calls for admission to programs in Cuba for foreign students.
- Stimulate the search for calls for research grants during the training of doctoral students.
- Exchanges between teachers.
- Search for postdoctoral training grants for the faculty.
- Co-publications with universities where there are agreements.
- project management _ international.
- Several members of the faculty have worked as reviewers in scientific journals from other latitudes.

Although actions have been carried out, it still constitutes a weakness in the universities analyzed. There is no conception in the areas and in the institutions that internationalization has to be the basis and that tutoring has to be worked on jointly, it has to go beyond scholarships.

More actions can be carried out, especially in the order of joint supervision, since it greatly helps the possibility of academic exchanges based on doctoral training; also, from the point of view of projects that can materially support the programs.

It is also necessary to think nationally. There are very strong universities in the country in doctoral training and there are no exchanges of specialists between universities to give

lectures, participate in workshops, thesis seminars, among other actions.

Another element is the post-doctorate, since there is passivity in this regard. Some young doctors have completed postdoctoral training stays, but these have been isolated cases; more massiveness is needed in this sense. Encouraging areas and stages to strengthen the updating that the doctor requires from a doctoral training program is necessary. This ultimately has an impact on the tutorials, since the doctors would be more prepared to carry out this process.

Results of the survey application

The survey was applied to the following UPR doctoral programs: Educational Sciences (10 members of the Doctoral Committee), Forestry Sciences (six members of the Doctoral Committee) and Economic Sciences (eight members of the Doctoral Committee). The application of this instrument during the following results :

- 100% (24) consider that there is a doctoral training strategy of the university/areas.
- 62.5% (15) state that this strategy is in correspondence with the quality pattern of the JAN; while 37.5% (9) consider that it corresponds to some extent.
- 87.5% (21) report that the annual doctoral defense plan exists and is fulfilled.

Regarding the existence and operation of institutional support mechanisms for doctoral training, those surveyed affirmatively expressed that the socialization of results and obtaining credits corresponding to publications is achieved in 83.3% (20); participation in events by 75% (18) and obtaining scholarships by 62.5%.

The assurance of means for the work of the doctoral students and their evaluation activities was affirmatively stated by the percentages that are detailed in the items below:

- a) Computers: 66.7% (16 teachers).
- b) Premises: 79.2% (19 teachers).
- c) Media projection: 62.5% (15 teachers).
- d) Internet and bibliographic access in general: 70.8% (17 teachers).
- e) Management of human resources in the areas for the release of doctoral students: 91.7% (22 teachers).
- f) Conditions for pre-defenses and defenses with telepresence elements: 66.7% (16 teachers).
- g) Support in transportation and food: 75% (18 teachers).

95.8% (23) consider that there are groups and projects linked to the research lines of the program, with the potential of doctors (tutors) for the insertion of doctoral students and that there is an effective work of the tutors related to the organization, control and accompaniment throughout the training process.

100% (24) of the respondents state that there are documents of the doctoral training process and that they are shared with the doctoral committee, faculty and doctoral students, related to: regulations for doctoral training, program, Individual Training Plan, minutes of meetings of the Doctoral Committee, documentation for the granting of credits and documents established for the relationship with the CGC (authorization and control of pre-defenses and defenses, file closures, extensions, among others).

91.7% (22) rate the offers of options for the granting of compulsory and optional credits in the program as adequate, achievable according to the diversity of doctoral students. The same assessment was given by those surveyed to the flexibility of the program.

In relation to the existence and operation of support mechanisms at the level of the authorized Area and Doctoral Committee for doctoral training, the following elements were expressed:

- For the socialization of results and obtaining of corresponding credits, it was raised affirmatively taking into account the percentages that are detailed in the items below:

- a) Publications: 91.7% (22 teachers).
- b) Participation in events 83.3% (20 teachers).
- c) Obtaining scholarships: 75% (15 teachers).
 - To carry out the candidate exams: 100% (24 teachers).
 - Regarding the assurance of means for doctoral student work and evaluation activities:

- a) Computers: 58.3% (14 teachers)
- b) Premises: 75% (15 teachers)
- c) Media projection: 54.2% (13 teachers)
- d) Internet and bibliographic access in general: 87.5% (21 teachers)

83.3% (20) consider that the organization in groups and research projects by lines (work of doctoral students, tutors and faculty, within the projects) is good. The respondents

give the same rating to the presence of guiding standards for doctoral training in projects.

100% (24) stated that there are guiding rules for the drafting of the written document.

From the application of both instruments to different actors linked to the doctoral training management process in the diagnosed universities, the following regularities can be summarized:

· Regardless of the fact that the existence of a doctoral training strategy is recognized, it is not given a systematic follow-up in the areas/departments as is done by the university management.

- The main problems that affect non-compliance with the doctoral training plan are: lack of objectivity in its preparation, insufficient communication between the faculty of the doctoral program and the immediate superiors of the doctoral students, the individual responsibility of the doctoral students, low motivation of the doctoral students, little feedback with doctoral program coordinators and doctoral committees, among others.
- Regardless of the fact that alternatives are sought for the material assurance of the doctoral training process, this is not always available in all areas.
- The alliances established between the tutors of different administrative areas/institutions based on the progress of the doctoral student in their research process are not enough.
- The organization of doctoral students and tutors in research groups and projects is still insufficient. The projects do not constitute a space for

exchange, from a multidisciplinary point of view, for the training of doctoral students.

- The actions carried out based on the internationalization of doctoral training are insufficient.

DISCUSSION

The problems detected in the investigated doctoral programs are in correspondence with some of the features that typify postgraduate and doctoral training at an international level. As trends are: the internationalization of Higher Education, through postgraduate and doctoral training; linking doctoral training to solving sustainable development problems; the need for financing for doctoral training; ethics and integrity in research as a central point in training; the need to sustain the quality of training and the consideration of doctoral training as a priority for universities. Among the challenges: define strategic priorities in the research lines of the programs, which aim at solving the most urgent sustainable development problems in their environment; seek in future doctors the development of capacities to assume ethical, environmental and social responsibility (Pérez, Pulido and Ordaz, 2022).

The management of doctoral training in Cuba acquires a relevant role in the socioeconomic conditions that the country is going through, while the design and implementation of scientific results that promote its economic and social development are required.

The application of diagnostic instruments in the universities of Pinar del Río, Cienfuegos and Oriente, in order to analyze the management of the doctoral training process, produced a group of regularities to be prioritized by the management of these institutions, in order to contribute to the

training of a greater number of doctors in sciences from different areas of knowledge, who contribute with the investigative skills acquired to the development of their territories.

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The authors declare not to have any interest conflicts.

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The authors participated in the design and writing of the work, and analysis of the documents.

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