

PROCESSING INFORMATION IN LEARNING WITH UNCONSCIOUS PROCESSES

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Abstract

Studies on the learning processes underlying unconscious processes of processing information are reviewed to have a clear understanding of how learning occurs when unconscious and mental imagery is used. Learning occurs in multidimensional processes of acquiring relevant information to emotions, thoughts, and behaviors that forms learning and teaching styles. Model of Information-Processing comes from environment into a pattern of neural impulses; into two separate storage-memories systems that code information in two interlinked ways, short-term (STM) and long-term memory (LTM). The different model of information processing is dealing critically. . However, a preferred kind of aids and styles is not necessarily resulting in best learning. It is also required to be aware of how cognitive processes work and how they affect a cognitive task Cognitive processes are asserted to be mostly unconscious; however, the negotiation results shows that the unconscious processes have often been neglected in teaching and learning tasks. This negligence leads to unsatisfactory results in learning and teaching performance.

Keywords: Unconscious and Information Processes, short-term (STM) and long-term memory (LTM), Mental Imagery and Representation, Learning Processes.

1. Introduction

One of the main purposes of education is changing and developing the ways students acquire information or skills in their own learning processes (Zimmerman, 1989; Pintrich, 1995). This purpose considers students as they are capable of organizing the processes of acquiring and retaining information, being aware of their thoughts, controlling their behaviors (Zimmerman, 1989), and improving their understanding (Cross and Steadman, 1996), as well as improving

their motivation for overcoming their failures in their own learning processes (Pintrich & DeGroot, 1990; Garcia & Pintrich, 1994; Garcia, 1995).

Most of traditional approaches consider that learning processes are derivative of consciousness and students are conscious learners who are aware of their learning processes. However, studies show that unconscious processes of learning are more effective, although these processes are neglected in learning (Thompson, 2004; Hoare, 2006; Meissner, 2008). This negligence keeps away instructors from well understanding of how processes of acquiring information work. There are no satisfactory results of teaching students how to organize their acquired information consciously (Debono, 1983; Borich, 1996; Kirkley, 2003). The fact is that, the bulk of information processing and learning tasks are very complex for conscious processes to discern, but unconscious processes are capable of discerning any task of processing information and learning regardless of its complexity (Lewicki *et al.*, 1992).

2. Conscious and Unconscious Processes of Information

In psychological studies, one of the most controversial issues is to what extent perceived information affects humans' action out of their conscious awareness (Sid & Stanislas, 2007). Information acquisition may be consciously and unconsciously from the first microsecond to see, hear, taste, or feel something; when to start a process of deciding what it is, how it relates to what are already know, whether it is meaningful and significant to be maintained in the mind, or it is unnecessary, then it should be discarded (Slavin, 2003, 2009).

Human's brain constantly makes meaning of sensory information out of conscious awareness of individuals (Slavin, Sternberg, 2003). Previously, they detect perceived information consciously; they unconsciously select a satisfactory perceptual data by excluding less satisfactory one accordingly to Sternberg. Freud (1920; 1949) propound that individuals' organs incompletely reports data of conscious processes to themselves. Regarding to Sternberg Sensory data, which do not reach their conscious awareness, still exert influence on how they perform their cognitive tasks.

In terms of neural activity, human beings process information without any conscious perceptual experience, out of their conscious awareness, that underlies their percepts and memories such as the processes of thoughts, feelings, actions, and learning (Kihlstrom, 2007a; Bargh & Morsella, 2008; Meissner, 2008). Westen's (1999) experiment displayed that, respondents unconsciously recognize the affective meaning of a perceived information out of their awareness. The emotional content of perceived information show important impact on subsequent thoughts and actions (Weinberger, 1992; Weinberger & Westen, 2008). The unconsciously perceived information evokes activation of brain in several cortical areas (Sid & Stanislas, 2007; Blanco & Soto, 2009; Siegel & Weinberger, 2009) in which the brain unconsciously processes a variety of information at the same time (Westen, 2006).

2.1. The Models of Information Processing

Information processing models are cognitive theories of learning. The models propound how learners may perform their cognitive tasks and describe the processing, storing, and retrieving acquired knowledge in their memory (Slavin, 2003, 2009; Braisby & Gellatly, 2005). The

models suggest a general perspective of memory, as well as of thinking, that is, the processes by which people exercise their stored information to comprehend the event and facts accordingly to Westen.

2.1.1. Atkinson and Shiffrin's Model of Information-Processing

According to Atkinson and Shiffrin (1971), information comes from environment into a pattern of neural impulses; into two separate storage-memories systems that code information in two interlinked ways, short-term (STM) and long-term memory (LTM). Information in STM is held in an acoustic or speech based form, whereas information in LTM is coded in terms of its meaning (Braisby & Gellatly, 2005). Based on Tversky & Kahneman, (1981), STM so-called working memory that has limited inefficient capacity and less stability (Braisby & Gellatly, 2005; Seong, 2005; Meissner, 2008) in intentional focus of complex cognitive tasks (Cassino *et al.*, 2007). Notwithstanding the limitations of working memory, it is regarded as the practicing region of the cognitive system to store information in organizing manner with regard to their unit of connection, thereby to perform and organized information for cognitive tasks (Atkinson & Shiffrin, 1971; Kihlstrom, 1987). The organized information inhabits in working memory so long as it is practiced.

Long-term memory is conceived to be the unlimited primary storage capacity to process information automatically (out of awareness) and strategically for recording experiences and mental activities, although it is relatively inefficient in retrieval processes (Slavin, 2003, 2009; Meissner, 2008). Thus, LTM comprises the processes of working memory (Best, 1999; Squire, 1994), because they are operating in an associative network model (James 1890/1980; Anderson, 1983). This association between them results in a role of learning processes (Chandler, 2004) as a basic of life.

In term of learning processes, conscious processes of information are recognized with the cognitive operation that keeps memories, percepts, and actions with rehearsal or attention (Kihlstrom, 2008). And the unconscious processes of information implies those memories that are displaced, or decayed, or lost from primary memory, and those outcomes of the perceptual system that go unrehearsed or unattended before they could be encoded in long term memory (Kihlstrom, 1987). Accordingly, if perceived information is not presently in conscious processes, then it must be in unconscious processes of encoding and storing system that may have affective and motivational valuations of objects (Westen, 1999). However, if perceived information is currently conscious, then primarily, the influence of conscious, but not the unconscious, processes of information can be observed by Kihlstrom. Conscious processes may leave narrow, short or no place for the unconscious processes of information (Kihlstrom, 2008).

2.1.2. Parallel Distributed Model of Information Processing

Psychologists accept another aspect of information processing which propose that humans' brain activates both conscious and unconscious information processes in parallel manner. The brain operates the bulk of various pieces of information outside of humans' conscious awareness as they consciously aware of a part of those operated information (Westen, 2006). Information about an occasion, event or object is not fixed in any particular unit, but rather is spread widely

across the processing system (Slavin, 2003, 2009). The operation of humans' processing system of information can differ continuously, because even a piece, but not the bulk of information about a material, can influence their emotional experiences, thoughts, and behaviors, before it is fully demonstrated in their conscious processes (Kihlstrom, 1987). Thus, the parallel approach indicates that humans' conscious processes is slow and sequential, whereas their unconscious processing is fast and parallel, regardless of a matter of activation, but regarding a matter of time.

2.1.3. Frequency Model of Information Processing

Psychologists put forward that the frequency of an event unconsciously construct and register the knowledge of that event in humans' memory. However, people may not use frequency knowledge, if a task depends on their conscious reasoning. Nonetheless, in cognitive tasks, the role of unconscious processes is ranging from perception to speech production (Jacoby & Witherspoon, 1982). Indeed, a good work of mental functions is autonomously, that is not depending on conscious processes (Hasher & Zacks, 1984).

Hasher and Zacks's research demonstrated that perceivers register information about the frequency of occasions or events outside of their awareness; they did not engage with conscious information processing. The perceivers did that involuntarily no matter what instructions they received, and no matter what purpose of information processing they had. Besides, perceiver's personal characteristics that are usually significant for cognitive performance (e.g., knowledge of effective strategies, available capacity, and motivation to use them) were unrelated to the storage of information about occurrences of events.

3. The Models of Information Processing and Psychoanalytic Theory of the Unconscious Mind

According to Gilhooley (2008) most of cognitive scientists frequently quibble with aspects of psychoanalytic theory of the unconscious mind, although there is extensive and exciting research done on the unconscious mental processes in the fields of cognitive and social psychology (Lewicki *et al.*, 1987, 1992). Psychoanalysts are largely unaware of these significant researches, though they provide an experimental foundation to support some aspects of the psychoanalytic theory of the unconscious mind by Gilhooley.

Empirical researches on perception, memory, learning, intuition, decision-making and thoughts have been included in the field of the cognitive unconscious (Kihlstrom, 1987, 2008; Gilhooley, 2008). However, based on Lewicki cognitive researchers have difficulties of investigating how humans perceive information from their mental and sensory processes, or encode and retrieve it, because subjects cannot give explanation how they go through processing information. In other word, no one has conscious access to her/his own processes of knowledge-representation (self-report information processes) (Sternberg, 2003). People have no certain idea of how they process and learn all those essential information (i.e. heuristics, schemata) for their own psychological functioning respected to Kihlstrom and Gilhooley. Direct empirical methods for observing knowledge representations are not available now. One of the alternative methods is to ask people for describing their own processes of knowledge representations, or a researcher

can deduce logically the most reasonable account of how people represent their knowledge, according to Sternberg.

Gilhooley stressed that neural cognitive processes of information is not the whole of mental life, it includes such psychological functions of emotion and motivation that suggests a radical preconception of mental life. Kihlstrom stated that “*the idea of psychological functions of emotion and motivation (emotional unconscious), too, has its roots in Freud’s notion that repression and the other defense mechanisms were designed to render us unaware of our true emotional states especially the anxiety elicited by the conflict between our instinctual urges and the demands of external physical and social reality*”. Many of these empirical findings support the psychoanalytic conception of the centrality of unconscious processes in guiding behavior (Westen, 1998; Wilson, 2002; Gilhooley, 2008; Westen *et al.*, 2008). Findings demonstrated that the role and scope of the unconscious is vastly increased and the role of consciousness is correspondingly reduced.

Modern researches on unconscious mental life assert that it owes nothing to Freud and provides no support for psychoanalytic theory, although the evocative emotional contents of information seem somewhat reminiscent of Freudian psychoanalysis, (Kihlstrom, 2008). In several scientific studies, the emotional content of perceived information shows the significant impact on subsequent thought and behavior (Weinberger, 1992; Westen, 1999; Sid & Stanislas, 2007; Meissner 2008; Weinberger & Westen, 2008; Westen *et al.*, 2008; Siegel & Weinberger, 2009) even though subjects are unaware of any changes in their feeling states (Kihlstrom, 2008).

Humans’ capacity of conscious processes is narrow and constrains conscious cognitive activities from responding to each perceived-information, therefore, their unconscious processes discern and pick up the perceived information relatively. The unconscious information processing is structurally more sophisticated in its ability to simultaneously integrate numerous variables (Lewicki *et al.*, 1992; Loftus & Klinger, 1992; Gilhooley, 2008), namely the unconscious processes is faster and has complete access to conscious one, while conscious processes has little direct access to the unconscious one.

According to Loftus and Klinger (1992), this superiority of unconscious processes suggests a smart unconscious by the criterion of sophistication; however, these unconscious processes are implemented in much the same situation, whereas procedures of conscious learning are more adaptable to diverse situations. This ought to be noticed that a learner is capable of knowing the unconscious processes consciously, although they can only be aware of a small portion of their acquired knowledge when they act (Reber, 1989, 1992). Moreover, learners have nothing or less ability to do with the way of formulating their knowledge, (Jervis, 2007) because of the fact that memory operations are very fallible (Best, 1999).

For psychoanalysis, our cognition is mostly in the service of motivational-affective processes that determine whether we consciously processes our wishes, needs, and conflicts in selecting and classifying perceived information. The recent shift from a computer metaphor to a brain metaphor in cognitive science that brains, unlike computers, process fears, wishes, and other feelings has led to some rapprochement between psychoanalysis and cognitive neuroscience, (Westen *et al.*, 2008).

3.1. Associative Processes of Information Acquisition

Researchers suggest several theories and metaphors to illustrate the ways information are stored in long-term memory, whether explicitly or implicitly. The implicit memory has relevance to psychoanalysis by involving associative memory that guides mental processes and actions outside of conscious processes (Westen, 1999, 2006). Indeed, all stages of memory are posited to be consisted of small units of information, which are associatively connected (Atkinson & Shiffrin, 1971). To display connected units of the associative memory, priming experiments is examined, in which a researcher present a word or picture to respondents (the prime, such as "dog"), which is assumed to activate an associated thought (such as "terrier") out of their conscious awareness. By examining the influence of the prime on memory, the researcher can uncover the hidden structure of associative networks (Westen, 2006). According he emphasizes on associative networks by which, units of information are associated or coded with one another, so that animating a piece of information on network spreads activation to related units.

Regarding to Epstein (1998), a recognized representation is activated by the related information with past emotional experiences. Their affective responses involves an implicit propensity to look for further the state if the affect is pleasant, or to reduce the state if it is unpleasant (Epstein, 1998, 2003; Salas-Auvert & Felgoise, 2003). Accordingly, these kind of scientific evidences have documented possibly the most central psychoanalytic hypothesis, that unconscious associative network (thoughts, wishes, beliefs, fantasies) and unconscious procedures (motives, defenses, character) influence feeling, thoughts and behavior (Westen, 2006; Wilson, 2002; Gilhooley, 2008).

According to Westen most of the way people perceive others and themselves is implicit or unconscious. Human's brain is frequently triggered or primed out of their awareness to infer events or behave in specific ways depend on the implicit activation of networks. People can react emotionally to what they are not aware of, and they can arrange their emotions out of their awareness to avoid their undesirable feelings (as an unconscious defense in psychoanalyze). The same event is able to evoke conflicting feelings, thoughts or actions consciously and unconsciously.

3.2. Mental Representation of Individual Experiences and Implicit Processes of Learning

The active representation of memory is linked to affective representation of individual experiences, fantasies, and defenses as a function of the unconscious processes of memory. Hence, any processes of individual memory and the unconscious processes cannot exist separately (Kihlstrom, 2007a). Regarding to him they are simultaneous or parallel, in duration of our lifetime, in implicit encoding processes (implicit learning) that represents a milestone in understanding of the unconscious mentation. Westen (1999) stated that "implicit processes" largely is to ward off any association with the Freudian unconscious in cognitive and social psychology and neuroscience.

Braisby and Gellatly (2005) put forward that what determine our storage in memory is not as proposed by Atkinson and Shiffrin model, but the level of processing received at encoding. Several fundamental perspectives of information are considered to be encoded and stored in memory implicitly or automatically (Hasher & Zacks, 1984) when memory representations are

active. Memory representation and processing are intimately related, whereby memory store and process in the same part of the brain by Braisby & Gellatly.

According to Best (1999), we think of our brain systems as a kind of device that we can use or direct to retrieve and reconstitute our experiences we have had in memory. However, our memory system may clearly leave its mark on our current behavior implicitly; namely, a situation in which our previous experiences influence our current performance without our awareness (in the absence of conscious) or retrieval attempts (Reber, 1989, 1992; Schacter, 1992; Ziori & Dienes, 2006). In the absence of our awareness, our implicit memory facilitate our performance on a task (Ziori & Dienes, 2006) which is not consciously brought to mind but is observable in our actions or behavior (Westen).

Respecting to (Seger, 1994; Cleeremans *et al.*, 1998; Braisby & Gellatly, 2005) implicit memory addresses to acquisition of knowledge about the structural connection among information, without being conscious of that knowledge and without intending to do so (it is not only unconscious, it is also a non-intentional form of memory), and it result in “implicit learning”. Some good examples of implicit learning are the processes of socialization and acculturation (Reber, 1992). Implicit learning posited to be the fundamental component in the improvement of our social skills to know how to act in regard to acceptable social behaviors, attitudes and cultural prejudices (Lewicki *et al.*, 1987).

Implicit learning is proposed to be not dependent on our conscious efforts in the acquisition and production of knowledge through our experiences (Reber, 1989; Banks & Farber, 2003; Hoare, 2006). This knowledge can be used to direct our sensory and motor responses based on Reber. For instance, highly successful managers are often unable to explain how they correctly interpreted key elements in the work environment and reached conclusions that turned out to be accurate (Hoare, 2006). Hence, it has been concluded that sometimes the knowledge itself is unconscious (Lewicki *et al.* 1992; Squire, 1994; Reber, 1989; Ziori and Dienes, 2006), and in some cases, even the acquisition process is (Reber, 1989). Lewicki and his colloquies’ (1992) empirical research exhibits that people may be conscious and out of conscious in knowledge acquisition processes, but the bulk of their mental process in learning occupy place out of conscious processes. Humans are unable to discern consciously their complex cognitive tasks, therefore, they able to comprehend the tasks out of their conscious processes regardless of its complexity (Lewicki *et al.*, 1992).

Seger, by providing an overview of empirical findings, explicated that implicit learning is evolutionarily, older than consciousness, more durable in memory, less affected by cognitive insults (e.g., brain injury, dementia, amnesia). Responding to nonverbal processes, often visual, relying heavily on pattern recognition, improving the complexity of information (the opposite of explicit learning), very effective at identifying or disregarding random elements, relatively unaffected by error or missing data, and it is not subject to conscious control or intention (i.e., occurs naturally and continuously. Cleeremans concluded that implicit learning is characterized as a difficult form of priming such that acquiring distributional abstract knowledge through accompanying experience with a stimulus sphere. This has been regarded as knowledge acquiring out of conscious processes (Reber).

Thus, implicit learning involves alteration to the functional design of constantly learning systems such as neural networks that retrieves things without awareness of using our memories (Westen, 1998; Best, 1999; Salas-Auvert & Felgoise, 2003). Humans, hereby, perceive

information out of their conscious processes that is processing information at an implicit level of memory (Blanco & Soto, 2009). Implicit memory refers to the influence of past experiences on subsequent actions along with priming effects (Lewicki, 1992) performance, (Banks & Farber, 2003; Kihlstrom, 2007b), and mental functions (thought, and actions that cannot be remembered) (Kihlstrom, 1987; 2007a) which cannot be perceived consciously (Kihlstrom *et al.*, 1992; Kihlstrom, 1996). Therefore, he suggested that implicit perception would be a better term for perceiving out of conscious processes, in analogy with implicit memory.

3.3. Unconscious Processes of Mental Imagery, Mental Representation and Past Experiences

Philosophical and psychological tradition considers mental imagery as it occupies a determinative role in all thought processes of humankind, or as it is central in visual-spatial reasoning and semantic grounding for language. Psychologist asserted that the mental imagery is a part of mental processes in everyday experiences as a mean whereby individuals bring their past experiences into current perceptual experiences (i.e. remembering, expecting, desiring, decision making, problem solving etc.) (Galton, 1880; Betts, 1909; Yates, 1966; Doob, 1972; Marks, 1972, 1999; Paivio, 2007; Faw, 1997, 2009; Brewer & Schommer-Aikins, 2006). Past experiences of individuals are, therefore, what rebuild their real perceptual experiences whereby they likely anticipate realizable desired or feared experiences in the future. Imagery, thereby, attributed to motivation (McMahon, 1973) and the manipulative effects of past and present experiences in memory processes (Yates, 1966; Paivio, 1986, 2007) Therefore, mental imagery is asserted to be a form of subjective experiences (McKellar, 1957; Finke, 1989; Richardson, 1999).

However, from several perspectives, most cognitive psychologists recommend that the term *imagery* should be considered as a certain type of *underlying representation*, but not merely as a form of subjective experiences (Dennett, 1978; Block, 1981, 1983; Kosslyn, 1983; Wraga & Kosslyn, 2003; Kosslyn *et al.*, 2006). The evidences indicate that underlying representations may be operative when both individuals consciously experience imagery and when they do not (Paivio, 1971, 1983, 1991, 2007).

Kosslyn attempted to refute the assertion of that the concept of “imagery” has no place in scientific ontology; in a term of scientific method it does not really exist, but the imagery may consists in representational or visual mode of brain states. However, Newton (1982) asserted that the mental imagery is not merely visual mode, but it is the quasi-*visual* phenomena mode as the quasi-perceptual experience in other sensory modes. Cognitive scientists recognize this assertion by showing remarkable scientific evidences of motor or kinaesthetic imagery, haptic or touch imagery, auditory imagery, and olfactory imagery (Segal & Fusella, 1971; Reisberg, 1992; Klatzky *et al.*, 1991; Jeannerod, 1994; Bensafi *et al.*, 2003).

A group of psychologist shows the appearance of imagery involving structures on both sides of the brain (Kosslyn & Shwartz, 1977, 1978; Kosslyn 2006, Ehrlichman & Barrett, 1983; Farah, 1984, 1995; Sergent, 1990; Tippett, 1992; Trojano & Grossi, 1994; Loverock & Modigliani, 1995; Michimata, 1997). They asserted that the brain reflect the outputs of imagery, which are possibly processed and enriched into meaningful mental representations (Sober, 1976;

Block, 1981, 1983; Kosslyn *et al.*, 2001; Rollins, 2001; Pylyshyn, 2003b). They hereby proposed that imagery could be a unique form of mental representation (Chambers, 1993; Thomas, 2002).

Paivio (1971, 1986, 1991, 1995, and 2007) put forward a dual coding system of information (imagery code and verbal code of information) whereby he explains mental representation in the context of the cognitive function of imagery. According to dual coding system, imagery derives the linguistic meanings from words and symbols that are the codes of information (Paivio & Wollock, 1997; Modrak, 2001; Prinz, 2002). Experiments show that if words are loaded with high imagery values, they are consistently, and significantly remembered better than those with low ones are, even if there is any conscious intention of forming relevant images (Bugelski, 1970; Bower, 1970, 1972; Neisser & Kerr, 1973). In addition, the evidences show that if features of the images are dissimilar to each other, the conscious scanning processes of images features are low. But if the images features are similar to each other, the conscious scanning processes are high (Shepard & Metzler, 1971; Kosslyn, 1973, 1978a, 1978; Pinker & Kosslyn, 1978; Shepard, 1978; Finke & Kosslyn, 1980; Pinker, 1980; Finke & Kurtzman, 1981a, 1981b; Borst 2008).

Images may often come into our mind out of our conscious control, therefore, we struggle to prevent us from an unwanted imagery or we cannot get it out of our mind. Mostly we can quite freely manipulate our imagery of whatever we may please. By an image of a desirable object, we exert ourselves to obtain it when it is not actually present to our senses (McMahon 1973; Kavanagh *et al.*, 2005; Andrade *et al.*, 2009). Therefore, mental imagery brings a key role of our desires and motivation (Nussbaum, 1978). People want to know why something happened, what the best thing to do is, or what kind of person they are dealing with. Thinking hereby is differentiated into automatic process and controlled one by intention, control, effort, and efficacy. (Dolati, Kuldaş & Mikaili, 2012)

According to Sartre (1940) and Wittgenstein (1967), we cannot derive an image, which have no a piece of perceived information about the world in our mind. Empirical findings from neuroscience research indicate that there is a good deal of overlap between the neural structures and cognitive mechanisms involved in imagery and those involved in perception (Farah, 1988; Bisiach & Berti, 1990; Kosslyn, 1994, 2005; Kreiman *et al.*, 2000; Kossly *et al.*, 2001; Bartolomeo, 2002; Kosslyn & Thompson, 2003). If there is no deal of imagery with perception, these findings are unable to display the evidences that imply the existence of independent mental imagery (Thomas, 1999; Abell & Currie, 1999; Pylyshyn, 2002a, 2002b, 2003a, 2003b; Bartolomeo, 2002).

Sartre (1940), Wittgenstein (1967) and McGinn (2004) argued that, our perception may not be under the control of our will, but our imagination is. We can derive information from our imagery that derives new information from what our perception set in our mind (Kosslyn, 1980, 1983; Taylor, 1981; McGinn, 2004). Our imagery, therefore, brings *intentionality*, in as much as it is a real or unreal image *of* something (Harman, 1998) as it is always the perception of something.

Intentionality of the mental imagery is considered as a kind of mental representation that can play a significant role in our thought processes. We are not merely registering perceived information of the sensory stimuli but we explore and ask questions of our environment (Ellis, 1995) although conscious volition is not necessary for us actively and intentionally to seek out

the answers in this process. There is an automatic processes do play a role in influencing behavior and intentional processes (Jacoby *et al.*, 1992; Loftus and Klinger, 1992).

According to Chartrand and Barg (1996), conscious deliberation is not necessary to activate and operate an intention, although an intention is the result of conscious deliberation. Intentions are represented in memory along with social attitudes, constructs, stereotypes, and schemas. Therefore, a relevant environmental stimulus to those social constructs is capable of automatically activating of the intention (Greenwald and Banaji, 1995). Bargh and Chen (1999) put forward that in the absence of any conscious processes there should be appeared a system as automatic evaluation one, which does not require an operative conscious intention to evaluate, or to react as quickly as possible to a presented word. The automatic evaluation results directly in behavioral tendency toward the word, such that positive evaluations produce immediate approach tendencies and negative evaluations produce immediate avoidance tendencies.

4. Conclusion

For the past two decades, cognitive and social psychologists have conducted extensive research on how we processes or perceive our world. They concluded that we might perceive and process information either consciously or unconsciously. We can put conscious information together into unconsciously settled knowledge structures; so that, we can only identify and categorize items alike to what we have stored in our memory. Before, we consciously identify information; we unconsciously identify satisfactory information by excluding less satisfactory one. According to Freud, our organs incompletely reports us consciously processed information. Sensory organ perceives data unconsciously, which exert influence on how we perform our cognitive tasks.

Information processing models, as cognitive theories of learning, propounds how we perform our cognitive tasks and describe how we process, store, and retrieve knowledge in our memory. They show that our brain constantly makes meaning of sensory information out of our conscious awareness. In terms of neural activity, we process information without any conscious perceptual experience, such as the processes of memories, thoughts, feelings, actions, and learning.

Much of contemporaneous psychological studies show that our perception and memories is underlined by our unconscious mental representations. Mental representation is defined as implicit thought that influences our ongoing thoughts in the absence of our conscious awareness. Our memory collectively constructs a potential representation to reactivate a set of neurons. A memory representation of even a single detail of an interaction is capable for effecting subsequent action. A recognized representation is activated by the related information with our past emotional (affective) experiences, fantasies, and defenses that are basically, as the unconscious processes in memory. Therefore, information processes in memory cannot exist separately from the unconscious processes.

Our memory is consisting of information units that are associated with one another; animating a piece of information on a network sparks and activates the related units. This is a kind of implicit memory, which is particularly relevance to the unconscious mind, which forms association (associative memory) and guides our mental processes and behaviors. Thus, the idea of psychological functions of emotion and motivation has its roots in Freud's notion of that we

are unaware of our true emotional states, especially, the conflict between our instinctual urges and the demands of external physic and social reality.

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