

Original Article: Investigation of Metacognitive Knowledge in Psychology and Its Effects on Memory

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ABSTRACT

Metacognitive knowledge refers to the beliefs and moral theories that individuals have about their thinking, such as beliefs about the meaning of a particular type of thought and beliefs about the effectiveness of memory and cognitive control. It is useful to consider both explicit and implicit metacognitive knowledge, especially in the context of emotional disorder. Explicit metacognitive knowledge is conscious knowledge. For example, people with generalized anxiety disorder believe that worrying is uncontrollable and dangerous, and some believe that worrying can have benefits. Patients with obsessive-compulsive disorder believe that they have certain thoughts that lead to negative events or unwanted actions, and people with depression have positive beliefs about rumination. Implicit metacognitive knowledge is usually not conscious and cannot be expressed verbally. This knowledge includes the rules or designs that guide the process, such as paying attention, searching in memory, and using exploratory measures and bias in judgment. Considering this knowledge as a method or design for information processing is useful, and such metacognitive designs may be important at least as news knowledge in emotional disorder.

Introduction

Metacognitive experiences include evaluating the meaning of specific mental events (for example, thoughts), metacognitive emotions, and judging the state of cognition. Metacognitive assessments and judgments can be defined as conscious interpretations and naming (labeling) of cognitive experiences (Figure 1). Metacognitive experiences are a direct manifestation of the use of

metacognitive knowledge to evaluate cognition [1-5].

Metacognitive experiences are related to emotional disorders in several ways. First, some disorders are associated with negative metacognitive assessments and judgments [6-8]. For example, patients with obsessive-compulsive disorder negatively evaluate thoughts and memory phenomena and are associated with catastrophic assessments of the onset of negative thoughts disorders (e.g., generalized anxiety disorder, post-traumatic stress disorder, depression, panic and obsessive-compulsive disorder, etc.) [9-11]. They

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have identified two types of information that provide the basis for metacognitive judgments: Transient emotions or perceptions and implicit theories that are more consistent. As can be seen

above, how a type of theory that is formed from beliefs about thoughts may be related to psychological pathology (Figure 2) [12-15].

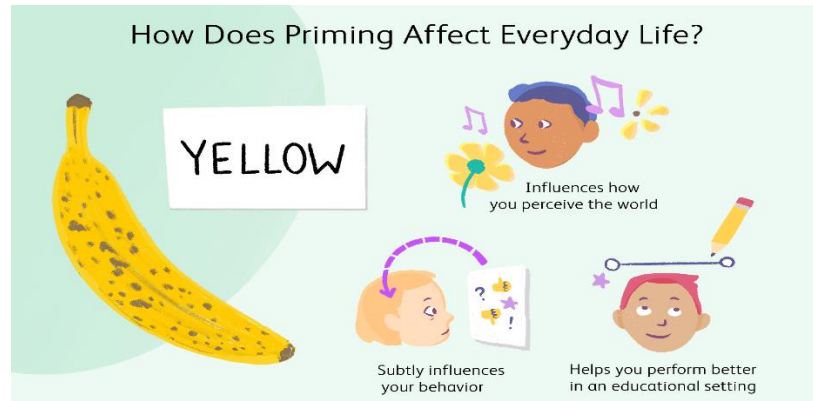


Figure 1. Priming and the Psychology of Memory

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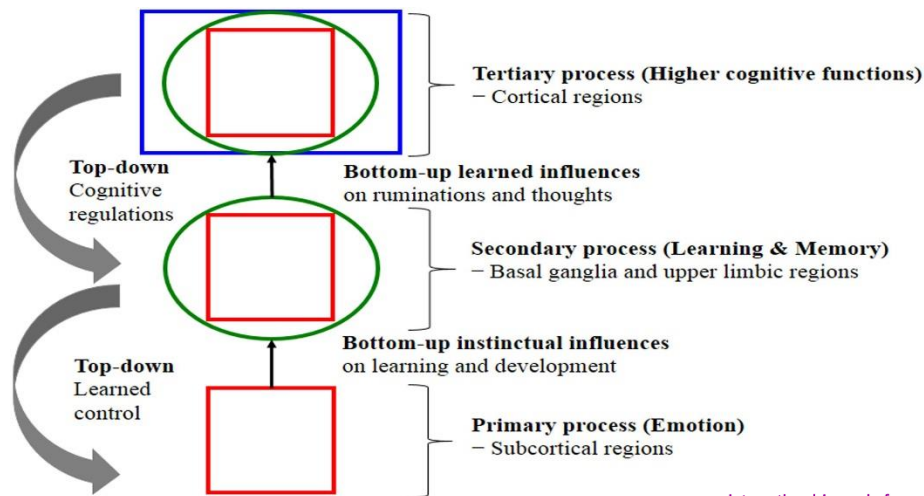


Figure 2. The Influences of Emotion on Learning and Memory

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They point out that people use emotions as information for evaluation and judgment. Wells and Matthews (2019) used the idea that emotion provides metacognitive information for psychological disorders. In particular, at the implicit level, excitement may lead to the biased choice of designs for processing. The more pronounced the emotion, the more patients with emotional disorders tend to use emotion-centered information as a guide to assessing the threat and formulating executive coping strategies. For example, patients with obsessive-compulsive disorder may repeat the procedure to make sure it is completely correct [16-19]. Mental emotions can be interpreted in different ways and therefore their meaning and their effect on processing operations

can be affected by self-awareness. In confirming the effects of emotion interpretation on cognition, Chlorine and Parat (2020) reduced hypersensitivity through hypnosis: Some subjects believed that hypnosis had an effect on their emotions and some did not state any evidence. Subjects were then asked to read a poem and determine their level of understanding of it. Feelings of uncertainty affected poetry comprehension only in the case of external documents [20-22].

Metacognitive Control Strategies

Metacognitive control strategies are the responses that individuals show to control systemic activities [23-26]. These strategies may increase or decrease

thinking strategies and help enhance regulatory processes. In everyday life, people use strategies ranging from the use of memory aids to encryption, such as the use of reminders or mental review of memorized material, to reminder strategies, such as marking. In clinical disorders, control strategies often involve efforts to control the flow of

consciousness. In anxiety disorders, where mental events are often interpreted as signs of mental breakdown, e.g., panic disorder, generalized anxiety disorder, people may try to inhibit certain thoughts in a way that prevents catastrophe (Fig. 3) [27-30].

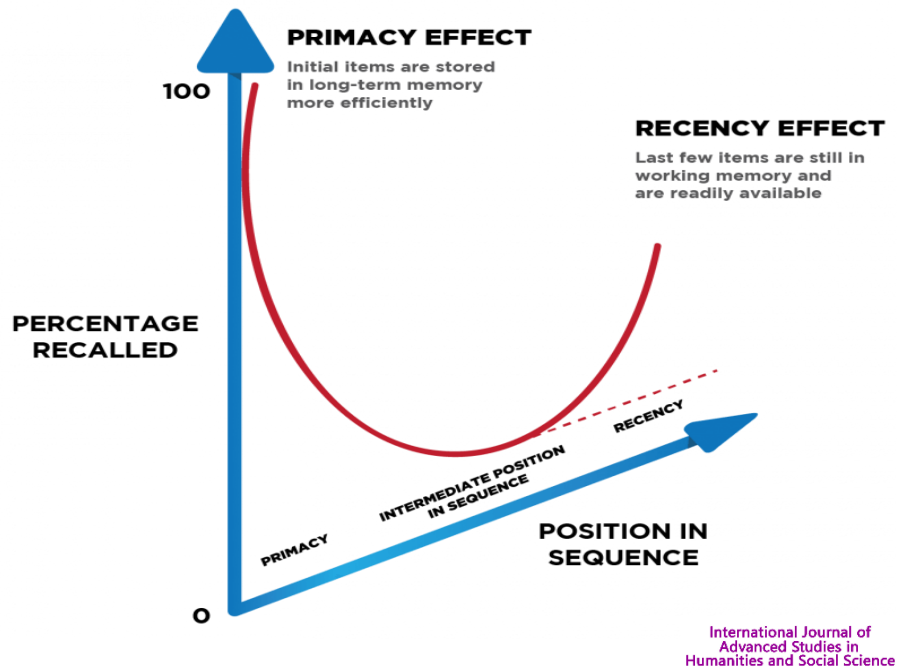


Figure 3. The Serial Position Effect with Real Life Marketing Examples

For example, an obsessive-compulsive disorder sufferer had disturbing and repetitive images of the devil. His metacognitive beliefs were such that he believed these images were dangerous and evoked the devil, and to protect himself and his family, he tried hard to control his mind during worship. This strategy included focusing on each word of the prayer and keeping a complete picture of the mosque. Here we have examples of a specific coping strategy, i.e. metacognitive control processes, as well as increased monitoring by checking for uninfected (clean) images of the mosque [31-34]. Any failure in this strategy is accompanied by an obsessive act of returning and resuming worship, and these processes are repeated to complete. This strategy can eliminate the threat and reduce anxiety when the person's goal is met. However, the need for strategy and the nature of the goal was such that it was difficult to achieve them without repeated actions and continuous effort [35-38].

Metacognitive strategies include responses to intensify the flow of information from the objective surface, e.g., monitoring, or strategies to terminate or modify the objective surface processing. Wells and Matthews (1994) associate emotional disturbance with a threat control strategy that is characterized by constant attention to the internal or external sources of the threat [39-41]. Depending on the strategies involved in correcting the processing in the emotional disorder, individuals may use a range of strategies to control their unwanted or anxious thoughts. In a factor analytical study, Wells and Davis (1999) identified five control strategies that are measured through the Thought Control Questionnaire [42-45]. These five strategies are: Retesting, punishment, social control, anxiety, and distraction. Experimental studies with the Thought Control Questionnaire have shown that coping strategies of worry and punishment are associated with a range of negative indicators of psychological health. Studies have also shown that the use of specific control strategies in people with post-traumatic stress disorder and post-treatment

depression is associated with poorer outcomes (Figure 4) (Reynolds & Wells, 2000). These data suggest that metacognitive strategies have a

positive relationship with vulnerability to emotional disturbance and recovery [46-49].

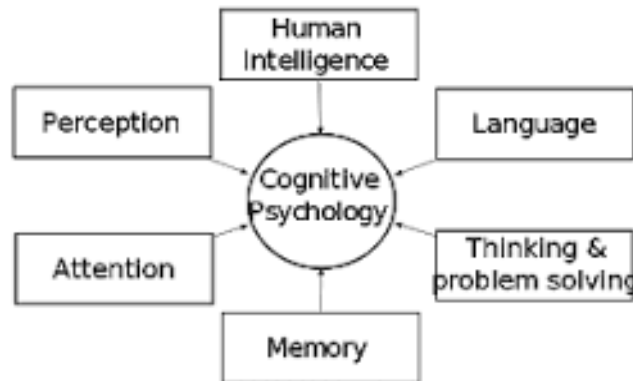


Figure 4. Cognitive Psychology

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Emotion, Metacognitive Monitoring and Control

Emotions represent internal data that affect motivation and behavior. In fact, emotion may precede cognition, and experimental data show that it is controlled by subcortical brain structures. Emotions can affect a range of cognitive processes, including attention and memory bias, judgments, and decision making [50]. They emphasize the effects of emotion on cognition and information processing. A common belief is that emotion is associated with dysfunction. Simon (1967) argues that adaptation requires monitoring (reviewing) important stimuli and moving goals consistent with new goals following dysfunction. Here, emotion is considered as part of the disorder process. Emotions seem to come from a change in success or failure and stem from a planned action. Emotions may appear to cause bias in ongoing programs. Anxiety, for example, is triggered by a threat to one's life, and activates schemes related to being alert to the environment or escaping. Other approaches to emotion emphasize the social importance of such responses. In the network model of belief (1981), emotions are characterized by signs or symbols. Emotion signals may be activated either through external input or by activating the network of emotion signals, such as signs that represent the memory of an unpleasant event. When a person is aroused, the signs of emotion affect the process of future processing by spreading the activation of accompanying signs. The general effect is that emotional states cause processing appropriate to the

emotion. The effects of mood on cognition, such as mood-dependent retrieval, can be justified by a network model. When retrieving in an emotional state is similar to learning time, the emotion cue is somewhat activated or triggers cues for memorized content. As a result, access to content increases or decreases. Bavar (1992) pointed out that emotions may be activated not only by semantic concepts, but also by regular actions, which have been useful in similar situations in the past. Williams et al. (1988) identified different biases in cognition related to depression, trait anxiety, and state-related anxiety, and placed them in a model of attention and memory at different stages of processing. Here, the effects of anxiety are pre-attention, and state-dependent anxiety increases the amount of threat identified by a stimulus, while trait anxiety and clinical anxiety lead to bias in allocating the next source. The effects of depression on the processing of stimuli are only after their identification; that is, when the stimuli under study were skillfully studied. State-dependent depression leads to negative evaluations of stimuli, while clinical depression or trait facilitates the development of negative substances [25]. One of the features of these theoretical approaches is the idea that emotions can affect metacognitive control and monitoring functions. Emotions may be a sign of a rift in self-governance processes and provide an incentive for sustainable self-reflection.

Cognitive Experience

According to Flavel (1979), one of the effective factors in the cognitive goals or tasks of metacognitive knowledge and cognitive actions or strategies is metacognitive experiences. These experiences can guide the person in setting new goals by modifying and disregarding past goals. They can also be effective by adding knowledge, removing or modifying it based on metacognitive knowledge, and finally, metacognitive experiences can activate the strategies needed to achieve cognitive or metacognitive goals.

Metacognitive experience or processes of regulation and control is another metacognitive process that guides a person's thinking processes in the learning situation. Metacognitive or self-regulating controllers include: a) Planning, which requires setting a goal for the study, selecting appropriate strategies, and setting up resources that affect learner performance; b) monitoring strategy, which includes following and paying attention when reading a text, asking questions about topics, and monitoring the speed and time that a text needs to be read; and c) adjustment strategy, which helps students to improve the way they study, review again and eliminate the shortcomings of their comprehension.

Conclusion

Metacognitive strategies are extremely important, and they are used in the teaching of many subjects. Metacognitive strategies address learners' learning needs. Strategies are those mental and practical activities that pave the way for achieving goals. In the past, it was thought that an important factor in learning, especially school learning, was tomorrow's innate intelligence, which he inherited from his parents at birth. What is new is the belief that, contrary to the innate abilities of the individual, which are inherited and unchangeable, cognitive functions are acquired and changeable. Therefore, intelligent actions are teachable and learnable. These theories emphasize the importance of the ability to pay information effectively and efficiently. From a cognitive perspective, learning problems are often related to inefficient and inefficient processing of information. Determining the independence of metacognition from general talent is important for several reasons. The most important reason is to determine whether relatively low-talented subjects can perform at high levels of

metacognition. Therefore, according to the articles in the paper, those who can consciously apply their intelligent skills are those whose processes of metacognitive abilities are well developed.

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