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**SCIENTIFIC AND METHODOLOGICAL FOUNDATIONS OF PLANNING IN THE TRAINING OF
ATHLETES*****Razzoqova Mushtariy****Second-year master's student at the Faculty of Taekwondo and Sports Activities, National University of
Uzbekistan named after Mirzo Ulugbek, Uzbekistan*

ABOUT ARTICLE

Key words: Scientific inquiry, training-exercise, sports science, human, world, analysis, synthesis, induction, deduction, similarity, analogy, modeling, abstraction, clarification, system, analysis, observation, experiment.

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Abstract: This work examines certain principles that must be followed in the process of scientific inquiry. These principles include the knowledge of the objective world, determinism, development, historicism, and the unity of theory and practice. It emphasizes the ability to form a truthful understanding of the surrounding world and its laws through human learning activities.

INTRODUCTION

A distinctive feature of scientific research in sports science is that every phenomenon studied in any field of physical education is examined in the process of its development, in mutual connection and correlation. For example, when investigating facts characterizing the structure of an athlete's training process, one can determine how they developed previously, what factors had a decisive influence on them in the conditions of a specific sport, and how these facts and phenomena might influence the further development of physical education theory and methodology.

Scientific inquiry is a complex dialectical process through which human intellect delves into the essence of things, their lawful connections, and relationships. Without scientific inquiry, it is impossible to effectively transform nature and social life. It is well known that the issue of understanding the world is considered the central problem of philosophy.

METHOD

In the process of cognition, the subject of knowledge (human) and the object of knowledge (existing reality) are interconnected. Humans study the world, and therefore, all the knowledge they gain is not just an objective depiction of reality, but rather a subjective representation. This means that a contradiction arises between objectivity and subjectivity in the process of cognition. Over time, knowledge becomes increasingly accurate; that is, the development of cognition and the deepening of knowledge about the objective world inevitably turns into a process of more adequately reflecting reality.

The development of sports science, like any other science, is not an exception. It is closely linked with the development of the methodology of scientific inquiry, including its methods and principles.

Scientific methodology is the system of the most general, worldview-related principles of scientific knowledge. Methodology in science generally refers to the general methodology of science, including the doctrine of the methods of scientific knowledge in a specific field.

A method is the primary way of collecting and processing data in scientific research. A scientific method always originates from the general principles and ideas about the characteristics of the object and encompasses the guidelines and requirements that ensure the achievement of the result, which is the goal.

Methodology is a concept that expresses the combination of methods or technical approaches related to a specific method, which also includes specific procedures, their sequence, and interrelations

Methodology includes: a) A specific variant of the method, a special way to solve a particular problem, for example, the methodology of studying an athlete's speed-strength qualities. b) A set of methods for researching a given task and the procedure for applying them, for instance, the methodology for studying a wrestler's competitive activity.

The logic of scientific knowledge studies its structure and stages and provides a comprehensive value of the scientific research process and its constituent elements.

Any scientific research should begin with the formulation of a scientific problem. Ilmiy muammo bilimlarning erishilgan darajasi bilan ijtimoiy amaliyotning yangi dalillari yoki ehtiyojlari orasidagi ziddiyatning yuzaga kelishi va rivojlanishi oqibati sifatida shakllanadi.

To properly formulate a scientific problem, it is necessary to be familiar with the latest achievements and possibilities of science and technology, as well as to have a clear understanding of the level of

research in that particular field. The correct formulation of a scientific problem can provide significant insights for its resolution.

Based on scientific methodology, the following general methods of scientific inquiry can be distinguished: analysis, synthesis, induction, deduction, analogy, modeling, abstraction, clarification, systematic analysis, observation, and experiment.

Analysis is a method of investigation that involves mentally or practically breaking down an object into its components, characteristics, properties, or relationships to study them individually. Each separated part is analyzed individually within the context of the whole. For example, analyzing both the training process of a team of athletes and that of each individual player.

Synthesis is the method of combining, integrating, or constructing to study an object as a whole, considering the interrelations and unity of its parts. In scientific research, synthesis is closely connected to analysis, as it unites the components that have been separated during the analysis process, identifying their interrelations and enabling the study of the object as a whole. For example, studying the total volume of different training loads in micro and mesocycles performed by athletes.

Induction is a research method based on studying the characteristics of certain elements of an object and drawing general conclusions about characteristics that apply to all elements. For instance, specific factors that positively affect an athlete's performance in competitions are studied and then generalized across other performance indicators.

Deduction is a method of reasoning from the general to the specific, where the object is first examined as a whole, and then its components are analyzed. For example, studying the technique of a wrestler performing a particular move, followed by breaking down the move into its components: gripping, lifting, tripping, and falling.

Analogy is a method of scientific thinking that relies on the similarity between certain objects or phenomena to study one based on its resemblance to another. For example, studying the physical fitness of school-aged children in specific schools and applying the results to all schools.

Modeling is a method of scientific inquiry in which the object or phenomenon being studied is replaced with a similar object or model that embodies the most important characteristics of the original. In sports science, modeling competitive activities is widely used, such as using similar equations to describe a competition between two athletes and investigating it with modern computers. For example, computer

programs have been developed and are actively used in practice to model a wrestler's matches against potential opponents.

Abstraction is a method that allows for the transition from specific objects to the general concepts and laws of development by diverting attention away from the particular and focusing on the broader principles.

This method is applied in pedagogical research when developing a prospective plan for the training process, whereby the future development of athletes' training is predicted based on an analysis of their previous activities. Clarification is a method that, unlike abstract or general studies, involves examining objects in their full complexity and qualitative diversity.

In this approach, the state of the objects is studied in relation to their specific conditions and historical development. Thus, the prospects for improving athletes' physical training are calculated using a new method through predictions and calculations.

System analysis means studying the research object as a collection of elements that form a system. In scientific research, this involves evaluating the object's status as a system, taking into account all the factors influencing the functioning of that object. In sports science, for example, this method is widely used in studying competitive activity as a whole, particularly in identifying factors that affect the performance of athletes.

Observation is a method of studying an object through quantitative measurements and qualitative descriptions. It is used in all types of research in sports science. For instance, it is applied in timing training sessions and determining the percentage of overall and movement intensity in training.

Scientific experimentation is a scientific test conducted according to the goals of the study to verify the results of theoretical research. A scientific experiment is carried out under specific conditions that allow observation of the phenomenon's course and, if necessary, its exact repetition.

In sports science, any newly developed methodology must be confirmed through pedagogical scientific experiments.

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