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DIDACTIC STRATEGY PROPOSAL FOR INITIAL RESEARCH TRAINING

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Abstract: *The objective of this research is to propose a didactic strategy for the investigative training process of the students of the higher technician in Sports Training at the University of Artemisa, which responds to current demands. The investigative approach is presented as its general strategy. The mode of action. The diagnosis of the initial state is presented that reveals the existence of the research problem. Theoretical, empirical and statistical methods were used. The results obtained in the indicators of the variable from its practical application and the experts' criteria manifest the feasibility and potential of the Didactic Strategy, evaluating it as very appropriate.*

Key words: *investigative training, teaching strategy, research*

1. Introduction

The constant globalization and pedagogical transformation demand from Higher Education Institutions in Latin America comprehensive training, which prepares a professional trained to live together and transform society based on a responsible mode of action from decision-making to solving problems and research. One of the main objectives of higher education centers in Cuba is the generation of knowledge through scientific research in teachers and students during the training process.

The term training, in Cuban higher education, is used to characterize the substantive process developed in universities with the objective of comprehensively preparing the student for a specific university career and covers both undergraduate and postgraduate studies.

Different authors have contributed to the topic. Their studies allowed us to arrive at the essential elements for a definition of initial investigative training:

It is a continuous process that articulates undergraduate and extends to subsequent stages of professional training [1].

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Prepares the future professional to perform a research function [4], [13]. It requires the student's link with the real contexts of action to solve professional problems [5],[13],[14].

It favors the appropriation and development of knowledge, skills, abilities and values of scientific-research activity [4], [14].

It enables the interpretation, foundation and creative transformation of reality [1], [4], [5], [10] [14],

Taking into consideration the analyzes of different authors about the initial investigative training and the particularities of the training model of the higher technician in Sports Training, it is defined that the initial investigative training for this student is:

…the process of transmission and acquisition of knowledge and skills on how to transform the environment in which the senior technician develops in sports training from the beginning of his higher studies and its continuity in the postgraduate degree. Through his work in the Sports Combines and the Sports Initiation School.

In accordance with the above, the University of Physical Culture and Sports Sciences (UCCFD), being the governing institution, is engaged in improving the training of professionals in the sports sector, in accordance with the new policies of the National Institute. of Sports, Physical Education and Recreation (INDER) and the Ministry of Higher Education (MES), related to the establishment of training programs at the Short Cycle Higher Education level, in such a way as to facilitate rapid specialization and insertion of the graduate in his performance as a sports coach, with the aim of being able to work at the base of the Cuban sports pyramid, from the sports team to the base of high performance.

However, within the training program for the higher technician in Sports Training, the subject Research Methodology in Physical Culture is not conceived, nor is the research pedagogical function declared. Therefore, this research aims to design a didactic strategy for the initial investigative training of higher technical students in Sports Training at the University of Artemisa.

2. Material and Methods

Regarding the methodology, a dialectical materialist approach was assumed, which gives rise to an alternative flexible and contextualized solution, susceptible to scientific verification. Analysis and synthesis were used as theoretical methods to find regularities in the diagnosis of the real state of training; as well as to determine the stages and actions of the teaching strategy and the relationships established between them. Induction and deduction methods were also used, which made it possible to analyze and process the information obtained, both theoretical and empirical, for the assessment of the real situation of the problem and the development of the strategy. The system approach made it possible to relate the needs detected in the diagnosis and the design of the teaching strategy; In addition, establish the relationships of coordination, subordination and dependency between the stages and actions.

Among the empirical methods, document analysis was used, which was applied in the review of the career's regulatory documents and ministerial resolutions that address the professional

training process, as well as the lesson plans, with the purpose of verifying the status of the main indicators for diagnosis. A survey was carried out on the students with the objective of knowing their participation in practical research processes.

To process and analyze the information collected in the diagnosis, descriptive statistics were used, using the frequency distribution of the values obtained in each indicator. Percentage analysis of the data obtained was applied.

The population was made up of 46 students of the higher technical degree in Sports Training at the University of Artemisa, a sample of 21 students was intentionally selected, representative of 47% of the population.

The same procedure was used to select a sample of teachers, made up of 23 teachers from the group of this career, selected from a population of 31 teachers, which represents 74.1%. 15 experts were also selected to submit the teaching strategy to expert criteria. The Delphi Method was used in order to obtain theoretical evidence of its potential.

3. Results and Discussions

The consistent application of the aforementioned methods allowed for an assessment of the initial research training in higher technical students in sports training, in three specific dimensions: cognitive, methodological and practical. The main results are expressed below

3.1 Cognitive dimension: it is related to what is taught that in addition to being identified in the subject programs, "its selection and sequencing respond, first of all, to the historical conditionality of the process" (Ginoris, 2001, p.6). Responds to the general objectives of the graduate's profile and the research strategy assumed for its development

Table 1

Evaluation by indicators of the cognitive dimension

	Indicators	Evaluation
1.1	Knowledge associated with educational research that can be inserted into the subjects of the study plan.	inappropriate
1.2	Knowledge of the different study programs that can be worked on to improve research training	Appropriate
1.3	Identification of other activities of an extra-teaching nature and for work practice that can improve initial research training	inappropriate

Table 1 represents the result of the application of empirical methods as well as the analysis of documents where the following result was obtained. The direction of the scientific-research activity in the training of the higher technician in Sports Training is restricted to the preparation of students for the development of scientific-student work; professional pedagogical activities with a research nature are insufficient; by being partial only to the contents of their discipline, which limits the design of integrative evaluations that enhance the development of professional skills, mainly investigative, in students. Few activities of an extra-teaching nature and for work practice that favor research training are

shown. Taking into account the results of the applied instruments, this dimension of little appropriateness is evaluated.

Table 2

Evaluation by indicators of the methodological dimension

	Indicators	Evaluation
2.1	Preparation of teachers to develop the contents of the subjects with the investigative approach.	poco adecuado
2.2	Design of different activities with a research focus by teachers to systematize the professional pedagogical mode of action associated with research preparation.	Poco adecuado
2.3	Implementation of teaching and extra-teaching activities aimed at identifying problems, theoretical analysis and possible solutions	Poco adecuado

3.2 Methodological dimension, expression of the preparation of teachers, has indicators for its assessment related to the preparation of teachers to develop the contents of the subjects with the investigative approach. 86.6% of teachers have not received any training on this aspect, 13.3% state that the approach that has been worked is the pedagogical professional and the developer of the different subjects; relevant aspects for this training. These approaches do not contradict the investigative approach; on the contrary, they accentuate them by their very nature. Its characteristics are contained in the investigative approach, which increases its scope, based on the use of scientific methods. Therefore, it is verified that no preparation actions are developed among teachers where they demonstrate how to insert the investigative approach into the contents of the subjects of the study plan. In correspondence with what has been analyzed up to this point, it was found that few actions with a high scientific level are designed by teachers to systematize the professional pedagogical mode of action associated with research preparation. The methodological dimension is valued as not very adequate because it has not yet been fully distinguished, a methodological projection for the preparation of teachers in the what and how to address the research process in the class. related to the development achieved by students in the activities of their work practice and their participation in practical investigative processes

Evaluation by indicators of the practical dimension Table 3

	Indicators	Evaluation
3.1	Development achieved by students in the activities of their work practice that contribute to the improvement of initial research training and their personal satisfaction.	inappropriate
3.2	Participation of students in practical investigative processes that favor the identification of problems, theoretical analysis and possible solutions	Not suitable
3.3	Implementation of actions in study completion activities that manifest a reflective, flexible and transformative mode of pedagogical professional action	inappropriate

3.3 Practical dimension: allows obtaining and applying knowledge, from problematizing, theorizing and verifying in the teaching-learning process and the attitudes, values and forms of behavior inherent to it, which constitute the scientific investigative skills that are proposed. It is the scenario where the student concretizes his professional pedagogical mode of action.

Finally, the practical dimension is evaluated as not very adequate. It was found that in the practical-teaching training system for higher technicians it is made explicit that carrying out the practical requires satisfying the demands of the study plan, contained in the graduate's profile. The above is positive and demands preparation and creativity from teachers for the projection, execution and control of the practice activities. However, it has not yet been possible to fully develop actions that favor the exercise of initial investigative training; which is expressed in the presence of a reflective attitude about their work practice and in the participation of students in scientific events, who identify few solutions to the problems of their work practice. The above makes them feel dissatisfied with their results, since they recognize limitations to successfully carry out their professional work. It was shown that 81% of the students have not participated in this type of activity and request preparation to be able to work in this way. In less than 60% of the study completion activities, actions are designed that manifest a reflective, flexible and transformative mode of action. This limits the understanding, interpretation and identification of solutions to the complex and diverse processes that take place in their environment.

4. After determining the current state of the initial investigative training process of the students of the higher technician in Sports Training at the University of Artemisa, we proceeded to design the pedagogical strategy.

The didactic strategy designed has as a general objective: to improve the initial research training in the students of the higher technician in Sports Training at the University of Artemisa. It consists of 4 stages:

1. Diagnosis
2. Planning
3. Execution
4. Evaluation

For an adequate identification of the main elements, the structure proposed by

Ojeda (2019) that articulates the action plan for each stage was taken into account.

Stage 1: Diagnosis

Objective: To diagnose the initial investigative training in higher technical students in sports training at the University of Artemisa.

Action 1: Systematization of the theoretical methodological references that support the initial investigative training process in higher technical students

Participants: physical culture teachers

Responsible: author of the research

Temporality: 2 months

Action 2: Update of the diagnosis of initial investigative training in higher technical students in sports training at the University of Artemisa.

Procedure: diagnosis of initial investigative training in higher technical students in sports training at the University of Artemisa, through the application of instruments.

Participants: physical culture teachers

Responsible: author of the research

Season: April to November 2021

Action 3. Debate sessions with students and teachers, independently, on the results of the diagnosis, to sensitize them to the problem and demonstrate its importance in the work of future and current teachers.

Procedure: analysis and assessment of the applied instruments.

Participants: physical culture teachers

Responsible: author of the research

Temporality: December 2021

Stage 2. Planning

Objective: Plan actions to fulfill the general objective of the strategy.

Action 1: Methodological meeting for the organization of teacher preparation on the investigative approach in the educational unit.

Methods and techniques: joint development and participatory planning meeting Procedures:

Participants: teachers who teach classes to the senior technician in Sports Training.

Responsible: heads of departments and author of the research

Temporality: short term (one week)

Action 2: Study of the contents of the subjects of the study plan that can be worked on from the investigative approach.

Procedures: determination of activities by subject.

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: short term (2 weeks)

Action 3: proposal of educational research content that can be inserted into the subjects

Procedures: determination of activities by subject.

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: short term (1 week)

Action 4. Design of the system of methodological actions for the preparation of teachers in the investigative approach. The objective is to prepare them with the necessary knowledge that facilitates the development of the contents of the subjects from the investigative approach (annex).

Procedures: joint development.

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: short term (1 week)

Action 5- Design of proposals for activities for the different subjects, extra-teaching, for work practice and for the completion of studies that manifest a reflective, flexible and transformative mode of action as a result and realization of the Methods and techniques: joint development

Procedures: determination of activities by subject.

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: short term (1 week)

Action 6: Planning a research methodology course for the development of investigative skills.

Methods and techniques: joint development

Procedures: determination of course contents

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research and designated professor

Temporality: short term (1 month)

Stage 3: Execution

Action 1: implementation of functional organizational levels for the preparation of teachers on the investigative approach in the educational unit. (exhibit)

An example is shown of how the methodological preparation of teachers could be organized for their preparation in the investigative approach in the educational unit. This can be enriched by teachers.

Methods and techniques: joint development and participatory planning meeting Procedures:

Participants: teachers who teach classes to the senior technician in Sports Training.

Responsible: heads of departments and author of the research

Temporality: short term (one week)

Action 2: implementation of the contents of the study plan subjects that can be worked on from the investigative approach.

A proposal is presented that can be enriched with the criteria of the faculty. Defining a subject to introduce the content does not limit its treatment by the others, there must only be unity in its conception. In general, subjects specific to the specialty have been proposed to govern the presentation of the topics.

Procedures: determination of activities by subject.

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: short term (2 weeks)

Action 3: implementation of educational research content that can be inserted into the subjects

Procedures: determination of activities by subject.

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: long term ()

Action 4. Implementation of the system of methodological actions for the preparation of teachers in the

investigative approach. The objective is to prepare them with the necessary knowledge that facilitates the development of the contents of the subjects from the investigative approach (annex).

Procedures: joint development.

Participants: managers and teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: short term

Action 5- implementation of the proposed activities for the different subjects, extra-teaching, for work practice and completion of studies that manifest a reflective, flexible and transformative mode of action as a result and realization of the Methods and techniques: joint development

Procedures: determination of activities by subject. Work Practice and Completion of Studies.

Participants: managers and teachers who teach in the higher technical degree in Sports Training

Responsible: author of the research

Temporality: (long term)

Action 6: Teaching of the research methodology course for the development of investigative skills.

Methods and techniques: joint elaboration, exposition, heuristic conversation, independent work and participatory techniques.

Procedures: determination of course contents

Participants: teachers who teach in the higher technical degree in Sports Training

Responsible: designated professor (Dr. C. Ángel Lázaro Gil)

Temporality: short term (4 weeks)

Stage 3. Evaluation

Objective: Evaluate the results achieved, as a starting point for feedback on the teaching strategy.

As part of its nature, the assessment of the training of the students' professional pedagogical mode of action in different scenarios is the main means of evaluation. The systematic, partial, final and culmination evaluations of studies, with a projection that responds to the proposed objective, will be samples for this evaluation. The student must show mastery of the knowledge of the profession, as required by the graduate profile

The proposed didactic strategy The systemic, problematizing, transformative, participatory, methodological, strategic, flexible and differentiated character stands out; which is reflected in the strategy assumed.

These characteristics and principles are evident in the teaching-learning process. Its activities must contribute to the development of professional functions in an interrelated manner and due to its scope, the investigative function must be assumed as a transversal axis. The above is proposed to be carried out from the objectives of the process that express the aspiration based on social demand. Due to their governing nature, they determine the remaining components of the process and their relationship.

The strategy proposed in this article supports that initial investigative training requires a close relationship between the investigative function of the professional model, the formation of investigative skills and professional

skills, which must be directed intentionally by the group year.

The analysis of strategies for investigative training, [9], [3], [13]; They showed that: the determinations of investigative skills are based on the demands of the professional model, but the close relationship between the formation of professional skills and investigative skills is not considered.

Among the positive aspects of this process we can mention the scientific value of the proposal designed to solve the problem, the identification of necessary conditions for its implementation and the confirmation of correspondence between the impact of the appropriate work with the investigative approach at this level and its positive imprint in the process of apprehension of the pedagogical professional mode of action of the students of the higher technician in Sports Training. After applying the Delphy method, the experts rated it as very appropriate.

4. Conclusions

The didactic strategy for initial investigative training that is presented is structured in four stages: diagnosis, planning, execution and evaluation; Each one contains a system of actions and operations that facilitate its execution. These research results allow the improvement of the initial research training in the career of higher technician in Sports Training.

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