

MENTAL COMBINATION

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October 17, 2025

RECOMMENDED CITATION

mohammad looti (2025). *MENTAL COMBINATION*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=47097>

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Primary Disciplinary Field(s): Developmental Psychology, Cognitive Psychology

1. Core Definition

The concept of **Mental Combination** refers to the final and most advanced substage of the Sensorimotor Stage within the comprehensive framework of **Jean Piaget's** theory of cognitive development. This critical developmental period typically spans from approximately 18 to 24 months of age. Fundamentally, it represents the infant's transition from relying solely on external, physical trial-and-error experimentation to developing the capacity for internal, symbolic thought processes.

Before this substage, infants primarily solved problems through overt physical actions--by manipulating objects directly and observing the consequences. **Mental Combination** signifies a profound cognitive shift, allowing the child to internalize these actions. Instead of having to physically explore every possibility, the child begins to utilize mental imagery and symbolic representations to contemplate solutions, predict outcomes, and plan sequences of action before execution. This newfound ability to form and manipulate mental representations is a hallmark of the sixth and final sensorimotor substage, often referred to specifically as the "Invention of New Means Through Mental Combination."

2. Context within Piaget's Theory

The Sensorimotor Stage, which encompasses the first two years of life, is characterized by the infant constructing an understanding of the world by coordinating sensory experiences with physical actions. Piaget meticulously divided this stage into six sequential substages, each building upon the complexity of the preceding one. **Mental Combination** (Substage 6) serves as the necessary bridge connecting the purely physical intelligence of infancy with the sophisticated, symbolic reasoning that defines the subsequent Preoperational Stage.

The preceding Substage 5, "Tertiary Circular Reactions," involves active experimentation where the child repeatedly tries out novel variations of actions to observe the effects, akin to a "little scientist" exploring the properties of objects through physical manipulation. However, this experimentation remains external. The establishment of **Mental Combination** in Substage 6 internalizes this experimentation, allowing the child to find novel solutions entirely in their mind. This ability to mentally represent objects and events, known as internal representation, is crucial for the development of language and other complex cognitive functions.

3. Key Characteristics and Manifestation

The emergence of **Mental Combination** is recognized through several observable changes in the child's behavior, which demonstrate a clear leap beyond simple motor learning into genuinely cognitive problem-solving. These manifestations prove that the child is now capable of manipulating symbols in the absence of the physical objects themselves.

One of the most evident characteristics is the rapid and efficient solution of problems that previously required extensive, error-prone physical searching. For example, if a toy is hidden in a series of steps, a child in Substage 6 can mentally trace the object's path and immediately locate it, rather than searching haphazardly. This demonstrates the consolidation of **Object Permanence**, particularly the ability to infer invisible displacements, a capacity that relies heavily on internal mental mapping.

Key behavioral characteristics illustrating the establishment of mental combinations include:

Deferred Imitation: The ability to observe a behavior displayed by another person (the model) and reproduce that behavior later, even hours or days after the original observation. This requires the child to store the mental image or schema of the action for later retrieval and execution.

Symbolic Play: The beginning of using one object to stand for another (e.g., using a block as a telephone or a spoon as a magic wand). This is perhaps the most obvious behavioral indicator that the child is capable of arbitrary symbolic representation.

Insightful Problem Solving: Instead of relying on chance discovery or random trial-and-error, the child demonstrates an ability to stop, think, and arrive at a solution seemingly spontaneously, often suggesting that the solution was constructed mentally before being acted out.

4. Significance: The Transition to Preoperational Thought

The achievement of **Mental Combination** is perhaps the most significant milestone in the entire Sensorimotor Stage because it marks the definitive end of the infant period and the initiation of true, pre-logical thought. This substage successfully frees the child from the constraints of immediate perception and action, granting them access to the powerful tool of representation.

Without the establishment of **internal representation**, which is the core mechanism of **Mental Combination**, the child would be unable to engage in the symbolic activities that define the next developmental period, the Preoperational Stage (ages 2 to 7). The capacity for language acquisition, which is fundamentally based on using words (symbols) to represent objects and concepts, accelerates dramatically once mental combinations are firmly established.

Furthermore, this transition allows for the development of fundamental logical concepts. The ability

to mentally combine or sequence actions is the precursor to understanding concepts like cause-and-effect outside of immediate sensory feedback. This intellectual leap permits the child to begin conceptualizing time, space, and causality in increasingly abstract ways, setting the foundation for logical operations later in childhood.

5. Further Reading

[Jean Piaget \(Wikipedia\)](#)

[Sensorimotor Stage of Cognitive Development \(Wikipedia\)](#)

[Psychology Dictionary Entry: Mental Combination](#)

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