Second lecture

Basics of scientific research

The goal to be achieved:

- The student gets to know the basics of scientific research

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- Characteristics of scientific research
- Scientific research jobs
- Scientific research terms
- The difference between a term and a concept
- Objectives of scientific research
- The importance of scientific research in the sports field
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Second lecture

Introduction:

The methodology of scientific research is indexing, organizing, or structuring arranged according to an agreed-upon scientific sequence. It is based on guesses or hypotheses that can be verified by following ways to achieve its goals. It can be measured by natural or social laws that people resort to, and it aims to reach results that fulfill the desires of the researcher or entity. Adopted for research. Therefore, it is necessary for the student to understand the most important characteristics and objectives of scientific research so that he can address the topics in a correct manner and reach logical results.

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Characteristics of scientific research

It appears from the previous definitions of scientific research that it has several distinctive characteristics, including:

1-Scientific research is organized research and is not the result of coincidence or improvisation:

It relies on a scientific approach and a logical sequence in presenting and discussing ideas to reach results.

2-Scientific research is abstract research that works to bring about continuous positive change in knowledge as it is subject to examination and testing:

It is based on scientific observations and experiments, based on logical evidence that leads to real results.

3-Scientific research is explanatory research whose results are generalizable and repeatable, and is used for prediction and estimation:

This is because it explains phenomena based on theories and facts that confirm the validity of the results reached and thus the ability to generalize them and predict phenomena in the future.

4-Adding new knowledge:

It means discovering new scientific knowledge and facts that enrich the scientific material, whether (ideas - dimensions - laws and theories - new methods and methods - devices and standards...) that can be used to advance the goals of scientific research.

5-Accuracy and innovation:

By selecting new topics that have not been previously covered by research and study, and adjusting them in terms of form with key phrases and words that facilitate his adjustment to the study problem and lead to accurate results.

6-Objectivity and realism:

Meaning dealing with the phenomena and problems presented in an impartial manner, detaching from feelings and feelings, and treating them objectively as they appear in reality.

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7-Diversity and pluralism:

There are many research fields, sciences, and topics. The researcher chooses the most appropriate methods that are compatible with his field of interest and the problem of his research.

8-Doubt and skepticism:

It means not accepting what is being researched or reached in terms of ideas, dimensions, or facts... Not every research is complete, absolute, or satisfactory. There are many studies that have received the highest ratings and the highest evaluations, and their authors have received the highest Ranks and grades, yet researchers try to find shortcomings in them, trying to fill the loopholes and gaps, each according to his abilities. Skepticism in scientific research means not accepting what has been achieved, and it means the necessity of re-researching and considering ideas, meanings and rationales from the old ones all the way to the new ones.

9-Combining the methods of induction and deduction:

That is, combining observation and analysis. Induction means observing phenomena, examining them, collecting data about them, if possible, experimenting on them, and then arriving at the validity or incorrectness of the results with the possibility of generalizing them to similar phenomena based on their formulation in the form of a law, theories, or general principle. ...meaning that induction begins with the particulars to reach the generalities, and deduction means analyzing the general theories and general rules into their parts, information, and branches to reach the correctness of their hypotheses...meaning that deduction begins with the generalities to reach the particulars.

Scientific research functions

Scientific research has several functions that can be summarized as follows:

1- Description and diagnosis:

Describing and diagnosing phenomena is the first step that the researcher must take in order to reach the truth, which helps him formulate hypotheses and prove their validity or otherwise.

2- Interpretation:

Based on the collection of information, evidence and data while describing phenomena and problems, the explanation is the complete definition of the phenomenon by explaining it in a gradual, simple and understandable way by clarifying the reasons for its occurrence in an ultimate effort to provide solutions or add knowledge in the field of research.

3- Prediction:

Prediction or extrapolation constitutes the goal of many scientific studies that monitor the temporal development of social phenomena or those that study the relationships between various factors in society and the extent of their influence on each other. Through prediction, the researcher gives temporary expectations of some of the things that will happen to a particular phenomenon in the future, and It crystallizes them in the form of hypotheses that are later formulated in the form of theories or concepts related to the phenomenon studied.

4- Control and adjustment:

The researcher uses several tools to control phenomena and try to control them under all circumstances.

Scientific research terms

- It is a group of concepts that the researcher formulates, and is related to the basic idea of the research. It reveals the systematic aspect of the concepts and provides a complete perception of the

various dimensions of the concept. It defines the nature of scientific concepts and is a semantic construction of the particular concept.

- It is a group of single words or compound sentences that express certain concepts, according to the researcher's directions.

The difference between a term and a concept

The concept focuses on the mental image, while the term focuses on the verbal meaning of that concept. Also, the concept is considered prior to the term, so we conclude from this that every concept is a term and not every term is a concept, and that the concept is the content of the word term.

Objectives of scientific research

- Developing scientific talents, forming mental abilities, and expanding mental awareness.
- Encourages creativity and scientific excellence by being aware of scientific facts and accuracy in achievement.
- Encourages mastering the art of reading of all kinds as the most important step in collecting scientific material and a basis for preparing scientific research.
- Developing the ability to coordinate linguistic style and express information.
- Knowledge of scientific methods and approaches that are consistent with applied and theoretical sciences.
- Proficient preparation of scientific research of all kinds, whether literary, human, or applied scientific, and understanding its pillars.
- Adding new knowledge to the theoretical human sciences or applied natural sciences.
- Mastering foreign languages, as the researcher must be open to science and other nations to develop his knowledge.

The importance of scientific research in the sports field

- Developing players in various games and in all physical, skill, tactical and psychological aspects.
- Finding appropriate scientific methods to select athletes that suit their sports specializations.
- Treating many health and physical problems for all segments of society.
- Developing sports clubs administratively, technically and economically.
- Finding the best teaching and training methods for student athletes.
- Innovating advanced motor training and learning methods.
- Finding and creating the best means of measurement and analysis for the sports level.

Therefore, scientific research is the organized investigation by following specific scientific methods and approaches to scientific facts with the aim of discovering them, verifying their validity, modifying them, rejecting them, or adding something new to them.

Definition of researcher

-He is a person who has innate and psychological preparations, in addition to the acquired scientific competence that qualifies him to carry out scientific research. Prior scientific qualification in the field of research and sufficient prior knowledge is a basic requirement for finding a competent researcher and forming his scientific personality.

- He is the one who has the ability to organize the information that he wants to convey to the reader in a logical manner that has meaning, arranging his thoughts in a sequential order in a solid scientific style, far from ambiguity and stagnation.

Characteristics of a scientific researcher

The researcher must have specific qualities and abilities, which may be inherited or developed through upbringing and teaching, including:

- Love of curiosity

- The power of observation and the validity of perception
- Patience and perseverance Guessing and imagination are a means of conscious thinking and intellectual inspiration
- Intellectual flexibility by accepting opinions and interpreting them objectively
- Patience, deliberation, sincerity, and the desire to seek knowledge...as it is said, “Knowledge does not give you pure wisdom until you give it pure love.”

Definition of supervisor

- He is the person who guides the student in his research. He begins his work very early with the student from the stage of choosing the topic until the discussion.
- He is aware of every big or small thing the student does.

Definition of scientific supervision:

It is a specialized professor directing a student in his research to the scientific method for studying a topic and how to present its issues, discuss them, and draw conclusions from them in accordance with established scientific standards. It must also stimulate the student's talents and develop his mental abilities and abilities while adhering to the research methodology.

Characteristics of a good supervisor

He is someone who has a number of qualities, including:

- He tries to update his information and keep pace with developments in the field of scientific research. Broad culture, intellectual flexibility, and continuous renewal of information are the basic rules for his success as a distinguished supervisor.
- Having the scientific and moral spirit that makes him a role model for students and a place of trust for them.
- He must have experience in research, specialize in it, and have a level of scientific and cognitive maturity.
- Familiar with scientific research methodology.

Conclusion

From the above, it is clear that the qualities that the researcher must possess contribute greatly to his control over the research topic and achieving the goals set for it, based on adherence to the characteristics and basics of scientific research.

Conclusion

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