

**COGNITIVE PSYCHOLOGY**

**Assignment No. 1**

* **TOPIC**: THINKING

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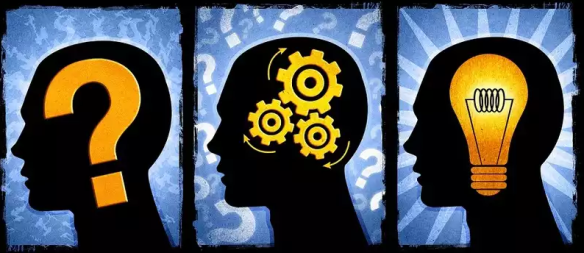
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**THINKING**

**INTRODUCTION:**

Thinking is the mental process in which beings form psychological associations and models of the world. Thinking is manipulating information, as when we form concepts, engage in problem so Cognitive abilities like thinking, reasoning and problem-solving may be considered to be some of the chief characteristics which distinguish human beings from other species including the higher animals.

The challenges and problems faced by the individual or by society, in general are solved through series of efforts involving thinking, reasoning and making decisions. Thought, the act of thinking, produces thoughts.



**DEFINITIONS:**

* Ross:

“Thinking is a mental activity in its cognitive aspect or mental activity with regard to psychological aspects”.

* Garrett:

“Thinking is a behavior which is often implicit and hidden and in which symbols are ordinarily employed”.

* Gilmer:

“Thinking is a problem-solving process in which we use ideas or symbols in place of overt activity”.

**TYPES OF THINKING:**

Thinking can be classified as follows:

1. **Perceptual or Concrete Thinking:**

This is the simplest form of thinking the basis of this type is perception, i.e. interpretation of sensation according to one’s experience. It is also called concrete thinking as it is carried out on the perception of actual or concrete objects and events.

1. **Conceptual or Abstract Thinking:**

When we makes use of concepts, the generalized objects and languages, it is regarded as being superior to perceptual thinking as it economizes efforts in understanding and problem-solving.

1. **Reflective Thinking:**

This type of thinking aims in solving complex problems, thus it requires reorganization of all the relevant experiences to a situation or removing obstacles instead of relating with that experiences or ideas.

This is an insightful cognitive approach in reflective thinking as the mental activity here does not involve the mechanical trial and error type of efforts.

1. **Creative Thinking:**

This type of thinking is associated with one’s ability to create or construct something new, novel or unusual. It looks for new relationships and associations to describe and interpret the nature of things, events and situations. Here the individual himself usually formulates the evidences and tools for its solution. For example; scientists, artists or inventors.

**BF Skinner**, the famous psychologist says creative thinking means that the prediction and inferences for the individual are new, original, ingenious and unusual. The creative thinker is one who expresses new ideas and makes new observations, new predictions and new inferences in order to arrive at a solution of the problem.

**Characteristics of Creative Thinking:**

1. Creative thinking, in all its shapes and forms is absolutely an internal mental process and hence should be considered as an important component of one’s cognitive behavior.
2. Every one of us is capable of creative thinking and hence it is a universal phenomenon.
3. Creative thinking results in the production of something new or novel including a new form of arrangement of old elements.
4. Creative thinking in all its dimensions involve divergent thinking instead of the routine and final types of convergent thinking. The mind must have complete freedom to wander around to create a new idea.
5. The field of creative thinking and its out part is quite comprehensive and built wide. It covers all the aspects of human accomplishments belonging to an individual’s life.
6. **Critical Thinking:**

It is a type of thinking that helps a person in stepping aside from his own personal beliefs, prejudices and opinions to sort out the faiths and discover the truth, even at the expense of his basic belief system.

In this type of thinking one resorts to set higher cognitive abilities and skills for the proper interpretation, analysis, evaluation and inference, as well as explanation of the gathered or communicated information resulting in a purposeful unbiased and self-regulatory judgments.

1. **Non-directed or Associative Thinking:**

There are times when we find ourselves engaged in a unique type of thinking which is non-directed and without goal. It is reflected through dreaming and other free-flowing uncontrolled activities. Psychologically these forms of thought are termed as associative thinking.

Day-dreaming, fantasy and delusions all fall in the category of withdrawal behavior that helps an individual to escape from the demands of the real world.

There is nothing seriously abnormal in behavior involving day­dreaming and fantasy but behavior involving delusions definitely points towards abnormality.

A person under the influence of such delusions may think or believe that he is a millionaire, the ruler of the universe, a great inventor, or even God.

**TOOLS OF THINKING:**



There are a few important elements involved in the thinking process:

1. **Images:**

As mental pictures consist of personal experiences of objects, persons or situations, heard and felt. These mental pictures symbolize actual objects, experiences and activities. In thinking, we usually manipulate the images rather than the actual objects, experiences or activities.

1. **Concepts:**

A concept is a general idea that stands for a general class and represents the common characteristics of all objects or events of this general class. Concept, as a tool, economize the efforts in thinking, for example, when we hear the word ‘elephant’ we are at once reminded not only about the nature and qualities of elephant as a class but also our own experiences and understanding of them come to the surface in our consciousness to stimulate our thinking at that time.

1. **Symbols and signs:**

Symbols and signs represent and stand for substitute of the actual objects, experiences and activities. For example, traffic lights, railway signals, school bells, badges, songs, flags and slogans all are symbolic expressions, they stimulate and motivate resultant thinking because they tell us what to do or how to act.

1. **Language:**

Language is the most efficient and developed vehicle used for carrying out the process of thinking. When a person reads, writes or hears words or sentences or observes gesture in any language one is stimulated to think. Thus reading and writing of documents and literature also help in stimulating and promoting the thinking process.

1. **Muscular activities:**

Muscular activities also play a very important role in the process of thinking. A high positive relation has been found to exist for the thinking and muscular activities of an individual. The more we engage ourselves in thought, the greater is the general muscular tension and conversely as we moved towards muscular tension, our thought processes gradually diminish.

1. **Brain functions:**

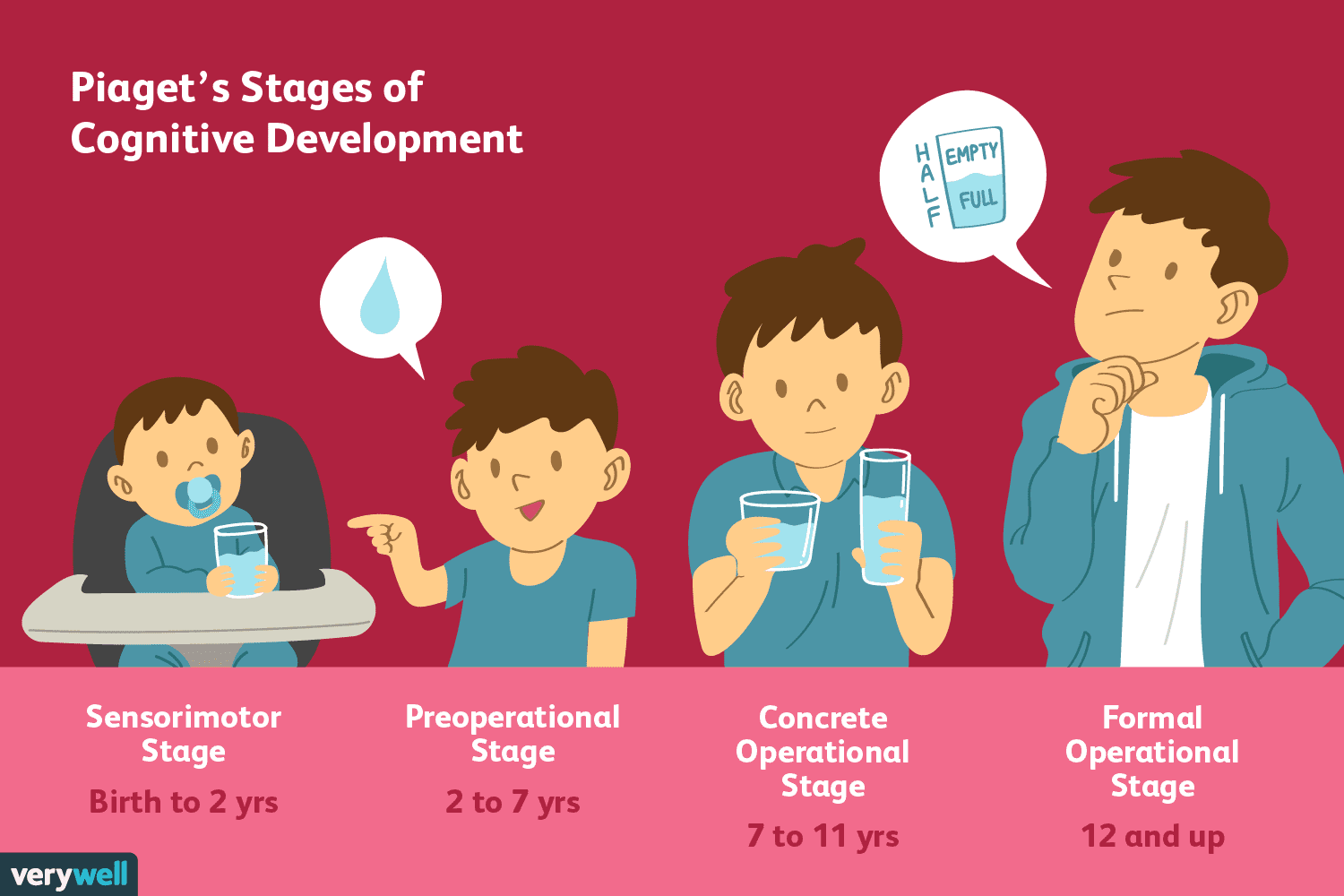
Whatever may be the role of the muscles, thinking is primarily a function of the brain. Our mind is said to be the chief instrument of the thinking process. The experiences registered by our sense organs have no meaning, and thus cannot serve as stimulating agents, or instruments for thinking unless these impressions are received by our brain cells and properly interpreted to derive some meaning.

The mental pictures or images can be stored, reconstructed or put to use only on being processed by the brain. What happens in our thought process is simply the function or product of the activities of our brain.

**THEORIES OF THINKING:**

1. **JEAN PIAGET’S COGNITIVE DEVELOPMENT:**

Jean Piaget's theory of cognitive development suggests that children move through four different stages of mental development. His theory focuses not only on understanding how children acquire knowledge, but also on understanding the nature of intelligence. Piaget's stages are:



1. **The Sensorimotor Stage**

Ages: Birth to 2 Years

Major Characteristics and Developmental Changes:

* The infant knows the world through their movements and sensations
* Children learn about the world through basic actions such as sucking, grasping, looking, and listening
* Infants learn that things continue to exist even though they cannot be seen (object permanence)
* They are separate beings from the people and objects around them
* They realize that their actions can cause things to happen in the world around them

1. **The Preoperational Stage**

Ages: 2 to 7 Years

Major Characteristics and Developmental Changes:

* Children begin to think symbolically and learn to use words and pictures to represent objects.
* Children at this stage tend to be egocentric and struggle to see things from the perspective of others.
* While they are getting better with language and thinking, they still tend to think about things in very concrete terms.

1. **The Concrete Operational Stage**

Ages: 7 to 11 Years

Major Characteristics and Developmental Changes

* During this stage, children begin to thinking logically about concrete events
* They begin to understand the concept of conservation; that the amount of liquid in a short, wide cup is equal to that in a tall, skinny glass, for example
* Their thinking becomes more logical and organized, but still very concrete
* Children begin using inductive logic, or reasoning from specific information to a general principle

1. **The Formal Operational Stage**

Ages: 12 and Up

Major Characteristics and Developmental Changes:

* At this stage, the adolescent or young adult begins to think abstractly and reason about hypothetical problems
* Abstract thought emerges
* Teens begin to think more about moral, philosophical, ethical, social, and political issues that require theoretical and abstract reasoning
* Begin to use deductive logic, or reasoning from a general principle to specific information

1. **Sullivan’s Concept of Modes of Thinking:**

Another approach to the development of thinking comes from the views of **H.S. Sullivan** who was a leading psychoanalyst. Sullivan postulates three basic modes.

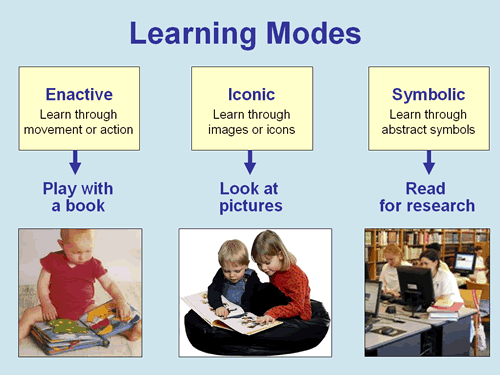
The first and the earliest one is called the **prototaxic mode**. This stage operates in the first year of an individual’s life and during this stage one has no awareness of oneself or one’s ego. Thought process is mostly in the form of a feeling or apprehension. Thought, therefore, does not have a definite structure and is vague.

The next is the **parataxic mode**. During this stage the global or undifferentiated response gives way to specific elementary thought images and contents. Logical operations do not occur yet. According to Sullivan the autistic state of communication reflects a parataxic mode. Thought process is still confused and vague.

The final stage which is known as the **syntaxic mode** represents the development of logical thought processes, enabling the integration and organization of symbols. It is at this stage that thought becomes clear with the possibility of logical operations. This stage would correspond to the stage of formal operations described by Piaget.

1. **Bruner’s Theory:**

Another approach to the development of thinking was outlined by **Jerome S. Bruner**. The stages formulated by him are enactive, iconic, and symbolic representations which are considered more or less comparable to Piaget’s preoperational, concrete operational and formal operational stages. However, Bruner differed from Piaget in focusing on the representations the child uses in thinking rather than on the operations or manipulations which take place in the process.



1. **Enactive Representation Stage:**

A child at this stage adopts the most basic or primitive ways of converting immediate experience into a mental model. This mode of conversion is usually non-verbal and is based on action or movement. Thus, a child’s representations of objects and events in terms of appropriate motor responses or ‘acting out’ are known as enactive representation. Bruner cites Piaget’s experiment to explain this stage.

**“A baby drops a rattle through the bars of its crib. It stops for a moment, brings its hand up to its face, and looks at its hand. Puzzled, it lets its arms fall and shakes the hands as if the rattle were still there; no sound. It investigates its hand again.”**

Bruner suggests that in this situation, the child is representing the rattle when it shakes its hand that is the rattle means shaking its hand-and hearing a noise. Gestures are enactive representations. For instance thumbs up means victory, index finger on your lips means silence, and so on.

1. **Iconic Representation:**

An icon or an image or a pictorial representation is considered to be the method of converting immediate experience into cognitive models using sensory images. This stage was explained by extending Piaget’s study which was described in the previous stage. The child a few months later when it drops the rattle tries to look over the edge of its crib.

When an adult picks it up or if the child is unable to see it, the child may- start screaming and crying. According to Bruner, this sense of loss indicates that the child has an image of the rattle in its mind and that it now distinguishes between shaking his hand and the rattle. This type of ‘picturing’ things to oneself is called iconic representations thinking.

1. **Symbolic Representation:**

As the child grows, it reaches a stage where its cognitions are not always dependent on motor activities or images and pictures. Its cognitive process begins to function in terms of symbols. The symbols do not depend on images or concrete appearances. For example, the word ‘girl’ neither looks nor sounds like a female child. Similarly, the number eight does not resemble the quantity eight.

**DEVELOPMENT OF THINKING:**

Thinking is one of the most important aspects of learning process. Our ability to learn and solve the problems depends upon our ability to think correctly which helps us in adjustment and is necessary for a successful living.

There are few methods which help to develop thinking through training.

1. **Adequacy of the Knowledge and Experience:**

Adequacy of the knowledge and experience is considered to be the background of systematic thinking.

So care should be taken to help the children with adequate knowledge and experiences which can be done by:

(a) Training the children to enhance the process of sensation and perception to gain better knowledge and experience to improve critical thinking.

(b) A person should be provided with opportunities for gaining adequate experiences and should be encouraged for self-study, discussion and participation in healthy and stimulating activities.

1. **Adequate Motivation and Definiteness of Aims:**

Motivation helps in mobilizing our energy for thinking. It creates genuine interest and voluntary attention in the process of thinking, and thus helps a lot in increasing the adequacy and efficiency of our thinking. Thus one should try to think on definite lines with a definite end or purpose, the problems we solve should have intimate connection with our immediate needs and basic motives, and such thinking should be directed on creative and productive activities.

1. **Adequate Freedom and Flexibility:**

Thinking should not be obstructed by imposing unnecessary restrictions and narrowing of the field of thought process. If the past experiences or habitual methods do not help in solving the problem we should strive for new association, relationships and possibilities for arriving at satisfactory results.

1. **Incubation:**

When we set ourselves to solve a problem but fail to solve it in-spite of our strain, putting more efforts to thinking and persistent thinking, it is better to lay aside the problem for some time and relax for a while or engage in some other activity. During this interval a solution is evolved to that specific problem through the efforts of our unconscious mind. This phenomenon of incubation is helpful.

1. **Intelligence and Wisdom:**

Intelligence is defined as the ability to think properly, and thus proper development of intelligence is essential for bringing adequate thinking. Proper care should be taken to use intelligence, wisdom and other cognitive abilities for carrying out the process of thinking.

1. **Proper Development of Concepts and Language:**

Concept is a word or idea with a generalized meaning which represents an entire class of objects, ideas or events. Language is a highly developed system of symbols in which words within a grammar can be written or spoken in different combinations. Much of the thinking depends upon language although some imaging are also present.

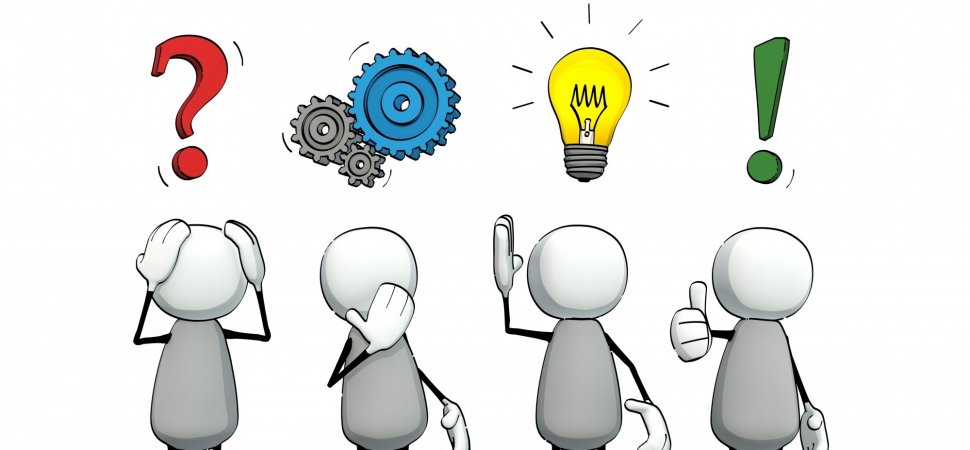
Concepts, symbols, signs, words and language are the vehicles as well as instruments of thought. Without their proper development one cannot proceed effectively on the path of thinking. Their development stimulates and guides the thought process.

Improper development and faulty formation of concepts and likewise, symbolic behavior not only hampers a person’s progress in thinking but also proves fatal, as they may provoke perverted thinking and wrong conclusions.

1. **Adequacy of Reasoning Process:**

Thinking is also influenced by the mode of reasons one adopts. Illogical reasoning often leads to incorrect thinking. Logic is the science of correct reasoning which helps to think correctly. Therefore, we should cultivate the habit of logical reasoning among our children.

**ERRORS IN THINKING:**



Our thinking, reasoning and problem-solving behavior all are largely influenced by our “sets”, which is a kind of habit or a way in which we have accustomed ourselves in perceiving certain situations.

We happen to make mistakes because of our attitude, likes and dislikes, bias or oversimplified thinking, reasoning and problem-solving, etc. These mental sets have been gained from previous experiences surely interfere with our subsequent thinking resulting in ineffective behavior.

Thus our thinking will be defective and harmful if it is not based on correct data or information. Our biases, prejudices and beliefs sometimes do not enable us to think logically. We make wrong conclusion because of our prejudices, hence we are inclined to ignore and overlook those facts which support right conclusion.

* Our thinking is defective because we have allowed ourselves to be swayed by our emotions. Many people do not think clearly and accurately during an examination because they have been disturbed by fear and failure.
* Many times our thinking become fallacious, and cannot view the problem from different angles broadly.
* Many of our thinking may also be distorted by superstitions or by lack of information that is relevant to the subject.
* Many of our wishful thinking are also unscientific thinking. Our prejudices and biases cause conflicts, rationalizations and delusions which are defective thinking as well.