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Measuring and Evaluating the Accuracy of Mental Imagery in Young Athletes Based on Mental Response Time

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Abstract

Visual imagination progresses through three stages. The first stage is called initial attention for learning, in which we perceive the movement as a whole but cannot see the finer details. For example, when the teacher performs, the learner sees The movement as a whole, without delving into its minute details, highlights the formula that contains the form and the ground. The second stage: the form appears more prominently than the ground, and the minute details begin to emerge It begins with understanding the whole shape, then moves on to its finer details such as the way things are held, the movement of the arm with the advance of the leg, etc. The learner begins with a holistic view of the situation and then understands its constituent elements.

The third stage: In this stage, when the performance is presented to someone, they first perceive it as a whole, then examine its simpler parts and details in order to have a complete understanding of the performance. Then it is done It was summoned when needed to perform it, and the research problem, through the researcher's continuous monitoring through scientific communication, identified one of the important cases in acquiring scientific knowledge, which is The process of measuring the extent of a child's concentration towards more than one image or overlapping images in a single image, as well as the amount of time it takes a person to discover the secrets contained within a single image It is essential to delve into this field with an educated segment of the population, namely elementary school students. Furthermore, the researcher found a scarcity of scientific studies addressing such topics The research aims to identify the level of visual imagination among the student sample and to determine the extent of differences between models according to their level of difficulty. The researcher chose the descriptive approach The survey method was chosen to solve the research problem, as it was the most suitable approach to achieving the research objectives. The research population consisted of (40) emerging athletes in various types of individual and team sports The male and female students from the fifth and sixth grades were divided into (20) male students from the fifth grade and (20) female students from the sixth grade. The most important conclusion is the existence of varying levels of the sample Research into Measuring Intellectual Perception.

Keywords: Measuring And Evaluating The Accuracy Of Mental Imagery, Young Athletes, Mental Response Time.

Introduction

The modern era is characterized by rapid scientific and technological advancements in all fields of scientific life This required conducting many studies and research in order to find solutions to the problems that accompany all areas of life, which require a scientific and practical solution.

Most of the things around us are directly related to, and indeed influence, our visual imagination in general through the fundamental characteristics of the world we live in, given that it is teeming with an infinite number of subjects and things Organisms that emit stimuli corresponding to one sense or another are transmitted by sensory nerves to the brain, which in turn performs a complex and lengthy process that ends with interpreting the sensations and giving them meaning. This is The process of imagination: the stimuli emitted by things and beings reach the senses in an integrated system. We see what is presented for viewing, and the stimuli that are drawn on the eye from a perspective in themselves are sufficient to form a true perception of it.

Visual imagination is very important in all fields, as it helps in accurately diagnosing a particular situation, perceiving the smallest details, and so on.

In our world, we perceive certain things that stand out and are prominent in our field of perception, unlike other things associated with them. There are things that impose their existence upon us, attracting our attention, and these things are called Clear forms exist, and a form consists of a figure and a background. The figure is clearer than the background, and together the figure and background form a complete form. The form's prominence and perception are enhanced by the fact that we see it in A specific perimeter; this perimeter is the ground, and the shape on this ground has size, boundaries, and meaning, which helps it to stand out.

The form is characterized by density and complexity, while the ground is characterized by simplicity. Likewise, the form has defined boundaries, while the ground has no boundaries, and the form is more cohesive than the ground, while the ground is more fluid Less clearly, the form is richer and more meaningful than the ground. Our perception of an object is also influenced by the distance separating us from it, its color, degree of shine, and movement (Abdul Rahman Muhammad Isawi, 1988). Therefore, visual imagination passes through three stages:

The first stage, called initial attention in learning, is when we see the movement as a whole but cannot perceive its finer details. When the teacher demonstrates, the learner sees the movement as a whole without delving into the specifics The simplest details emerge, highlighting the overall form and background.

The second stage: The form becomes more prominent than the background, and the simplest details begin to appear By understanding the whole picture, then moving on to its finer details such as the way things are held, the movement of the arm with the advance of the leg, etc., the learner begins with a holistic view of the situation and then understands its constituent elements The third stage: In this stage, when the performance is presented to someone, they first perceive it as a whole, then they examine its simple parts and details in order to have a complete understanding of the performance It is called upon when its performance is required.

Research Problem

Through continuous monitoring by the researcher via scientific communication, one of the important aspects of acquiring scientific knowledge was diagnosed: the process of measuring the child's level of focus on more than one aspect The image, or the overlapping images within a single image, as well as the amount of time it takes someone to discover the secrets contained within that single image, necessitates delving into this area The target group is an educated segment, namely elementary school students. The researcher also found a scarcity of scientific studies addressing such topics.

All these reasons prompted the researchers to conduct this study in order to identify the most important scientific facts that contribute to the required success processes, and make it easier for those working in these fields to work according to the scientific results.

Research Objectives

1- To identify the level of visual imagination among the student sample.

2- To identify the extent of differences between the models according to their level of difficulty.

Research hypotheses

1- There is a difference in the level of visual imagination when diagnosing the content of images among the members of the research sample.

2- There are statistically significant differences between the applied models.

Research Areas

1. Human Scope: Emerging Athletes for the Year (2025-2026)
2. Temporal Scope: From 1/11/2025 to 25/4/2026
3. Spatial Scope: Schools designated for the research sample

Materials and Methods

Explain the research design, participants or samples, research instruments, data collection procedures, research implementation, and data analys

Choosing the appropriate methodology to solve the research problem is a crucial step that has significant implications The success of the research depends on the nature of the problem, its clarity, and the availability of accurate information about it, which distinguishes it from other research problems.

Therefore, the researcher chose the descriptive survey method to solve the research problem, as it is the most suitable method for achieving the research objectives, "because it is a method or approach among research methods that addresses a problem Clear, specific, and with fixed objectives (Marwan Abdul Majeed, 2000).

Research Population and Sample

The research community consisted of (40) emerging male and female athletes in various types of individual and team sports from the fifth and sixth grades, divided into (20) male students from the fifth grade (20) female students from the sixth grade.

The sample is the model upon which the application is carried out; therefore, the researcher, when beginning this study of individuals It is impossible to study all individuals or the entire population; this is extremely difficult. Therefore, the researcher selects a specific sample from that population for study (Layla El-Sayed Farhat, 2001). The main purpose The purpose of selecting a research sample is to represent the results of this research on the overall population, which the researcher selected according to the research objectives. Therefore, the researcher had to choose the research population as the research sample, where it was The sample was divided into two groups: male students in the first group and female students in the second group, from two educational stages (fifth and sixth grades), to identify the differences between male and female students in the amount Response and conceptualization.

Methods of data collection and equipment used

The researcher used the following methods, tools, and equipment to obtain his data

First: Methods:

1- Sources and references.

2- Personal interviews.

Second: Tools and equipment used:

The researcher used the following tools and equipment

1- One (1) laptop computer.

2- One (1) Canon laser printer.

Test used:

*- Test name: Visual Perception Test (Saad Jalal, 1962)

The purpose of the test: To measure visual perception.

Tools used: Computer, set of pictures, stopwatch.

Test procedure: The test subject sits down, and four images are displayed in front of the subject. Each image contains different shapes, generated by a computer. A time limit of (1) second is given for each shape In the picture, there is a different time interval between one picture and another depending on the number of shapes present in the picture, and then the laboratory records the number of shapes that it was able to see

Recording method: The number of overlapping shapes in a single image observed during the test time of (40) seconds is counted. The time for answering each image is (10) seconds One mark for each correct answer within the allotted time.

Pilot Test:

The visual perception test was administered to a group of students as a sample before proceeding The final application, on a sample other than the research sample, was intended to:

1. Determine the suitability of the items prepared for this purpose.
2. The clarity of the test components and the user's ability to respond to them.
3. Calculating the response time and the total time taken to complete the test.
4. Ensuring the clarity of the test instructions.
5. Answering any questions or inquiries.

The scientific basis of the test

The researcher did not conduct the scientific basis of the test because the test is taken from scientific books and it includes the age groups of elementary school students, and its validity, reliability and objectivity have been proven

Main Experiment

After the appropriate test was scientifically selected and the research sample of students was determined, the researcher applied the measurements to the sample members on 11/2/2025

After the application was completed, the results of the responses were processed according to the search variables as shown in the search results.

Statistical Methods

The statistical coefficients related to the final application of the research were extracted using the Statistical Package for the Social Sciences (SPSS) version (19). The following statistical methods were used.

1. Arithmetic mean.
2. Standard deviation.
3. T-test for paired samples.

Results and Discussion

Table 1. shows the arithmetic means and standard deviations between male and female students and the (T) score when applying the optical illusion test.

Grade Level	Females Mean ± SD	Males Mean ± SD	t-value	p-value	Result
Fifth Grade	6.10 ± 1.23	8.20 ± 1.32	5.48	0.02	Significant
Sixth Grade	4.22 ± 1.11	6.13 ± 1.08	2.26	0.03	Significant

Note. df = 19; significance level = 0.05.

The visual perception area is the largest sensory area in the brain, thus affecting the amount of learning. If the initial presentation of the learning skill is accurate, the brain receives a strong learning message that produces He learned about it in terms of quantity and quality, "and the more signals there are through repeating the message, the more the information remains for the longest possible period" (Muhammad Ziad Hamdan, 1981, p. 45).

For the cognitive interpretation of information and educational messages about model performance to occur, the learner must be able to interact with the relevant stimuli successfully and unpredictably; the importance of (visual experience) is To develop visual abilities or perceptual abilities for looking—a matter emphasized by Robert McLeary (1970) in order to accurately determine the positions of objects (2) (Wajih Mahjoub: 200, p. 24) any Confusion resulting from inadequate message reception will lead to chaos in the nervous system (false signals). In learning and performing motor skills, specific types of information must be identified Visual perception (the color, shape, size, etc. of a material) and its correct and timely understanding to allow for an appropriate response. Scientists (Koffka, Köhler, and Wertheimer) have found that According to the leading figures of the German Gestalt school, visual perception occupies the first place in cognitive perceptual powers, and perceptions in general play an important role in the formation of the learner's mental, psychological, and social development The lack of integrated perception in humans is a pathological condition that distorts cognitive processes (http://www.arabpsynet 2001 n.46). Perception plays an important role in problem-solving Tactical skills are crucial in team games during play because such activities involve many changing situations that require the learner to always understand all the elements of the situation He faces it in order to overcome it, as these situations do not repeat themselves in the same way every time. Therefore, he needs to think about the appropriate situation quickly, and this only comes after realizing the magnitude of the challenge The elements of the situation he faces, therefore perception is important "not only to learn how to perform skills but also to solve the problems that the learner faces during games" (Abdul Rahman Muhammad Issawi 1988, p. 28).

The learner receives an unlimited number of visual stimuli during learning, but the learner does not receive all of these stimuli with the same degree of clarity because humans have a limited capacity to comprehend all of them Information is presented simultaneously, so the learner's perceptions are stimulated in intensity and acceptance from one situation to another. Therefore, we find that some of these visual stimuli appear in our field of perception more clearly than others If a teacher performs a specific skill, such as passing a book, a student interested in the subject will focus on the teacher's performance rather than their clothing or appearance. This is because the learner perceives, among other things, the teacher's performance Objects that stand out in the field of perception more than others.

"In our world, we perceive certain things that are distinguished and stand out in our field of perception more than other things Along with it, there are things that impose their existence on us by force, attracting our attention. These obvious things are called formulas, and a formula consists of a form and a ground, and the form is more obvious than the ground The form and the ground together form an integrated whole. The fact that we see the form within a specific context helps it to stand out and be perceived. This context is the ground, and the form on this ground has size, boundaries, and meaning This helps to highlight it" (Ahmed Mohamed Khater et al., 1978, p. 126)

"The form is characterized by density and complexity, while the ground is characterized by simplicity. Likewise, the form has boundaries A comma, while the ground has no boundaries and the form is more solid than the ground, while the ground is more fluid and less distinct, and the form is richer and more meaningful than the ground. Our perception of an object is also affected by the distance between us We are separated from it by its color, degree of brightness, and movement." Therefore, visual perception goes through three stages. The first stage is called the initial perception of learning, in which we see the movement as a whole and cannot see The minute details of the movement. When the teacher performs, the learner sees the movement as a whole without going into its simple details, so the formula that contains the form and the ground is highlighted.

The second stage: The shape appears more than the ground, so the simple details begin to appear and the full shape is perceived, then it moves on to the finer details such as the way the ball is held The movement of the throwing arm with the advancing leg and other movements, so the learner begins with a holistic view of the situation and then realizes the elements that make it up.

The third stage: In this stage, when the model is presented to the learner, he first understands it as a whole, then examines its simple parts and details in order to have a complete understanding of the model They are called upon when needed for their performance.

For the three stages to be completed, the following conditions must be met: The subject matter must be within the learner's field of understanding.

Conclusions

1. There are significant differences in the intellectual perception levels of the research sample.
2. There is a statistically significant disparity in the levels of difference between the junior athletes in the fifth and sixth grades.

Recommendations

1. This study and its results should be adopted as applied tests.
2. Similar studies should be conducted with other samples.
3. Adopting additional tests and methods that serve the academic and cultural level of university students.

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