

Learning strategies and information- processing development



Learning can be simply defined as the process that leads to relatively permanent change in behavior or potential change in a person's behavior. Learning makes one change the way they perceive the environment, react to stimuli and interact. Cognitive psychology is a very important branch of modern psychology. The main focus of this approach is the memory-how information is stored and retrieved. Several theories have been developed with regard to this subject such as the stage theory (Atkinson & Shrifin, 1968). The stage theory model is widely accepted since it proposes that information is processed and stored in three sequential stages i. e. " the sensory memory, short-term memory, and long-term memory" (Atkinson & Shrifin, 1968, p. 5).. In addition to this model other accepted theories include " levels-of-processing" theory proposed by Craik and Lockhart (1972), the parallel-distributed processing model and the connectionistic model. This paper examines how attention, memory, recognition and knowledge are related to various learning strategies. In addition, the paper discusses how visual-perceptual, motor and language relate to information processing development.

Information processing development

As stated in the introduction above, cognitive psychology forms an integral part of the discipline of psychology. The most widely used theory is the stage theory whose focus is on how information is stored in memory. Information is processed in three stages and this is done in a serial and scholastic manner. Another important theory is the " levels-of-processing" theory whose proposition is that the learner utilizes different levels of explanation as he or she processes in formation. A major advantage of the information-processing

strategies is in their explicitness and accuracy in dividing complex cognitive functions into distinct elements that can be easily studied. However, when it comes to analyzing cognition into its distinct parts; information processing fails to re-unite them into a general, comprehensive construct. In addition, most information processing tools such as computer models have lost touch with real-life learning experiences (Berk, 2009).

Information processing approach towards cognition seeks to explain how the learner (children and adults) operate on the different types of information. Most scholars view the mind as a complex system (a type of computer) through which information flows and is manipulated. General models such as the store model by Atkinson and Shiffrin assume that information is stored in three parts of the brain for processing: “ the sensory register, short-term memory, and long-term memory” (Berk, 2010, para. 1). Craik and Lockhart (1972) level-of-processing model assumes that information is transferred from working memory to the long-term memory depending on the level processing.

There exist several other information processing developmental models such as the Case’s theory which is a reinterpretation of Piaget’s theory of information processing model. Case views cognitive development as the increase in information processing capacity as a result of brain development which can be linked to more efficient learning strategies. Connectionism on the other hand explains information processing development as a result of learning strategies such as computer-simulated strategies which enhance; inter-connectivity of processing units that are well stratified just like the neurological structure of the brain. Siegler’s using his model of learning <https://assignbuster.com/learning-strategies-and-information-processing-development/>

strategy choice argues that, learners always generate a number of strategies for problem solving, the more the experience, the more strategies are selected or discarded (Kail & Cavanaugh, 2008).

Attention is a critical factor when it comes to human thinking, it dictates the information that will be considered when undertaking a task. Attention is greatly enhanced during early and middle stages of childhood. Thus, improved attention makes one to be more adaptable, selective and organized. Enhanced cognitive reticence and efficacy of attentional learning strategies are pertinent to the fine-tuning of selective attention. The fine tuning of attentional learning strategies takes place in four stages: “production deficiency, control deficiency, utilization deficiency, and effective strategy use” (para. 2). Whenever there is a problem with attention students would develop learning disorders. The argument here is that, when a student is learning a new concept, their attention needs to be focused on the new concept. If they fail to fully pay their attention, it means that they will have a serious problem with the learning of the new information (Kail & Cavanaugh, 2008).

Memory strategies are said to improve with age, as children continue to develop various methods such as, organization, and elaboration. This increases the likelihood of storing information in working memory and its consequential transfer to the long-term knowledge bank. Thus, over childhood stages and even in adolescence, students’ recall steadily improves as knowledge is continually amassed and its organization is improved effectively. Children’s metacognitive abilities usually change from passivity to activity. A more productive view of mental functioning increases with the <https://assignbuster.com/learning-strategies-and-information-processing-development/>

increase in awareness of information processing strategies, cognitive aptitudes, and task variables. Self-regulation cognitively develops gradually during childhood and adolescence stages. Recently, scholars of information-processing have focused their attention towards academic learning of children (Berk, 2009).

Visual-perceptual, motor and language relation to information processing development

A visual-perceptual skill is simply the brain's ability to process information as seen. Previously, most scholars had assumed that a deficiency in visual-perceptual skills was directly linked to the malfunctioning of the eye. That is having a poor physical vision or poor muscle control in the eye. However, the presence or absence of physical vision has nothing to do with visual perceptual. Instead, visual perceptual refers to the ability of the brain the receiving of visual information, its interpretation, organization, storage, and transmission Thus, if a student's brain is not properly storing information, recall will definitely be poor. This directly affects the student's ability to concentrate and read since he or she has a slow recall of words. The slowing down of recall can also have a negative impact on their mathematical abilities let alone their fluency in speech and reading (Smith 2004).

Language and phonological processing abilities are affected by the student's ability to store, process, and retrieve information. Usually language and phonological problems are rooted to reading disorders. Many students with reading disorders have difficulty storing, processing, and retrieving information. A normal student's left brain hemisphere becomes dominant when they are carrying out tasks involving language processing (Berk 2009).

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A student's motor skills are also an important factor when discussing about learning strategies. Children will learn from their interaction with the environment; this ability is affected hindered by a child's motor or verbal skills, a child will learn better when their motor skills are well developed. This can be observed in a math class. A conventional practice in the learning of fractions is the use of multiplication. A student with a problem with their motor skills will have a problem with the use of manipulatives. Thus they will definitely have it rough when it comes to the learning of fractions (Berk, 2010).

Conclusion

This paper argues that there exist several other information processing developmental models such as the Case's theory which is a reinterpretation of Piaget's theory of information processing model. Case views cognitive development as the increase in information processing capacity as a result of brain development which can be linked to more efficient learning strategies. The most widely used theory is the stage theory whose focus is on how information is stored in memory. Learning strategies such as memory strategies are pertinent to the process of information development. Information processing approach towards cognition explains how the learner operates on various kinds of information. The mind is a complex system (a type of computer) through which information flows and is manipulated. Deficits in information processing skills have negative impacts on a student's ability to learn effectively. This is attributed to the reason that all learning is relatively cumulative. Thus, problems in learning should be detected early in

enough and solved otherwise; they would get worse with advancement of age.