
Metodología para la auto-ejercitación del ejercicio físico con enfoque personalizado

Methodology for self-exercise of physical exercise with a personalized approach

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Resumen: El abordaje de una enseñanza personalizada en el contexto universitario rompe con la influencia de la enseñanza tradicional, la cual mantiene como rutina atender las características generales del grupo mediante la selección de contenidos de forma común para todos, y no se atienden las características individuales de cada estudiante. La intención de la investigación es facilitar al profesor una Metodología como alternativa coherente, desde un enfoque personalizado, para que los estudiantes desarrollen sus potencialidades y estimulen la enseñanza de la auto-ejercitación del ejercicio físico. El resultado propuesto, constituye aporte de investigaciones en el contexto de la Educación Física Universitaria.

Palabras clave: Educación Física universitaria; auto ejercitación del ejercicio físico; autonomía del estudiante; enseñanza personalizada.

Abstract: The approach to personalized teaching in the university context breaks with the influence of traditional teaching, which routinely maintains the general characteristics of the group by selecting content that is common to all, and does not address the individual characteristics of each student. The intention of the research is to provide the teacher with a Methodology as a coherent alternative, from a personalized approach, so that students develop their potential and stimulate the teaching of self-exercise of physical exercise. The proposed result constitutes research contribution in the context of University Physical Education.

Keywords: University Physical Education; self-exercise of physical exercise; student autonomy; personalized teaching.

Introduction

The personalized character of teaching constitutes an essential element from the didactic and methodological point of view of Physical Education at the higher level, it requires from the teacher a planned application of contents that guarantee the individual and systematic practice of physical exercise.

In the scientific literature studied, it was found that the problem of University Physical Education is approached by different authors, from different theoretical and methodological conceptions, among which are: Blázquez, (2001); Fresneda; Herrera and Álvarez, (2013); Calderón, Zamora and Medina (2017), who coincide in

considering the need for a physical-cognitive approach for the fulfillment of significant motor tasks, simple and complex, individual and group as part of the performance of physical exercise, but do not demonstrate the ways where the student involves the physical-cognitive in the performance of physical exercise as part of their physical performance.

On the other hand, the relationship between cognitive and motor operations in the context of the practice of physical exercise was studied by different authors such as López (2003) and Fortuño (2017); these make valuable contributions related to the practice of physical exercise in the Physical Education class; but they do not offer a foundation from the theoretical and methodological, of how to develop the teaching-learning process, so as to make the student aware of what to do to learn to self-exercise during class.

In this sense, through a factual diagnosis of the teaching-learning process of University Physical Education in students studying for a degree in Pedagogy-Psychology Education, carried out at the "Blas Roca Calderío" Campus of the University of Granma, with the application of research instruments such as interviews, classroom observation and document review, the following insufficiencies that limit the teaching of self-exercise of physical exercise were found:

During the Physical Education class, difficulties are observed in the students for the realization of teaching tasks that imply functional specificities from the psychological to the physical plane in the different expressions of regulation of their physical performance and their effectiveness in the exercise. In the current Physical Education program taught to students in the course under study, there is limited information on how to develop the skill of self-exercise, nor the possible adaptations to the contents in correspondence with the potentialities they offer for this type of teaching; there are theoretical-methodological insufficiencies in the conception and organization of the teaching-learning process of University Physical Education, in how to proceed, for the relationship between the methods and procedures used in self-exercise in the classroom.

These inadequacies, which are verified from the theoretical assessment and the interpretation from practice, gave rise to a problemal situation that evidences an

initial epistemic contradiction, which in its external manifestation is between the theoretical inadequacies, of methodological character that Physical Education teachers have, expressed in their methodological management for the relationship between the psychological and physical dimensions that limit the practice of physical exercise, and the need for a reinterpretation in the conception and organization of the teaching-learning process of Physical Education, as an expression of a personalized and contextualized process.

The results obtained as a consequence of the theoretical systematization and the preliminary diagnostic study, allowed defining the following scientific problem: How to contribute to the self-exercise of physical exercise in the Physical Education class in the context of Higher Education to students studying for a degree in Pedagogy-Psychology Education?

The above is justified by taking into account that the teaching-learning process of University Physical Education has a theoretical-methodological approach, where its dynamics sometimes does not lead to the development of self-exercise skills in students, by limiting the unity between thought and motor action during class.

Development

For the purposes of this research, from the philosophical, epistemological, sociological, psychological and pedagogical analysis, different theoretical references have been valued as methodological support with a systemic, personalized and contextualized character; which the author considers appropriate to assume in this research.

When analyzed from the philosophical framework, the scientific conception of the world based on historical and dialectical materialism has been considered, which outlines ideas in favor of men being the product of circumstances and education (C. Marx & F. Engels, 1973); therefore it is necessary that the actions undertaken contribute to the integral development of the university student, a unit where social relations, ideas, feelings, values and knowledge concur, reflected in this research.

From the epistemological point of view, it is supported by the consideration of the systemic-structural-functional approach, where the multifunctional in the self-exercise

of exercise is conceived as the integration of multiple dynamic elements around a psychological and physical sense in the practice of exercise, so that one configuration can be included within another as part of a new qualitative level of organization in the Physical Education class.

From the sociological point of view, the study of socialization processes and interpersonal relationships, considered as bases for the consolidation of the system of educational influences on the student and the construction of his own learning, is recognized. Also taken as sociological presuppositions are the conceptions of (Foucault, 1994), regarding the mind-body relationship as an object of study of Physical Education.

From the psychological point of view, this research is ascribed to Vigotsky's cultural-historical approach, in particular, the categories Zone of Proximal Development (ZDP) and Social Situation of Development (SSD), which leads us to believe that the teaching of self-exercise should be more concerned with potential learning than with actual learning in the student during the practice of the exercise that characterizes mental development retrospectively, while the zone of proximal development characterizes mental development prospectively" (Vigotsky, 1988, pp.38).

In its pedagogical nature, the methodology takes into account the principles, laws and contemporary trends, where the student has greater protagonism, based on the assumptions of the Integral Physical Education Approach (López, 2003), which are considered paradigms to be linked to the teaching of self-exercise exercise in the student from the classroom.

From this perspective, we assume what is stated by (De Armas, 2003), when he recognizes that the methodology is a systemic sequence of stages, each of which includes actions or procedures that depend on each other and that allow the achievement of certain objectives. The general objective of the methodology is proposed as follows: to offer methodological tools to University Physical Education teachers, in order to plan, apply and control the development of self-exercise of physical exercise to students of the Pedagogy-Psychology Bachelor's Degree in Education.

Structural elements of the methodology.

Regarding the elements that should make up a methodology, (De Armas, 2003, p. 310), he proposes two structural apparatuses: the theoretical-cognitive apparatus and the methodological or instrumental apparatus; structural elements assumed by the author of the research.

Theoretical or cognitive apparatus.

The theoretical or cognitive apparatus of the methodology contains a legal body that is based on the Theory and Methodology of Physical Education by Ruíz, (2007); on the Historical Cultural Approach Vigotsky, (1979) and the Education about movement (Blázquez, 2001), it is also supported by the laws to be taken into account in this process, stated by (Matvéev and Novikov, 1989). The methodology, although it takes into account the theoretical contributions of the didactic principles, is also supported by the methodological principles, provided by Calderón, (2006); the organizational procedures and the integral physical-educational approach stated by López (2006); and the productive methods in Physical Education (Menéndez, 2002).

The researcher, reflecting on the criteria of Matos and Cruz, (2011, p.90), which refer to the construction of theory in research where they allude to the result of the elaboration of the constructs obtained in the research; takes this analysis as part of the categorical body for the reelaboration of definitions, when considering essential concepts and categories to support the methodology proposed, they are:

Self-exercise: process of cognitive-affective-motor nature that expresses the committed performance of the subject in the development of physical activity from the use of psychophysical resources mediated by self-regulation, which takes place on the basis of structured knowledge, the formation of motor skills, motor habits and physical abilities as functional units that allows him to move from the state of psychological disposition to the state of physical disposition in his physical performance in the Physical Education class for the improvement of his health and the elevation of the quality of life.

The University Physical Education class: it is the fundamental form of organization of the teaching-learning process of Physical Education in the university context with curricular character in which the interrelation between the personal, non-personal components and the spheres of influence (cognitive, procedural and attitudinal) is

established to achieve the fulfillment of physical, biological and psychological objectives as part of the professional training of the university student.

Methodology for the self-exercise of physical exercise with personalized approach: set of methods, procedures and techniques that regulated by certain methodological requirements allows ordering the teaching of self-exercise of physical exercise and the student's personalized way of acting as part of his physical performance in class.

Methodological-instrumental apparatus.

The functionality of the methodology is demonstrated through the need to value the why and for what it is elaborated, in such sense, this conditions that in order to dynamize the conceived process, the inclusion of the method of personalized articulation between metacognition and self-exercise of the exercise is determined, which has as main purpose to propitiate in the student the formation of habits of the practice of physical exercises during the class (Figure 1). The following procedures are elaborated:

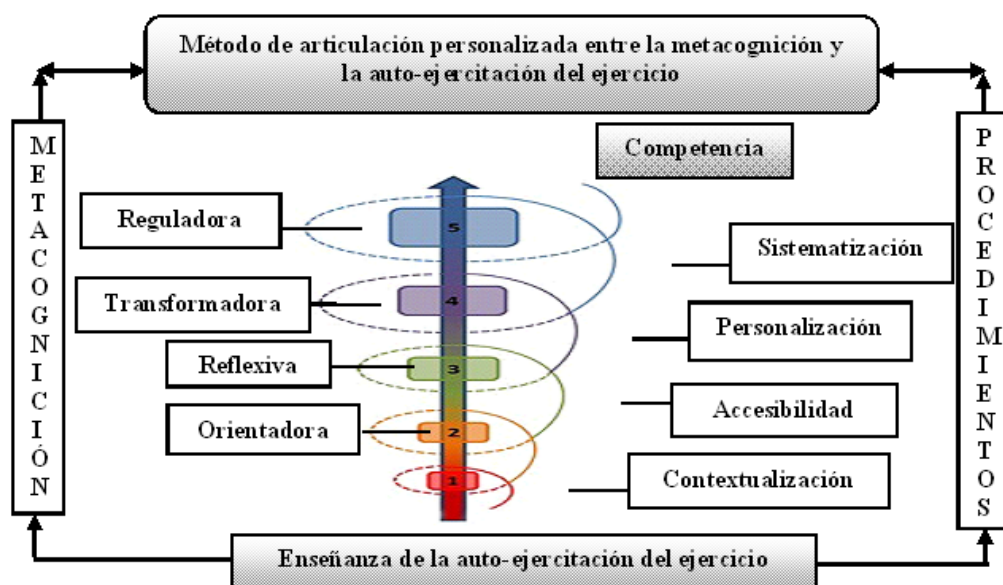
Contextualization of the physical exercise: this is the initial operation to implement the method; the teacher leads the process of self-exercise of the exercise, moving from metacognition to personal sense in the establishment of this relationship.

Accessibility of the physical exercise: the teacher shows the correspondence between the activities proposed for self-exercise, the use of metacognitive strategies and the complexity through which the different motor actions must go through.

Personalization of physical exercise: it takes into consideration the use of personal resources or the conditions available to the student and the teacher for self-exercise, respectively.

Methodological systematization of physical exercise: it expresses the logical continuity of the exercises, execution and development of the ability to self-exercise from a

methodological perspective, using significant learning ways and procedures.



Graphic representation of the method of personalized articulation between metacognition and exercise self-exercise.

Source: author's own elaboration

Stages that make up the methodology

First Stage. Diagnosis or preliminary study.

It is conceived with the objective of: characterizing the initial state of preparation of teachers and students by means of a participative diagnosis, which favors their sensitization with respect to the teaching of self-exercise in the classroom, through the following logical steps:

1. Diagnosis of the level of methodological preparation of the teacher for the teaching of self-exercise through participation in subject and methodological preparations, workshops and specialized conferences.
2. Determination of the individual and group potentialities and difficulties for the teaching of exercise self-exercise in the teaching-learning process of University Physical Education.
3. Establishment of the objective and subjective conditions for the teaching of exercise self-exercise as part of the teaching-learning process of Physical Education for the students under study.

When considering the indicators that, as guiding elements, the teacher must take into account to analyze the progress of the teaching of self-exercise physical exercise of students, it is necessary to determine the methodological procedures:

- a) Students are interviewed to determine their level of knowledge about physical exercise self-exercise.
- b) The level of psychological and physical disposition of the students is determined in the integral diagnosis before facing a teaching task.
- c) The application of the pedagogical tests is evaluated (levels of readiness of each student).

Second Stage. Planning.

The second stage of the methodology is designed to determine the objectives and the necessary organizational and methodological conditions for the teaching of physical exercise self-exercise in students from the University Physical Education class.

In order to achieve such integration, the teacher must take into account the following logical steps:

- 1. Determination of the objective for the teaching of physical exercise self-exercise.
- 2. Selection of the specific contents and selection of the methods, procedures and means of teaching according to the self-exercise of physical exercise.
- 3. Elaboration of the methodological help manual containing workshops as a methodological tool addressed to Physical Education teachers.

As a result of the above, the methodological procedures to be developed in the University Physical Education class are structured as follows:

- a) In the determination of the objectives, the personalized approach of this teaching should be intended through the ascending transit from the reproductive, productive to the applicative/creative.
- b) In the adequacy of the specific contents and their contextualization in each teaching situation in the class.
- c) The selection of the method of personalized articulation between metacognition and exercise self-exercise to promote the internal dynamics of the selected contents in the University Physical Education class.

The methodological procedures are:

Contextualization of physical exercise: this procedure tries to make the teaching of exercise self-exercise go beyond the development of perceptual, physical or motor aspects, which logically express the exercise sequence. It is related in a very singular way to the orienting function of metacognition; this emerges not only as a component of the student's cognition in his physical performance, but also as a specific object of the teacher's methodological management to implement the method.

To carry out this procedure it is necessary to develop the following methodological actions:

For the teacher:

- ✓ Provide information on the types of exercises that should generally be performed using the student's own muscular efforts.
- ✓ Precise the individual and group diagnosis of their students in terms of the student's metacognitive resources and the development of self-exercise skills.
- ✓ Precise the cognitive content and the methodological options of teaching and learning. This helps to regulate the student's metacognition.
- ✓ It reaffirms the mastery of the "main phase of the movement", which has an important implication and methodological significance for the self-exercise of the exercise.

For the student:

- ✓ It allows access to a construction of essential knowledge in the learning process, that is, the types of contents, learning methods and procedures, and personalized strategies to achieve the proposed objectives.
- ✓ Self-discover personal characteristics and their relationship with the self-exercise exercise.
- ✓ Promotes a more effective and precise idea of the metacognitive processes inherent to the teaching process of self-exercise provided by the teacher.

Accessibility of the physical exercise: procedure that leads to sensitize the student to the nature of the exercise itself, its extension, intensity and duration according to the learning situation in the class. The point of contact of self-exercise with metacognition in this procedure is its reflexive function; addressing fundamentally the instrumental resources to be put into practice by the student.

To carry out this procedure it is necessary to develop the following methodological actions:

For the teacher:

- ✓ Identifies metacognitive mechanisms for learning (rote, discovery or rediscovery, trial-and-error, imitation, meaningful, reflective, pragmatic),
- ✓ Determines the level of dispositions (psychological and physical).
- ✓ It directs the differentiation of the three periods of teaching in the formation and development of motor skills: analytical (fractionation of teaching by phases); associative (gradual linking of phases); synthetic (integrated executions of all the movement learned).

For the student:

- ✓ It allows access to the construction of essential knowledge in the learning process, that is, the types of contents, learning methods and procedures, and personalized strategies to achieve the proposed objectives.
- ✓ It begins to visualize from the process of self-exercise the why, how and when to learn and not only what to learn, but also to build an image of oneself with respect to other previous learning.
- ✓ It allows the systematic formation of an imprint or automatisms at cortical level, on the basis of repetitive practice excluding errors.

Personalization of physical exercise: the use of personal resources by the teacher that are concomitant to the student are put into practice through the transforming function of metacognition that facilitates the monitoring of the process of self-exercise in correspondence to the learning needs and specific interests of the students.

For the teacher:

- ✓ Organizes the distribution of students by area for the personalized execution of exercises, corrects execution errors, and orients the content that should be performed individually in the next class.
- ✓ Contributes to promote a regulated teaching process, by suggesting different learning strategies for students' self-regulation during each teaching situation.

- ✓ It contributes to include cognitive content in the methodological options for teaching and learning. It helps to regulate the student's metacognition.

For the student:

- ✓ Determines the cognitive-instrumental system to use each typical action as part of their physical performance in the teaching of exercise self-exercise.
- ✓ It facilitates a strategic behavior before the solution of each learning task, building a knowledge that allows him to reflect on each cognitive and behavioral performance in each phase of the teaching and learning process.
- ✓ It allows visualizing from the learning process to the why, how and when to learn and not only what to learn.

Methodological systematization of physical exercise: methodological systematization acquires singularity features that identify it with the regulatory function of metacognition (monitoring or control) during the student's physical performance. They constitute methodological actions of this procedure:

For the teacher:

- ✓ Reorients the frequency of the self-exercised execution by the student in correspondence to the characteristics and effects; not only according to the nature and extension of the movement, but also according to the way in which they are performed.
- ✓ It reorients the periodization of the execution of the self-exercise of the exercise according to the characteristics and effects, not only according to the nature and extent of the movement, but also according to the form in which they are performed.
- ✓ Determines on which aspects of methodological order should be influenced in the class to provoke the transition from one action to another qualitatively superior one as part of the systematization of the same.

For the student:

- ✓ Self-diagnoses the current state of self-exercise in correspondence to the degree of mastery of the exercise, which allows the achievement of coordinated and efficient movements, increases the ability to regulate the practitioner's mastery

of his body, giving him the confidence to try new and increasingly complex exercises.

- ✓ It allows the improvement of sensory control, flexible and successful adaptation of movements to changing conditions and new situations.

Third Stage. Implementation.

At the conclusion of the whole preparation stage of Physical Education teachers, the implementation of the methodology in the teaching-learning process of University Physical Education is carried out with the objective of assessing its feasibility and checking its contribution in the pedagogical practice, it is carried out through the following logical steps:

1. Application of the psychological and physical contents in each teaching situation as part of the teaching of self-exercise physical exercise in the classroom.
2. Contextualization of the methodological preparation of the teacher as teaching management for the self-exercise of physical exercise in the University Physical Education class.
3. Implementation of the methodological regularities (method of personalized articulation between metacognition and self-exercise of exercise, means and organizational forms) corresponding to this type of teaching.

The following methodological procedures to be developed in the classroom are determined:

a) For the execution of the specific contents (self-exercise exercises) of psychological and physical character in each teaching situation, the teacher must consider:

- ✓ Exercises are generally performed using the student's own muscular efforts without assistance or resistance from any external force.
- ✓ They should generally be slow during the learning period, and later the student may be allowed to undertake their own natural pace.
- ✓ The degree of mastery by the student allows the achievement of coordinated and efficient movements, increases the ability to regulate the subjective mastery of his body, giving him the confidence to attempt other and new increasingly complex exercises.

b) For the contextualization of the teacher's methodological preparation in his teaching management for the self-exercise of the exercise, it is necessary that he considers the content conducive nodes and their relationship with others in their system character.

c) The methodological regularities are related to the (methods/procedures, means and organizational forms) used by the teacher; while the metacognitive projection refers to the actions and operations in the executing instrumentation (self-exercise) of the student in the performance of physical exercise.

d) As a requirement for the implementation of the methodology, it is considered necessary to train or improve the teachers who teach Physical Education in the career under study, through a methodological help manual containing methodological workshops with the purpose of raising their theoretical-methodological level to contribute to the self-exercise of exercise in university students.

Fourth Stage. Evaluation.

The fourth evaluation stage has as its objective: to analyze the results achieved in the implementation stage, which will allow reorienting the methodological actions to be developed during the classes. The fundamental logical steps for the stage are:

1. Integral evaluation of the Dimensions and Indicators.
2. Assessment of the Methodology.

As a result of the above, the following methodological procedures are structured:

a) For the teaching of exercise self-exercise, a feedback process should be established from:

- ✓ Level of correspondence of the specific contents with the results of the diagnosis of the teaching of physical exercise self-exercise.
- ✓ Relationship between the methods and procedures used and the active apprehension of knowledge during the teaching of physical exercise self-exercise in the classroom.
- ✓ Correlation between the evaluation planning and the systematic control of the appropriation of the specific contents for this teaching by the students.

b) Determine new methodological projections that favor the differentiated attention of students, the ascending transit of the levels of assimilation of these contents.

Conclusions

The methodology elaborated with a personalized and contextualized character on the teaching-learning process of Physical Education in students of the Bachelor's Degree in Education Pedagogy-Psychology, reflects logical links between components and categories for the teaching of self-exercise, as an expression of the student-teacher relationship, which requires shared responsibility of each of the agents involved in this process.

As a distinctive feature of the methodology, the method of personalized articulation between metacognition and self-exercise of the exercise is proposed, a way that dynamizes the teaching-learning process of University Physical Education of the future specialist in Pedagogy-Psychology.

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