

SCIENTIFIC FOUNDATIONS AND DEVELOPMENT METHODS OF PHENOMENAL MEMORY

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ABSTRACT: This article extensively explores the concept of phenomenal memory, its scientific foundations, and development methods. Phenomenal memory refers to a person's ability to retain large volumes of information for extended periods and recall them quickly. The article analyzes the neurological, cognitive, and genetic theories behind this phenomenon, along with real-life examples supported by scientific research. Additionally, mnemonic techniques, meditation, attention exercises, and a healthy lifestyle are recommended for developing phenomenal memory. This article may be beneficial for those interested in psychology, neuroscience, and education.

Keywords: Phenomenal memory, memory theories, neurology, cognitive psychology, genetics and memory, mnemonic techniques, memory palace (Loci method), savant syndrome, attention and memory, memory development.

In today's world, the education system in our country is undergoing fundamental reforms. The development strategy of New Uzbekistan aims to find solutions to problems associated with the rapid advancement of technology and innovation. One of the main objectives in this field is to stay informed about the latest scientific and technological achievements, acquire modern technological knowledge, and train highly qualified specialists. Indeed, healthy, educated, and cultured youth are the driving force behind a country's progress, shaping its future and bringing about positive societal changes. Accordingly, raising a well-rounded and accomplished generation is a direct outcome of ongoing educational reforms. In this regard, the fifth goal of the 2022-2026 Development Strategy of New Uzbekistan outlines the importance of ensuring spiritual progress and taking this sector to a new level. This research serves as a contribution toward fulfilling this objective.

Memory is one of the most mysterious and complex aspects of human consciousness. Scientific and practical research indicates that some individuals possess exceptionally developed memory abilities, a phenomenon referred to as phenomenal memory. Phenomenal memory is the capacity to retain vast amounts of information for long periods and retrieve them with remarkable accuracy and speed. This article delves into the theories of phenomenal memory, its physiological and psychological foundations, scientific studies, and practical applications.

Phenomenal memory enables a person to remember various types of information, including texts, numbers, images, sounds, and even scents, with exceptional precision. It is characterized by the following features:

The ability to store large amounts of information for extended periods.

Rapid acquisition of newly learned material.

Highly detailed recall.

The capacity to memorize sensory information (visual, auditory, taste, smell, and tactile sensations) with high accuracy.

Some individuals naturally possess phenomenal memory, while others can enhance their memory skills through specific exercises and methods. Theories of Phenomenal Memory – several theories explain the emergence and functioning of phenomenal memory, with the most prominent being:

Neurological Theory – This theory emphasizes the role of brain structures, particularly the hippocampus, prefrontal cortex, and amygdala, in memory processing. Studies suggest that individuals with phenomenal memory exhibit significantly higher hippocampal activity. Neuroplasticity (the brain's ability to reorganize itself by forming new neural connections) is highly developed in such individuals. The speed and strength of neural connections are enhanced, accelerating memory processes. MRI (Magnetic Resonance Imaging) research confirms that the brains of individuals with phenomenal memory differ from those of the average population.

Cognitive Theory – This theory associates phenomenal memory with attention, perception, and associative thinking abilities. Individuals with phenomenal memory use special strategies (visualization, association, repetition) to retain information. They effectively apply the chunking technique (breaking information into smaller groups). The process of transferring short-term memory to long-term memory occurs more efficiently and rapidly.

Genetic Theory – Some scientists propose that phenomenal memory may be influenced by hereditary factors. Evidence suggests that strong memory abilities can run in families across multiple generations. For instance, individuals with savant syndrome (often associated with autism spectrum disorder) may naturally possess extraordinary memory skills. Several real-life examples support the existence of phenomenal memory:

Kim Peek (1951-2009) – He read over 12,000 books and could recall every page verbatim. His memory was so powerful that he could read two pages simultaneously, one with each eye.

Solomon Shereshevsky – A Russian journalist who could remember virtually unlimited amounts of information using visualization and associative thinking strategies.

Stephen Wiltshire – A renowned artist who could perfectly recreate entire cityscapes after viewing them just once.

Although some individuals are naturally gifted with phenomenal memory, scientific research confirms that memory can be significantly improved through specific exercises and methods.

Loci Method (Memory Palace): Associating information with familiar locations to enhance recall.

Association Methods: Connecting new information with visual images or stories.

Acronyms and Abbreviations: Using short formulas to retain complex information.

Brain-Boosting Foods: Foods such as walnuts, fish oil, green tea, and dark chocolate contribute to enhanced brain function.

Physical Exercise: Improves blood circulation to the brain, strengthening memory.

Active Learning Strategies: Writing down information and reviewing it repeatedly reinforces long-term memory. Explaining learned material to others further solidifies knowledge retention.

In summary, phenomenal memory is one of the most fascinating abilities of the human mind. It has physiological, psychological, and genetic foundations. While some individuals are naturally endowed with this ability, others can develop it through specific methods and techniques. As modern science continues to explore this field, new breakthroughs will likely emerge, helping us better understand the limitless potential of human memory.

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