Cognition and Human Performance

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Notes

1. Perception and Recognition

- Perception is the process by which an organism acquires and processes sensory information like sight, sound, touch or taste and this information enables the organism to come up with appropriate action in response to the sensory information. The processing of information within the organism may involve complex processes of transformation and interpretation in order to derive meaning from the information. On the other hand, cognition refers to the process of acquiring knowledge and understanding through thought, the senses and experience. Therefore, perception aids in the process of cognition because it provides the correct interpretation of information from which knowledge and understanding is derived.
- Perceptual organisation refers to the determination of which visual information that one receives belongs together to form an object. It arises from perceptual segregation, which refers to working out which parts of visual information form separate objects.
- Object perception and recognition refers to the processes that are involved in the identification of the objects that are in the world around us. Of importance in this process is perceptual organization, which refers to the process through which one decides which parts of visual information that is presented to them belongs together and thus, forms an object. The reason why object recognition constitutes an interesting psychological problem is because there is more to it than may appear at first instance. In fact, object recognition involves a lot of complex processes that are not often appreciated. For instance, even though a person may easily identify a table as an object, there are many other visual properties like colour and size, which are assigned to the same category without much thought. Also, objects in the environment usually overlap when considered from a particular line of vision. Evidently, therefore,

object recognition also entails the determination of where one object ends and another one starts. For this reason, it is a psychological problem because it involves numerous psychological processes and functions.

- Categorical perception (CP) is the phenomenon by which the categories possessed by an observer influences the observers' perception. Experimentally, CP is revealed when an observer's ability to make perceptual discriminations between things is better when those things belong to different categories rather than the same category, controlling for the physical difference between the things
- The law of proximity which states that visual elements that are close in space are more likely to be group together. The law of similarity states that similar elements are grouped together. Further, the law of good continuation, which has been illustrated by two crossing lines, provides that we group together those elements that require the fewest interruptions and changes in straight or smoothly curved lines. Lastly, the law of closure states that we will add the missing part of a figure in order to complete the figure. The Guestlists claimed that no knowledge was required for an individual to use these laws. These four laws are thought to exist under the umbrella of the law of pragnanz, which states that of several geometrically possible organisations, one will occur, which possesses the best, simplest and most stable shape.
- Multi-stage processing models of processing information consist of various stages or series. Movement from one stage to another is indicated by arrows, which show the direction of movement. Generally, these stages can be categorized into three; these are input, storage and output. At the input stage, the stimuli are received and it is analyzed. In object perception, this stage may be involved with identification of motion features, colour features, form features etc. At the storage stage, the stimuli is manipulated and coded inside the brain. For instance, manipulation may include edge grouping by collinearity and feature binding into shapes. Lastly, the output stage involves the preparation for appropriate responses to the stimuli e.g. coming up with a name representation.
- There are two types of agnosia. In apperceptive agnosia, object recognition is impaired because the patient has deficits in perceptual processing. In associative agnosia although the perceptual processes of the patient are essentially intact, their object recognition is impaired because they have difficulty in accessing the relevant knowledge about objects from their memory. Therefore, patients who have associative agnosia are able to copy out the images of objects that they do not recognize while patients with apperceptive agnosia cannot. The fact that patients with associative agnosia suffer from different deficits from those with apperceptive agnosia supports the multi-stage information processing model because it shows that one stage can be impaired while the other stages are still intact and functional.