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Basic Cognitive Abilities for Pacing into Higher Realm in Education

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Abstract

The basic cognitive abilities are the brain based tasks namely perception, attention and memory. Perception is interpreting the sensations, attention is the focus of the mind to stimuli or tasks where as memory is retention of the information. Emotions influence the cognitive functions notably attention and memory. If the cognitive abilities are unused they tend to diminish. Regular practice can improve. This paper discusses the strategies to enhance the basic cognitive abilities to lead a successful and triumphant living.

Keywords: Cognitive ability, attention, perception and memory.

1. Introduction

Sensations provide essential information about objects, people and events which an individual deal within their daily life. The important aspects are the basic cognitive abilities like perception, attention and memory which the information, the stuff of cognition is obtained from the senses, transformed as the interpretive process of perception and thinking. It is stored and retrieved through the process of memory and used in problem solving and language (Lahey, 2002) [9].

1.1. Perception a meaningful interpretation

Before one can learn anything perception must takes place. Perception is the process by which the individual extracts meaningful information from the meaningless mosaic of sensory stimulations (Kuppuswamy, 1990) [8]. The process of interpreting sensations and making them meaningful is called perception. Perception is defined in terms of a person's immediate experience of the world (Morgan, 1978) [12]. It means that one has to become aware of it through one of the senses. Usually one has to hear or see it. Subsequently one has to interpret whatever one has seen or heard. Hence, perception means to be interpretation (edublox). Perception was the response properties of neurons could be influenced by experience (Goldstein, 2010) [5]. Perception involves defining and recognizing the problem in a clear-cut manner. Cognition begins with sensation and perception for two reasons. First, it is important to keep in mind that adaptive behavior can result from specialisations in perception as much as from higher-level learning or decision processes. Second, perception provides some excellent examples of modularity and adaptation in information processing. Perception enables one to literally navigate through the world, avoiding danger, making decisions and preparing for action (Asaph & Raja, 2014a) [1].

1.2. Attention- focus of mind

It is the behavioural and cognitive process of selectively concentrating on a discrete aspect of information, whether subjective or objective, while ignoring other perceivable information. Attention has also been referred to as the allocation of limited processing resources (Anderson, J. R., 2004) [15]. According to James (1890) [7], psychologist and philosopher attention "is the taking possession of the mind, in clear and vivid form, of one out of what may seem several simultaneously possible objects or trains of thoughts. It implies withdrawal from some things in order to deal effectively with others." Attention is necessary to focus the mind on a subset of stimuli and tasks (Luck & Vecera, 2002) [11]. The learners' ability to

attend to incoming information can be observed, broken down into a variety of sub-skills, and improved through properly coordinated training. One can train and strengthen the three primary types of attention:

- *Sustained Attention*: The ability to remain focused and on task, and the amount of time one can focus.
- *Selective Attention*: The ability to remain focused and on task while being subjected to related and unrelated sensory input (distractions).
- *Divided Attention*: The ability to remember information while performing a mental operation and attending to two things at once (multi-tasking).

1.3. Memory–retention of information

The ability to store and recall information. It is the retention of information over time. It is central to mental life and information processing (Santrock, 2007) ^[14]. Long-term memory (LTM) and Short-term memory (STM) are the important memory systems

LTM is the ability to recall information that was stored in the past. LTM is critical for spelling, recalling facts on tests, and comprehension. Weak LTM skills create symptoms like forgetting names and phone numbers, and doing poorly on unit tests.

STM or the working memory is the ability to apprehend and hold information in immediate awareness while simultaneously performing a mental operation. Students with STM problems may need to look several times at something before copying, have problems following multi-step instructions, or need to have information repeated often.

1.4. Emotional influence on Cognitive abilities

Emotions influence cognitive processing in number of ways. Emotions provide individuals with information about their environments and their progress towards goals and thereby influence their judgements, decisions, priorities and actions (Palmieri, Boden & Berenbaum, 2009) ^[13]. The amygdala has also been shown to be important in mediating emotion's influence on a number of cognitive functions, most notably attention and memory. Emotion influences attention by enhancing the perception of emotional events. The amygdala's influence on memory ensures that emotional events are more likely to be remembered over time (Ledoux & Phelps, 2010) ^[10].

1.5. Strategies to enhance cognitive abilities

The following are the strategies to implement to enhance the basic cognitive abilities

Rehearsal: It is the most effective way both for transferring information from STM to LTM and storing information in the LTM. Students benefit more from self-testing. Most of the information can be stored permanently.

Mnemonics: It is used to perform amazing feats of recall. It is the memory-improvement technique based on encoding items in special way.

Over learning: The best way to ensure the full understanding of the material is overlearning

Reduce Interference: While learning the information which is important reduce the distractions by choosing a place with minimal interferences.

Self-monitoring: While studying periodically one has to stop and test the understanding of the material. After finishing reading one has to do the additional monitoring of one's understanding.

Manage time: Learning is important. One has to learn in distributed sessions and should avoid cramming.

Avoid absentmindedness: The individual has to keep the mind and focus attention to the instructors' lecture to avoid absentmindedness. It helps him/her in proper encoding and retrieval of information later.

Exercise: Exercise can release the endorphins that are like a powerful happy pill. The individual must try exercise to feel good, clear the mind and maybe it will be struck by inspiration too.

Meditation: Meditation can help combine the benefits of quieting of one's mind, correct breathing and true relaxation to give calmness and refreshed mental energy that makes one feel ready and able to handle the road ahead.

Breath: Taking deep breaths can bring calmness and the feeling of restoration. When a person suffering from anxiety or stress there's a common tendency to breathe shallow or even to hold one's breathe. By actively and consciously spending short time breathing one can help and restore a clear and decision-ready mind.

Music: One can really go somewhere else taking away from the worries. The mental break can feel like a holiday and one can become reenergised and content from it.

Laugh: Laughing can do magical things. Laughter can flip into a positive mindset to move forward steadfastly (Huffman, 2004; Asaph & Raja, 2014c) ^[6, 3].

2. Finally...

Cognitive ability is the mental process that the brain uses to carry out a task. Knowledge is always acquired and interpreted through whatever mental structures currently exist (Galotti, 2009) ^[4]. Cognitive abilities that are not used regularly tend to diminish over time. This may happen at any age but is mostly observed in old age. Fortunately, these cognitive abilities can also be improved with regular practice at any age. Otherwise, time will take its toll and the mind will lose much of its ability to function on the level one wants it to. The mind, much like the body, needs activity to keep it from going downhill before its time.

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