MENDIVE
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The professionalism in the professional orientatio n towards the Bachelor in Education. Physics, pre-university education

La profesionalidad en la orientación profesional hacia la carrera licenciatura en Educación. Física en la educación preuniversitaria

A profissionalidade na orientação profissional para a obtenção de uma licenciatura em Educação Física, Educação Pré-Universitária

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ABSTRACT
In recent years, the Bachelor of Physics. Education at the University of Pinar del Río "Hermanos Saíz Montes de Oca" fails to meet the established entrance requirements and the students enrolled show low levels of motivation and identification with this specialty. This situation reveals insufficiencies in the process of pedagogical professional orientation that is carried out before the university and especially by the Physics teachers of the pre-university education. The present work delves into this subject and aims to carry out a diagnostic study of the professionalism of these teachers, so that it reveals the main educational needs that must be addressed for their improvement. For this purpose, theoretical and empirical methods were used, such as analysis and synthesis, indication and deduction, modeling, document analysis, survey and interview, as well as descriptive statistics for information processing. As a result, the model of professionalism in the pedagogical professional orientation towards the bachelor in Education career .Phisics, as well as the strengths and weaknesses that characterize its current state. From the study carried out, it is concluded that the identified weaknesses constitute educational needs, since they determine the limited and no systemic character of the professional orientation process developed by Physics teachers, as well as their disarticulation from the teaching-learning process of this subject. The main educational needs are in the cognitive-affective, guidance-persuasive, research-technological and managerial-evaluation order.

Keywords: professionalism; professional pedagogical orientation; diagnosis; educational needs.

RESUMEN
En los últimos años, la carrera Licenciatura en Educación. Física de la Universidad de Pinar del Río "Hermanos Saíz Montes de Oca" no logra cumplir con

los planes de ingreso establecidos y los estudiantes matriculados muestran bajos niveles de motivación e identificación con esta especialidad. Esta situación revela insuficiencias en el proceso de orientación profesional pedagógica que se realiza previo a la universidad, especialmente por los profesores de Física de la educación preuniversitaria. El presente trabajo profundiza en esta temática y se plantea como objetivo realizar un estudio diagnóstico de la profesionalidad de dichos docentes, de modo que revele las principales necesidades educativas que deben ser atendidas para su perfeccionamiento. Para ello se utilizaron métodos teóricos y empíricos como el análisis y la síntesis, la inducción y la deducción, la modelación, el análisis documental, la encuesta y la entrevista, así como la estadística descriptiva para el procesamiento de la información. Como resultado se presenta el modelo de la profesionalidad en la orientación profesional pedagógica hacia la carrera Licenciatura en Educación. Física, así como las fortalezas y debilidades que caracterizan su estado actual. Del estudio realizado se concluye que las debilidades identificadas, constituyen necesidades educativas, ya que determinan el carácter limitado y asistémico del proceso de orientación profesional que desarrollan los profesores de Física, así como su desarticulación del proceso de enseñanza-aprendizaje de esta asignatura. Las principales necesidades educativas se encuentran en el orden cognitivo-afectivo, orientador-persuasivo, investigativo-tecnológico y directivo-evaluativo.

Palabras clave: profesionalidad; orientación profesional pedagógica; diagnóstico; necesidades educativas.

RESUMO

Nos últimos anos, a carreira de Bacharelato em Educação. A Física na Universidade de Pinar del Río não cumpre os requisitos de entrada estabelecidos e os alunos matriculados demonstram baixos níveis de motivação e identificação com esta especialidade. Esta situação revela insuficiências no processo de orientação profissional pedagógica que é realizado perante a universidade e, especialmente, pelos professores de Física da educação pré-universitária. O presente trabalho aprofunda este tema e visa realizar um estudo diagnóstico do profissionalismo destes professores, de modo a revelar as principais necessidades educativas que devem ser abordadas para a sua melhoria. Para o efeito, foram utilizados métodos teóricos e empíricos, tais como análise e síntese, indicação e dedução, modelação, análise documental, inquérito e entrevista, bem como estatísticas descritivas para o tratamento da informação. Como resultado, é apresentado o modelo de profissionalismo na orientação pedagógica profissional para a carreira de Física, bem como os pontos fortes e fracos que caracterizam o seu estado atual. Do estudo realizado, conclui-se que os pontos fracos identificados constituem necessidades educativas, pois determinam o carácter limitado e assistencial do processo de orientação profissional desenvolvido pelos professores de Física, bem como a sua desarticulação do processo de ensino-aprendizagem desta disciplina. As principais necessidades educativas encontram-se na ordem cognitivo-afetiva, orientação-persuasiva, investigação-tecnológica e gestão-avaliação.

Palavras-chave: Profissionalismo; orientação pedagógica profissional; diagnóstico; necessidades educativas.

INTRODUCTION

The Economic and Social Policy of the Party and the Cuban Revolution Cuban collects in their guidelines the social necessity of continue rising quality and rigor of the process teaching - education in all educations and training of the teaching staff needed by each province and municipality (Partido Comunista de Cuba, 2017).

For the university to respond successfully to this social demand, it must guarantee compliance with the entrance plans established for each career, which leads to develop a systematic and deep work of pedagogical professional orientation from the different educational subsystems and especially in pre-university, which is the level where the career choice is made.

In the present work the Bachelor of Education career. Physics, of the University of Pinar de Rio "Hermanos Saíz Montes de Oca" is specialized, specialty where it has breached plans income in recent years and where students who enroll do with low motivation and identification with the career , indicators affecting retention and promotion and the response to the demand for teachers in the secondary and pre university educations.

This situation has the existence of insufficiencies in the process of professional pedagogical orientation that is done in the pre-university education and especially for teachers of physics, due to deficiencies in their professionalism to the direction of said process , which manifest themselves both in the order of their educational training , as in the professional performance; insufficiencies that has not been identified with rigor and addressed through professional development or other means.

While professional pedagogical guidance is a process that can be conceived and directed from different school and extracurricular scenarios, the most important, no doubt, is the one that is done systematically from the subjects of the curriculum, question addressed by authors like Domínguez, Betancourt and Becalli (2016); Espinosa, Villanueva and Rodríguez (2018); Hernández, Becalli and Rouco (2018) and Mestre and Lazo (2018), who highlight the role of the teacher and assign the class a leading role in the professional orientation process.

In general, the professional orientation i n the school environment has been studied from different approaches and points of view. Among the authors consulted are Aveiga, Rodríguez and Segovia (2018); Barrera, Reyes and Cueto (2018); Del Pino (2009) and Ram os y Breijo (2017). These works show the deep and systematic scientific work undertaken on vocational guidance and recognizes its psycho pedagogical essence, personological and integral approach and, above all, its social character, closely linked to the personality development of students (Barrera, Reyes and Cueto, 2018).

For Del Pino (2009), professional orientation implies a relationship of help to the student that favors the development of their professional identity . This process occurs through different techniques and pathways, which are integrated into the general educational process, according to the evolutionary stage in which the student is.

According to the above, career guidance has a profound humanist conception that

puts the student in its center and demands the teacher as facilitator, to create the conditions and levels of information necessary for this to express free, consciously and responsibly their vocational and professional likes .

The professionalism of teachers in this field can not only be understood as its expertise and mastery of science that they explain, but also for his human qualities, love and the respect that expresses their profession (Samuel, Keeling and Vera, 2015).

It should not be forgotten the fact that the professional orientation that is carried out in the pre-university education stage has as its essential purpose to achieve the preparation of the student to select a specific career and identify to with it, that is, to create true interests and emotional links with the future profession, needing to provide the necessary assistance to confront and solve successfully the conflicts that this complex process generates.

The pedagogical professional orientation, as a specific type of vocational guidance, is conceived as "The system of educational influences aimed at stimulating teaching vocation among students, admission to the careers of this profile and permanence and development in them. It must include helping the student in the complex process of defining his life project, taking into account this social priority" (Del Pino, 2009, p. 26).

According to Del Pino (2009) and Mestre y Lazo (2018), this process must be systematically and professionally planned, it must be sequenced, attend to personal enrichment and be centered on the student; that is why it must start, from the preparation of each school year, establishing priorities, assuming the diagnosis of students and families as a starting point, and including activities from all settings, where the class should have a main role.

The task of perfecting the process of vocational guidance from the classes of Physics in pre-university education happens, first by a diagnostic study of the professionalism of these teachers for pedagogical direction of this process, which permit a determination of educational needs that must be attended from the professionalization processes , as part of continuous training, to guarantee the acquisition of the corresponding competences (Samuel *et al.*, 2015).

In this process of professionalization or improvement of pedagogical professionalism, professional improvement must be harmoniously combined with scientific- pedagogical activity and techn ical -methodological work carried out at school, hence it is a process with a systemic approach and ai med at professional and human improvement (Valiente, 2005).

The diagnosis of professionalism of Physics teachers of pre - university education in teaching vocational guidance, within a systemic concept of professional development (Valiente, 2005, Arredond o, Uribe and Wuest, 1979), requires as a first step determining the model of such professionalism.

According to these authors , the model of professionalism serves as a reference pattern, since it is the model of professional preparation and performance to which it aspires, while identifies the professional competencies and qualities that the teacher must have.

Here professional competitions expressed the capacity of the teacher to integrate knowledge,

abilities, values and attitudes in solving the problems of the direction of the process of teaching vocational guidance (Diaz, 2016).

The diagnostic study that is proposed is the synthesis of the main educational needs of Physics teachers, which provides criteria to assess the state of their
professionalism (Valiente, 2005 and Arr edondo *et al.*, 1979).

From there it is understood that the educational needs arising from the conflict situation created by the lack of established correspondence between the model of professionalism , "what should be" and the real professionalism diagnosed or current situation "what is" (Añorga, 2014).

The contradictory situation presented above, expressed in the lack of correspondence between the current results of the process of pedagogical professional orientation towards the Bachelor of Education career. Physics in pre-university education and the social need to increase the quality and quantity of the graduates of this specialty, from perfecting the professionalism of these teachers, together with the theoretical considerations addressed, led to the approach of the following scientific problem: ¿ How to contribute to the development of professionalism in the pedagogical professional orientation towards the Bachelor of Education career. Physics, of the teachers of this subject in pre-university education in the municipality of Pinar del Río?

As an objective in this work, it is proposed to carry out a diagnostic study of professionalism in the pedagogical professional orientation towards the Bachelor of Education career. Physics of the teachers of this subject in pre-university education in the municipality of Pinar del Río, so that it reveals the main strengths and weaknesses that characterize its current state and the educational needs that must be met in the professionalization processes for the improvement of this guiding function.

MATERIAL AND METHOD

For the development of the research work, it was taken into account the dialectical-materialist approach, which allowed conceiving the process of pedagogical professional Guidance in all its complexity and in relation to the development of professionalism of teachers. Being able to penetrate this object of study facilitated the determination of more specific methods of the theoretical and empirical level of knowledge, to which statistical methods for the processing of the obtained experimental data are added.

In the theoretical order, research methods such as analysis and synthesis were used, which allowed us to conceive the process under study as a whole and its decomposition into parts for a better diagnosis and understanding of the elements to be transformed.

Induction and deduction method used for establishing linkages between different theoretical positions on professional pedagogical guidance, which facilitated operationalization of professio nalism as variable study.

The method of modelation was used for the determination of the model of professionalism in the professional pedagogical orientation towards Education Degree. Physics, in pre- university education, emphasizing its dimensions and

relationships with the teaching- learning process of the subject of Physics.

In the empirical order, methods as documental analysis for information on the pedagogical professionalism and the professional orientation, from the documents containing the background of this process, regulatory and methodological guidelines set by the Mined.

The survey to physics teachers and managers and the group interview with students, families and teachers served to assess the level of professional preparation and performance of teachers in the process of pedagogical professional orientation and inquire about the causes of the lack of motivation of students for this career.

In the empirical information processing, procedures of descriptive statistics, such as using frequency tables, the percentage and measures of central tendency calculation were used.

The research was contextualized in the pre-university education of the municipality of Pinar del Río, having as universe a total of six urban pre-university students. These centers collect a total of 2359 students and 24 teachers in the course 2019 2020. From this universe were sampled, in a random way, a total of 353 students (three groups per center), 4 8 family (three family-oriented schools) and 15 teachers. There was also included in the sample 12 educational executives.

RESULTS

The first result of the work is the determination of the professionalism model of Physics teachers for the direction of the pedagogical professional orientation process towards the Bachelor of Education career. Physical. For this, the works of authors such as Barreno, (2011), Samuel *et al.*, (2015) and Mestre and Lazo, (2018), which were adapted according to the stated objective.

The model of teaching professionalism that builds, while taking into account the knowledge and professional teaching skills necessary the teaching work must include the qualities, attitudes, behavio rs, responsibilities and duties that enable teachers of Physics fulfill the role of counselors or facilitators in their professional performance.

Following the ideas of Samuel *et al.* (2015), the personal qualities that should be part of the professionalism of teachers for vocational guidance physics teaching are the following:

Cognitive and executive: related to the mastery of professional knowledge and skills necessary to direct the teaching- learning process of Physics for the benefit of professional pedagogical orientation towards this career.

Affective and volitional: related to feelings of love and respect for the profession; to have feelings of identity with society, wanting to be a professional in education and that their students are an entrepreneur and with a desire to improve and constantly seek to solve problems.

Ethical and behavioral : related to the example of the teacher, the demonstration of principles and values of high personal and social significance in professional pedagogical performance; personal, social and professional behavior as a highly

prepared, conscious and responsible teacher of his place and professional work.

The full development of these qualities in the pedagogical vocational guidance process requires that the professionalism of the teacher, in addition to the pedagogical professional values that determine and condition professional performance, include the following aspects:

- The knowledge and professional skills for the diagnosis of the factors involved in the process.
- Knowledge about the professional pedagogical orientation as a process and its particularities in the case of the career Degree in Education. Physics.
- Professional knowledge and skills for the development of a teaching - learning of physics that favors the formation of cognitive interest, vocational and teachin g professional to this specialty.

Diagnosis of the factors involved in the process

The diagnosis of the context in which the process of vocational teaching guidance develops must be directed to the identification of internal and external factors that may favor or limit this process for the subsequent intervention of the teacher. (Barreno, 2011)

- **Internal factors:** they are part of the personality of the students; among them, vocational and professional interests, inclinations towards certain careers, hobbies, attitudes and aptitudes towards the pedagogical profession.
- **External factors:** Among them, the family, the social environment in which the student develops (circle of friends, their, behaviors and attitudes), the school environment (organization, discipline, working conditions and study, etc. etc.), new technologies, among others.

The family factor is of a great importance for the example that it represents and the level of influence it has on the student, which could be positive or negative according to the profession of their parents and family traditions. As for pedagogical careers, the family generally offers a certain rejection, which is influenced by different factors such as poor social recognition of teachers and the false concept of the profession of teacher. The intervention of the teacher on these aspects must take into account the possibilities offered by the family-oriented schools and visits to the homes of the students.

New technologies are another external factor of great importance, due to the degree of acceptance and influence it has on students. The process of teaching professional orientation can not give up the potential of these means, which is why the development of professionalism of the teacher should include pedagogical training necessary for its proper use in classes, as may aid in the search and exchange of information on pedagogical careers, the university, Physics as a science, its applications, and especially in the dissemination of activities carried out by students.

Knowledge about professional pedagogical guidance as a process

The knowledge about the orientation teaching professional as a process and its particularities for the case of the career Degree in Education. Physics, must include mastery of the main pedagogical, didactic and psychological foundations of this

process, the characteristics of the stages according to the psychological development period of the adolescent, methods and counseling techniques, ways to work with the family, procedures and techniques for diagnosing interests, motivations and professional projects; The domain about the profession and its study plans (professional model: object of the profession, modes of action, professional functions, field performance, training objectives, training components, etc).

Development of a teaching-learning process of Physics that favors the formation of cognitive, vocational and pedagogical professional interests towards this specialty

It is to conceive a developer process of the teaching and learning of physics, to arouse the interest of students in the study of this science as a basis for developing teaching vocations to the profession of physics. For this, the teacher must take into account the following requirements:

- Be an example for your students in terms of their professional behavior, personal behavior, and mastery of teaching content, the use of teaching aids and the relationship of respect with students, among other aspects.
- To use productive teaching methods that foster student motivation for Physics and lead participation in their learning.
- Guide the objective of each class, emphasizing its educational intentionality, highlighting the importance of studying Physics and its applications for the comprehensive training of students.
- Relate the content of the class with the practical applications of Physics in technique, society, economic development, the environment and, above all, with educational development (construction of teaching aids). No professional guidance can be made from abstract and descontextualized content.
- Implement practical activities and exercises where problems are solved and practical and theoretical exercises, linked to the reality and to the sociocultural context with the ones students interact (leave the descontextualized problems of books).
- Show the image of the teacher as a researcher, as one of his professional functions for the improvement of education.
- Encourage interest in scientific research, through experimental work such as directed research and the development of circles of interest and student scientific societies.
- Get students to know about Physics, showing the historical development of this science, its main discoveries, research methods, theories, high qualifications, current challenges and the scientists who have made these successes possible.
- Provide information about the curriculum and, in particular, on the model of the professional of the career a Bachelor of Education. Physics.
- Link students with the activity of teaching, from working with the monitors, cooperation for the performance of teaching tasks in the classroom, independent study, use of the blackboard and conducting experiments, to introduce them to the profession and create commitment to it.

- To adapt the system of classes based on developing visits and exchanges with professionals who can inform students about Physics and Bachelor of Education career. Physics.
- Encourage debate and reflection with students on the reasons that favor and hinder the creation of motivational and professional interest
  towards the Physics pedagogical career.

To summarize the previous requirements, the professionalism of the teaching of Physics for teaching vocational guidance towards this subject, it must be summarized in the following skills:

Communicative: to maintain adequate verbal and non-verbal communication with students, family, and other factors in the process; to listen, understand , cooperate and do well, transmit and exchange necessary information; to talk, interview, socializing experiences, etc.

Cognitive - affective : to develop the motivation of students for physics as a science and profession of physics professor from classes , starting from the domain of the content of the teaching profession and to harness its potential to, intervene to increase positive emotions towards the career and to accept to reduce negative emotions.

Orientate- persuasive: to help students and families in making of decisions about the career to study and creating awareness of the need to study teaching careers, including teaching of physics. Advise, offer recommendations, facilitate, help the student in each step and accept their real possibilities.

Investigative - technological: to search for up-to-date scientific information on professional pedagogical orientation, to identify problems in the pedagogical practice of this process, prepare and evaluate alternative solutions, innovate and socialize experiences in different ways.

Directive - Evaluative: for the management of resources and content that offer updated information to students about the profession; plan, define objectives, business plans, adapt lesson plans and, above all, control to evaluate the results of the process with the participation of students and families and encourage their continuous improvement.

Taking into account the content of the model of professionalism of physics teachers of pre-university education in the pedagogical professional orientation towards the Bachelor of Education career. Physics, the dimensions and indicators that allowed its measurement as a variable were determined.

Dimension I. Professional preparation for managing the process

This dimension conceives professionalism in terms of knowledge, skills, values and attitudes that teachers should have to address the process of teaching vocational guidance towards the Bachelor of Education career. Physics.

Indicators:

1. Level of mastery of normative and methodological documents on pedagogical professional orientation in pre-university.

2. Level of knowledge about the Study Plan (Professional Model) of the Bachelor of Education career. Physics.

3. Level of mastery of procedures and techniques for the diagnosis of the student, family and other factors in the pedagogical professional orientation process.

4. Level of knowledge of the characteristics of the professional orientation process according to the adolescent's period of psychic development in pre-university.

5. Level of knowledge of professional guidance methods and techniques.

6. Level of control of the routes for working with the family, depending on the professional pedagogical orientation.

7. Level of knowledge of the procedures and techniques for exploring the interests and motivations of the students.

8. Level of assessment of the aspects that limit the work of professional orientation towards the pedagogical career of Physics.

9. Level of assessment of the importance of career guidance work towards the Bachelor of Education. Physics.

10. Level of willingness of teachers to face the improvement of this process.

Dimension II. Professional performance in directing the process

This dimension conceives professionalism in terms of the professional performance of Physics teachers and their ways of action, with an emphasis on the development of the teaching- learning process of the subject and work with the families of the students.

Indicators

1. Level in which the process of teaching and learning Physics promotes professional pedagogical orientation towards this career.

2. Level of diagnosis of the cognitive, vocational and professionals interests of the students towards Physics and profession of the teacher of this subject.

3. Level of characterization of families for professional pedagogical orientation.

4. Level of achievement of family-oriented schools and home visits for professional pedagogical guidance work.

5. Level of planning of school and extracurricular activities for professional orientation towards the physiological career of Physics.

6. Level of participation in methodological work activities and professional development on pedagogical professional orientation.

7. Level of research and innovation that is achieved in the work of pedagogical professional orientation.

The evaluation of these indicators in the High, Medium and Low categories was carried out based on the analysis of the results obtained with the application of a survey and group interviews to the selected sample.

The results of the survey (see attached tables) refers that there is an adequate correspondence regarding valuations that managers and teachers do about the level of preparation and professional performance of them in the development of the pedagogical vocational guidance.

In dimension I (table 1), the most affected indicators are those related to

the domain of documents that regulate professional orientation in pre-university education , with 59.3 % of Low among directors and teachers ; the information on the Curriculum current career, with 74.1 % ; knowledge of the characteristics of the process of career guidance according to the psychic development of the teenager in high school , with 63.0 % , and mastering the methods and techniques typical of the professional orientation as a process, with 77.8 % of Low.

Table 1- Results of the survey of managers and teachers of Physics (Dimension I): assessment of the level of preparation of physics teachers for the job of professional pedagogical orientation towards the Bachelor of Education career. Physics.

Indicator No. (Dimension I)	Teachers			Executives		
	High	Medium	Low	High	Medium	Low
1	13.3 % (2)	20.0 % (3)	66.7 % (10)	0.0 %	50.0 % (6)	50.0 % (6)
2	0.0 %	20.0 % (3)	80.0 % (12)	0.0 %	33.3 % (4)	66.7 % (8)
3	26.7 % (4)	33.3 % (5)	40.0 % (6)	50.0 % (6)	33.3 % (4)	16.7 % (2)
4	6.7 % (1)	13.3 % (2)	80.0 % (12)	16.7 % (2)	41.7 % (5)	41.7 % (5)
5	0.0 %	13.3 % (2)	86.7 % (13)	0.0 %	33.3 % (4)	66.7 % (8)
6	46.7 % (7)	53.3 % (8)	0.0 %	33.3 % (4)	50.0 % (6)	13.3 % (2)
7	20.0 % (3)	26.7 % (4)	53.3 % (8)	25.0 % (3)	33.3 % (4)	41.7 % (5)

The survey also shows, as main limitations in the performance of teachers (dimension II), the level of achievement of family-oriented schools and home visits for professional guidance, with 63.0 % Low; the planning of school and extracurricular activities for this purpose, with 70.4 % and the poor performance of activities of methodological work, professional development and research teaching related to the professional pedagogical orientation, with 59.3 % and 85.2 % respectively (table 2).

Table 2- Results of the survey of principals and teachers of Physics (Dimension II): valuation of the level of performance of teachers in teaching vocational guidance towards the career Bachelor of Education. Physics

Indicator No. (Dimension II)	% of teachers			% of managers		
	High	Medium	Low	High	Medium	Low
1	26.7 % (4)	33.3 % (5)	40.0 % (6)	25.0 % (3)	33.3 % (4)	33.3 % (4)
2	26.7 % (4)	40.0 % (6)	33.3 % (5)	16.7 % (2)	33.3 % (4)	50.0 % (6)
3	33.3 % (5)	26.7 % (4)	40.0 % (6)	25.0 % (3)	41.7 % (5)	33.3 % (4)
4	13.3 % (2)	20.0 % (3)	66.7 % (10)	16.7 % (2)	25.0 % (3)	58.3 % (7)
5	6.7 % (1)	20.0 % (3)	73.3 % (11)	16.7 % (2)	16.7 % (2)	66.7 % (8)
6	6.7 % (1)	13.3 % (2)	80.0 % (12)	25.0 % (3)	41.7 % (5)	33.3 % (4)
7	0.0 %	0.0 %	100 % (15)	16.7 % (2)	16.7 % (2)	66.7 % (8)

As seen in Table 2, the per cent corresponding to the categories of medium and low in indicator 1 is 73.3 % of teachers and 66.7 % of managers, of which it follows that the teaching - learning of physics still favors teaching vocational guidance, to this career, at the required level.

According to Table 3, the aspects that influence, in this sense, are the e employment of methods of productive teaching, solving related tasks to the sociocultural context of the students, the development of interest for scientific research, the updating of the contents of Physics as science and information on the Study Plan of the career.

Table 3- Results of the survey of physics teachers and managers: assessment of the requirements that must be met by the teaching- learning process of Physics to favor professional orientation towards a pedagogical career.

Not.	Measured indicators	Teachers			Executives		
		High	Medium	Low	High	Medium	Low
1	Use of productive teaching methods	20.0 % (3)	20.0 % (3)	60.0 % (9)	25.0 % (3)	33.3 % (4)	41.7 % (5)
2	Relationship of the content with the practical applications of Physics	66.7 % (10)	33.3 % (5)	0.0 %	33.3 % (4)	50.0 % (6)	16.7 % (2)

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3	Solving tasks linked to the sociocultural context of schoolboys	33.3 % (5)	40.0 % (6)	26.7 % (4)	16.7 % (2)	25.0 % (3)	58.3 % (7)
4	Development of interests in scientific research: experimental work, circles of interest and scientific societies	26.7 % (4)	33.3 % (5)	40.0 % (6)	25.0 % (3)	25.0 % (3)	50.0 % (6)
5	Treatment of contents on Physics as a science	20.0 % (3)	33.3 % (5)	46.7 % (7)	8.3 % (1)	33.3 % (4)	58.3 % (7)
6	Updating the contents of Physics as a science.	13.3 % (2)	13.3 % (2)	73.3 % (11)	16.7 % (2)	16.7 % (2)	66.7 % (8)
7	Information about the Study Plan and the Professional Model of the career	0.0 %	13.3 % (2)	86.7 % (13)	0.0 %	0.0 %	100 % (12)
8	Linking students with the teaching activity: working with the monitors, in teams, independent study , etc.	53.3 % (8)	46.7 % (7)	0.0 %	25.0 % (3)	41.7 % (5)	33.3 % (4)
9	Adequacy of class systems to develop activities of pedagogical professional orientation	0.0 %	0.0 %	100 % (15)	0.0 %	16.7 % (2)	83.3 % (10)

All these aspects were corroborated by the group interviews carried out, in which positive evaluations regarding the example of teachers, modes of professional action and relationships with students, as well as the understanding of social need, were also manifested, as a trend the work of professional orientation towards the pedagogical career of Physics and the participation in actions of improvement, methodological work and research for its improvement. Families

and students are demanding higher level of information and activities in school and out of this , related to careers teaching and better use of all spaces, which allow them to interact with parents of the students.

Another manifested tendency is to associate the low selection of the Physics pedagogical career with the poor motivation and interest of the students for this subject, which requires modifying the way in which this subject is being taught, from achieving a higher level of practical and experimental work, as well as update and link their content with the technique and the current reality.

In summary, the strengths and weaknesses that characterize the current state of professionalism of physics teachers in pre-university education in the municipality of Pinar del Río in the professional orientation towards this pedagogical career are the following:

Strengths:

- Physics teachers of pre university education understand the social need to improve vocational guidance toward teaching career in this field and show commitment to face this task.
- Teachers recognize the existence of limitations in their pedagogical professionalism for the direction of the pedagogical professional orientation process and the need to participate in actions for its improvement.
- Students, family members and educational managers express a high level of recognition for Physics teachers, for their personal example, for the educational work they carry out and the pedagogical preparation they have.
- Centers of pre university education have regulatory and methodological documents related to professionalism in the OPP.
- The schools have a methodological work system that allows carrying out preparatory actions in favor of professional pedagogical guidance.
- There are mechanisms created for designing professional development activities based on educational needs presented by physics teachers for teaching vocational guidance.

Weaknesses:

- Low level of preparation of teachers in terms of methods, procedures and fund amental techniques of the process of the teaching professional orientation.
- Low level of knowledge of the documents that regulate professional pedagogical orientation in pre-university education.
- Insufficient level of knowledge and updating on the particularities of the Curriculum of the Bachelor of Education career. Physics.
- Poor mastery of the main procedures and techniques for diagnosing students and families, depending on the pedagogical professional orientation process.
- Insufficient level of use of Physics classes for professional orientation towards this pedagogical career.
- Low level of use of vocational guidance schools and visits to students' homes for pedagogical vocational guidance.
- Poor level of adequacy in the planning of Physics classes to carry out school and extracurricular activities aimed at the development of vocational

and professional interests towards the Bachelor of Education career. Physics.
- Insufficient level of carrying out methodological activities on professional pedagogical orientation towards this career.
- Low level of the research activity innovation of teachers for improving the process of teaching vocational guidance that they perform.
- Low level of design and participation of the teachers in actions of professional improvement on the pedagogical professional orientation.

Regarding the insufficiencies that affect the quality of the Physics class in pre-university education and that do not favor the development of cognitive, motivational and professional interests in students towards Physics and the profession of Physics teacher, the following stand out:

- Predominance of tradition methods in classes that do not propitiate the role of students in their learning.
- Lack of systematicity and coherence in the insertion of moments in the class for professional orientation towards the pedagogical career of Physics.
- Insufficient level of contextualization and practical linking of physical content.
- Insufficient level of updating the contents of the physics and the aspects related to physics as a science.
- Low level of experimentation and investigative work in the subject.
- Insufficient use of the movement of monitors and student research work from class.

DISCUSSION

The results, while showing the current state of the professionalism of physics teachers of pre - university education in the municipality of Pinar del Rio, to develop the guiding role with students, aimed at selecting the career Bachelor in Education. Physics, express the educational needs that must be met in the processes that are organized for its improvement.

These results show full correspondence with other studies carried out in Cuba, as is the case of Hernández *et al.* (2018) of the University of Matanzas and Mestre y Lazo (2018) of the "José Martí Pérez" University of Sancti Espíritus, which also report the insufficient level of preparation and development of professional skills of teachers to exercise the guidance the function of professional orientation and its promotion in the framework of the collective of teachers and professors.

The difference with the present work lies in the fact that the emphasis has been placed on pre-university education and on the physics teaching- learning process, which has allowed us to report specific deficiencies in the professionalism of teachers and physics classes, which do not favor teaching vocational guidance to this subject.

As the weaknesses found indicate, the process of pedagogical professional orientation towards the Bachelor of Education career. Physics is done so sporadically and in isolation, being unlinked of the the teaching learning process of Physics, which is poorly intentioned in this regard.

In the study conducted it was found that teachers of Physics gather important qualities in, volitional, affective ethics and behavioral, which guarantee a personal example and

professional positive for students; Its greatest professional insufficiencies are in the cognitive and executive order, those that generate educational needs related to the particularities of the pedagogical professional orientation as a process, and its coherent insertion in the teaching- learning process.

Another aspect that calls for the development of teachers' professionalism is working with the family. There is an appropriate level of understanding of the role that family plays in the selection of the careers by the students; but, contradictorily, this element is not incorporated, with appropriate, co herence with the work done by teachers. The preparation of teachers should include pedagogical resources to transform this situation.

The analyzes lead to the conclusion of that the University, and especially the Department of Physics, must assume a leading role in front of the preparation needs presented by teachers to take on the important and complex work of professional orientation towards the Physics career, from professionalization strategies that take into account the figures of overcoming professionals, articulated with methodological and research advice in schools.

These strategies should address primarily the development of professional skills in the cognitive-affective, orientador- persuasive , research - Tech nologic and directive- evaluative order , which were declared in this work; all so that the process of career guidance teaching with intentionality is being proposed, can take advantage of all possible spaces and that the professional performance of the teacher favors , so that the teaching vocational guidance become no longer a collateral activity and become an integral part of the physics teaching- learning process in all grades.

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Authors declare not to have any conflict of interest.

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