

psychological and neurological approach of emotions

Dr. Heba Mohamed Elsayed Dr. Samira Rakza

Women's College for art, science and education - Ain Shams University - Egypt.

Blaida 2 University- Algeria.

- **Abstract:** Contemporary definitions of learning have tended to connect between the occurrence of learning by both the brain as a physiological and mental construct and as a psychological construct.

The aim is to reach the understanding of the breadth, magnitude, complexity and potential of the human brain and its relation to different cognitive performances. The dynamic concept of the mental cognitive formation and the processing of information refer to the interactive of the changing nature of the neurobiological, mental cognitive and motivational emotion of man in his response to the environmental determinants. This point of view of the mental cognitive activity is one of the newest and validity theories in terms of the philosophical framework that stems from it, and the hypothesis that relays on, it is the unit of biological nervous and mental cognitive and emotional composition of man. So the mental cognitive performance is the product of the dynamic interaction between these dimensions or determinants. Hence, performances are not static in their inputs, processes and outputs and in relation to environmental determinants.

- **المخلص:** اتجهت التعريفات المعاصرة للتعليم للربط بين حدوث التعلم بكل من المخ كتركيب فسيولوجي والعقل كتركيب سيكولوجي.

والهدف هو الوصول إلى فهم اتساع وضخامة ودرجة تعقيد وإمكانيات المخ الإنساني وعلاقتها بالأداءات المعرفية المختلفة ويشير المفهوم الديناميكي للتكوين العقلي المعرفي وتجهيز المعلومات إلى الطبيعة التكاملية التفاعلية المتغيرة للتكوين البيولوجي العصبي والعقلي المعرفي والانفعالي الدافعي للإنسان في استجابته للمحددات البيئية ويمثل هذا المنظور للنشاط العقلي المعرفي أكثر نظريات التكوين العقلي حداثة ومصداقية من حيث الإطار الفلسفي الذي ينطلق منه والافتراضات التي يقوم عليها، وهي وحدة التكوين البيولوجي العصبي والعقلي المعرفي والانفعالي الدافعي للإنسان ومن ثم فإن الأداء العقلي المعرفي هو نتاج للتفاعل الديناميكي بين هذه الأبعاد أو المحددات وهذه الديناميكية في التأثير والتأثر، ومنه فإن الأداءات ليست ثابتة أو ساكنة في مدخلاتها وعملياتها ونواتجها وفي علاقتها بالمحددات البيئية.

- **Introduction:** Cognitive psychologists see that learning is a change in the cognitive construct. This change is reflected in all cognitive performances in which the individual expresses his or her knowledge, skills, or emotions. These definitions that proceeded do not reflect the psychophysical changes behind the cognitive activities that product all the cognitive and behavioral performances. This leads to the vagueness of these definitions and their psychological, physiological and cognitive significance. This may be due to the lack of connection between the physiological structures of the mechanisms in activating performances or cognitive outcomes between the physiological structure and the conditions that must be provided to make these structures or physiological structures and conditions that must be provided reach the good investment levels on the other hand.

Cognitive performance is a reflection of the continuous interaction of human beings with the constant environmental determinants that are continuously changed. Hence, the dynamics of mental cognitive performance involve several sources that control it which are:

- 1- The determinants of the individual biological, neurological, mental, cognitive, emotional
- 2- Identifiable environmental determinants.
- 3- The biological, cognitive and psychological interactions existing, interrelated and derivative and has adopted several theories of this trend, including the theory of the achievement mind and the theory of the attention simultaneous, synchronization, and sequence processing operations PASS (Processus attentionnels simultanés et successifs).

1- The interaction mechanism between Cognition and emotion (Cognition et Emotion)

Cognitive psychologists did not care about the effects of emotion on cognition, or the effect of the emotion on all the functions and strengths of the mental cognitive activity in relation to the cognitive inputs and methods of their use through processes, storing and deriving information and ends with cognitive outcomes.

The basic assumption upon which cognitive psychologists was built this omission is that the hypothesis based on the lack of stability or consistency of emotional and affective factors.

Gardner (1985) argued that passion is an important factor for employment and cognitive effectiveness, but it increases the complexity of methodology and research field.

Despite this omission, the studies and researches studied the relationship between cognition and emotion (Cognition et Emotion) as (Smith, Lazarus, 85), (Rusting, 95) and other studies.

The main core of these studies was the effect of emotion on cognition through the study of different states of emotion (Sharqawy, 1996, p.198). There was another tendency that rejected the relationship between emotion or feelings and cognition among the proponents of this trend (Zajonic et Marphy, 1993), they justified their position as following:

- The individual issues emotional and sentimental judgments about subjects, things and people in spite of the lack of information available about them.
- The responses and reactions about people and things based on mere initial impressions resulted from the degree of impact and its kind and direction.
- Emotions that we feel occur without prior knowledge and perhaps depending on sensory perceptions and its response.
- These responses occur in spite of the lack of information on the subject of impression.

Although the concept of emotion is indeterminate, the concept of emotion is used to express specific and intense experiences that tend to be subjective and are also used to express general sense (Denis, 1989, p73). However, the relationship between emotion and cognition raises many questions:

- Is there a relationship between emotion and cognition?
- Do the emotional responses occur independent of the cognition field or the cognitive processing?

- Does the cognitive processing of any approach or independent stimulus of the emotional aspects occur? (Alzayat 2006, p.595).

In fact, the familiarity effect of stimulus is a result of the interaction of certain determinants such as attention, perception, and memory from one side and some emotional determinants such as mode, emotional and affective from the other side that the stimulus stimulate which have a large role in the speed of processing, storage and retrieval of information depending on the nature of the effect of the stimulus awareness in relation to emotion of the individual. So it can be determined that emotional or feeling determinants activate, promote and support the cognitive processing of a stimulus (Richard YF, 1993, p.128).

2- The interaction mechanism theories between cognition and emotion:

1-The attention simultaneous, synchronization, and sequence processing operations Theory

- Processus attentionnels simultanés et successifs (PASS)

PASS's theory of the cognitive processing operation is resulted from the conception of Luria (1902-1977) of physiological and neurological processes as a basic organization of cognitive function. Luria is considered one of the most famous scientists who affected the neuropsychology, psychology in general and neuropsychological activity in particular.

This theory is a contemporary theory that allows a wide range of responses across cognitive media with a focus on the cognitive processing operation rather than outputs because:

- Attentive operations enable the individual to choose the stimulus, which is the aim of the problem being solved or treated while ignoring the other stimulus.
- The simultaneous processing operation refers to the multidimensional simultaneous treatment and processing and the mechanisms with the data of the interrelated and reacted problem.
- Sequential processing operation: refer to progressive processing and treatment in a sequential linear way of the problem that is the subject of the action strategy processing to the forward.

- Schematic processing operation that guide the three previous operations through the generation and dissemination of strategies (DAS et al., 1994). Therefore, we perform functional operations of the inputs to reach the desired outcomes (Decky, 1999, p160).

A) The basic premises of the PASS theory: This theory is important for its excellence with a high degree of structural validity or formality, criteria validity and predictive validity in its measurement of cognitive abilities and the most important hypothesis on which it was based

First: The authors of this theory (Naglieri et Das, 1997 Naglier, 1999) believed that any mental capacity test should be based on a clear and coordinated theory that stems from good understanding of the functions of the basic psychological mental operations of the brain.

Second: Any theory of the main cognitive operations should provide information to the user of those specific capabilities that are related to the academic success, success in work and difficulties that prevent it. And the theory should aim to find the differential diagnosis and provide guidance for choosing or selecting effective intervention programmed.

Third: Human capabilities can be partly provided by factor analyzing and don't result by it.

Fourth: The basic emphasis of the theory is the combination of two properties which are:

- The measurement of the psychological operations should be based on observable responses and objective judgment.
- This measurement will become meaningless if the interpretation is not accepted through the theoretical construction on which it is based.

As the authors of this theory see

- The developing of the mental cognitive functions is a common product of the natural, neurological, environmental and social structures of the individual.
- Higher mental cognitive functions of individuals such as thinking include speaking and language having their own neurological, cognitive, social and environmental origins.

- Incorporate mental cognitive operations with the physiological or physiological structures, in contrast to the complementary nature of these organizations in relation to mental activity (Ratcliff, 2, R et al., 1994 P 186).

B) PASS theoretical processes:

-Attention processing operations: where the individual focuses on the chosen stimulus or particular stimuli and at the same time neglects his responses to the other stimuli as he chooses what attracts his attention. (Naglicier et Gotling, 1997)

Attention operations are considered the basis of the human mental processing operations. It keeps a state of stimulation that allows the individual to concentrate and can be classified into two categories:

- **Selective attention:** means that the individual concentrate on the stimuli that are related to the attention and ignoring other stimuli.

- **Distributive attention:** means the ability to do different activities without a decrease in the efficiency.

- **Synchronization processing operations:** means a group of mental cognitive activities that treat efficiency and effectively the different complex set of stimuli asynchronous. The processing operations reflect the speed, accuracy and efficiency of processing and admit the functional mental level of the individual in response to the situation. The essence of the synchronization operation is that the components of stimuli can be processed asynchronous. The synchronization tasks can be searched by checking the parts of the task that is being processed.

- **Sequential processing operations:** the sequential processing of stimuli occurs according to organizing the elements in a unidirectional sequence.

Das et al. (1990) admits that there are evidences that assure the synchronous and sequential processing operations are used to acquire, store and retrieve information because of task requirements and not because of their formulation or content.

- **The Neurological Unit Operations for engineering and programming the Cognitive Activity (Planning operations):** Allow individuals to form and implement action plans, and to assess the effectiveness, strength and efficiency of these plans later (AlZayat, 2006, p.627).

C) The psychophysical principles of information processing by the brain: It is recognized that the activity of the brain is not limited to the cognitive aspects, but includes all the emotional and motivational aspects. However, these aspects are varied. They take their place through the cognitive activity operations. There are several principles that control the treatment and processing information within the brain and its relation to learning operations. These principals assure a general theory with neurological origins and it has important educational applications in the areas of learning, remembering, thinking and problem solving.

Principle 1: The brain as a parallel synchronous processor: it means the ability of the brain to process and treat many objects and tasks simultaneously in parallel and not in sequence (Sporer, S.L 1991) in terms of thoughts, emotions, imagination, tendencies, and others. It treats asynchronous in general contexts of social and cultural cognition (Alzayat, 2006, p.589).

The educational applications of this principle:

1-Effective teaching is what will stimulate or do the acquisition of knowledge and its acquisition, representation and activation by synthesis, derivation, generation and employment. As it builds the experiences, preparations and abilities of the learner with all these characteristics of the brain, so that the brain becomes positive and consultant at the optimal level of excitement.

2-There is no single way to activate, vary or enrich the different properties of the brain. (Alfarhati, 2005, p. 45).

Principle 2: The brain searching for the meaning, functions of experience and knowledge: in order to interact positively with the environment. This principle indicates that the previous research is the orientation survival and that it is an important emotional basis for brain activity, which searches for the meaning and value of the previous experiences and employs them environmentally, because the brain needs to react with what is positive and familiar asynchronous with the stimuli to interact and respond to them.

This dual process takes place at every moment during the wakefulness or sleep for some experiences, which indicates:

That this function may take certain methods but does not stop and is reinforced by positive practices and extinguishing negative practices.

- Individuals are looking for a functional meaning and they are necessarily the ones who make it so that it can be considered that the search for functional meaning through mental cognitive activity is a natural function of the human brain.
- The learning environment must have three characteristics, that are: positive, simultaneous and familiar (Alzayat, 2006, p.591)

Therefore, the lessons that are directed to the students must be meaningful, simultaneous, develop students' experiences, close and reflect the attitudes of life.

Principle 3: Mental activation will stimulate all the physiological energy of the brain.

The brain is a member who works according to the physiological basis and learning. It is a natural mechanism such as breathing, but it depends on some conditions, which are:

- Learning can be disruptive or facilitative. Nero's nervous growth, nutrition and interactions are complementary to perceptions, interpretations and experiences. (Denis, 1985, p. 231).
- Stress, threats, or frustrations affect negatively and differently the psychological reassurance, challenge and happiness affect positively on the efficiency of the brain function (Ducarn, M.T, 1961, p102).
- Some aspects of brain neural network connectivity are affected by life experiences

The educational applications of this principle include the following:

- 1- The individual's ability to learn is affected by all what effects on the physiological employment of his / her members.
- 2- Learning is influenced by the extent to which the growth of body organs, including the brain, is affected by normal structural growth. Therefore, the assessment of how the child learned or achieved depends on the inadequate and insufficient age.
- 3- All factors affecting health, such as nutrition, comfort, sports and others directly affect the learning process.

Principle 4: The brain representation of the meanings is influenced by emotions, emotions and motives: As this is the basis of cognitive learning based on meaning

because learning is not a simple process, because the individual in learning is directed by his emotions, feelings and motives on which relied the expectations, personal prejudices, tendencies, self-esteem, and needs ...etc.

So we can't separate information from emotions or feelings, because it plays a main role in the efficiency of the memory work because it facilitates the process of storage and retrieval of information (Alfarhati, 2005, p.52).

The educational applications of this principle include the following:

- 1- We cannot separate between the emotional and cognitive aspect of the student, so the appropriate psychosocial and emotional atmosphere must be provided in the school.
- 2- The attitudes of students towards the material taught and teachers affect their ability to understand and achieve academically, so the appropriate atmosphere and good relations between students and teachers should be provided.
- 3- Teachers must recognize that the feelings and attitudes of students necessarily affect the inputs of the educational situation, and it determines the efficiency of their learning (Zayton, 2003, p.112).

Principle 5: The brain treats the meaning: through the modeling of the cognitive representation for the meaning. The modeling means the classification and organization of information according to hierarchical, tree, net or matrix models that based on the including meanings, the brain acts as a designer that will accept, generate and then generalize these results and classifications. it also will resist the requiring, understanding, perception, classifications or meaningless information that are not related, integrated, or consistent with an individual's information. (Alzayat 2006, p.592).

The educational applications of this principle:

- 1- In order to fulfill the effective teaching, the learner should be encouraged to create self-categorized or self-models of information based on subjective meanings that he or she will accept in a subjective and personal way which is related to life outside the classroom.

2- Educational experiences and scientific material should be related to the real life of the learner as he understands it, not as his teacher understands.

3- Although the educational materials are already programmed previously, it is best to support learning by providing information to the brain that enables it to extract classifications or models rather than imposing specific classifications or models (Denis, 1999, p.69).

2- The chart theory for Beck (Théorie de Schéma «Beek»)

This theory focuses on the effects of anxiety and depression on emotional or affective processing. This theory focuses on the distinction between initial or primary activation of vertebrates and the activation that is based on derivation which Grafr and Amndler (84) suggest. The initial activation is the mechanism through which the verbal stimulus produces its various effects in the long-term memory, which represents the activation strategy of concept terminals that are related to the same relationship.

This theory suggests that people with a high level of anxiety show some kind of special attention to the threat inherent in the stimulus, while depressed individuals show more tendency or susceptibility to the response and perception of the threat associated with the stimulus and thus have a biased memory that retrieves the threatening experiences more easy than its ability to retrieve the other experiences. William and his colleagues (Williams et al., 1988) admitted some important predictions that are associated with the effects of the anxiety and depression on the explicit memory and implicit memory (direct memory and indirect memory), where their hypothesis was that the explicit memory is the regrouping of the past goals and vice versa. The implicit memory does not use the conscious regrouping of past events but rather depends on the initial processes and the mechanisms that will stimulate the interconnections and free repercussions of past experiences and events. So the depressed individuals show explicit memory biased in favor of remembering and retrieving the stimuli that contain the threat. While the anxiety individuals show implicit memory biased toward the more threatening stimuli.

Williams and his colleagues (Williams et al., 1997) developed this theory in which they saw that anxiety and depression have different effects, functions, and

applications in the processing and treatment of information. Anxiety has a brain function towards risk. As a result, all the correlations that are responsible to avoid risk, or prevent it tend to provoke or the activation which has greater priority during the processing operations for controlling or preventive controlling more than for the conceptual terminals associated with the report information. (Williams et al., p.306).

On the other hand, in the case of depression, the individual tends to do some kind of displacement of the goals he has failed to achieve. Hence, the conceptual processing of the materials that accept internal learning and related to failure or despair is more closely linked to this function than the processing based on the cognitive perception correlations.

William and his colleagues (1997) distinguish between perception operations and conceptual operations. The perception operations are an operation governed by data, information or inputs. They are basic conscious operations that activate and stimulate the implicit memory. On the other hand, the conceptual operations represent the processing operations that depend on explicit memory in its stimulation and activation.

William and his colleagues proposed that anxiety stimulates and activates the perception processing of the threat associated with the stimulus while the depression stimulate and activate the conceptual processing of the information associated with threat. These assumptions lead to predictions that implicit memory bias is related to anxiety and that explicit memory bias is associated with depression (Ocde, 2002, p.106).

Comment: This theory has been able to analyze the different effects of anxiety and depression on the processing and treatment of information, but it has been depended in interpreting individual differences on cognitive processing of two variables of personality variables which are the anxiety and the depression. They are not necessarily essential components of human personality and therefore in fact their applicability is limited to separate feelings of anxiety from depression but the theoretical studies have shown an affective relationship between anxiety and depression.

3- The net theory for "Bower" Théorie de Grille: Bower and his colleagues (1984) suggested that the emotions or feelings are units correlated in a net of meanings with many links to connect the physiological thoughts, systems, events and expressive patterns.

-The emotional material is stored in a net of interrelated meanings in formulas of ideas and expressions.

-The stimulation occurs and is distributed from the activation terminal to the other endings that have a relation with it. The latter is distributed on the other endings.

-The emotional ends are stimulated by internal or external stimulus.

-The ideas are developed and stimulated by the activation of endings through a net of correlation meanings.

-The feeling consists of a net of endings whose activation level exceeds than threshold values for activation.

(A) The relationship between mood and retrieval: This relationship appears through:

1- The thinking depends on the compatibility of mood: the free implications of the individual and his interpretations, ideas, provisions and estimates tend to the compatibility of the mood.

2- The retrieval depends on the mood: Retrieval is better when the mood of retrieval is compatible with the mood state during learning, where the mood state affects the retrieval and leads to the activation of emotional terminals that are appropriate and then these activations spread and distributed to the correlated endings. If there is a compatible between the mood during learning and the mood during retrieval. This led to the terminal activation which stimulates the cognitive units of the materials, so the recall will be great. There are some theories that support this effect, including the Tulving theory (1992) of coding that proposes the success of retrieval depends on how close the mood of the individual during learning with his mood at retrieval.

3- The learning depends on the compatibility of mood: Learning will be better when the emotional state of the individual corresponds to his emotional mood which he lived at the time of learning.

If the emotional mood or state of the individual is corresponded with his or her condition at the time of acquisition or learning, the rate of remembering and efficiency will increase.

4- The adopted mood principle: the increasing of the mood concentration exceeds the activation, stimulation and implications level that happens through correlation net that related to it (Da- Silva, 1989, p.125-153).

(b) The emotional state effect on the savings and memory principle: The save and the memory are influenced by the emotional state of the individual, and there are some principles that affect it:

1- The information and experiences that are tended to be stimulated or activated through the psychological or emotional frame in which it acquired because this psychological frame accompanied to these experiences and information.

2- The compatibility mood state activate the endings that are stimulated when the learning are being acquired or save and it activate the meaning correlations in the long-term memory or the meaning memory.

3- The information and experiences that are acquired during the good mood state are learned and kept to be retrieved and memorized better than that are acquired during bad mood state.

4- The more the information has emotions and feelings, the more power, stability, and the harmony of the related meanings net and vice versa.

5- When the individual feels sad, this leads him to self-reflexive concentration on the information and experiences which are related to failure, and depression. In this case the much treatment and processing of any external stimulus, whether these stimuli compatible with the sad state or different from it (Alzayat,2006, p.602).

- **Comment:** Alzayat 2006 sees that these assumptions on which this theory is based are very simple. The feelings, emotions, and the mood state from one side, and the cognitive concepts, and frames from the other side are terminals that are related and integrated through the meanings correlation net inside the memory.

The cognitive units, or the information processing and treatment properties are different in quality than the experiences processing and treatment, or the emotional

properties. As the information processing and treatment, or the units, or the information frames are subjected to the total principle or nothing and these are rapid changes and the individual responses to it with more materiality.

Power and Dalglish (1997) sees that the difference between the processing and treatment properties of the cognitive aspects and the emotional aspects shows different views of the results of these processing operations and its content, so the theories are integrated and tangled.

We see that in spite of that this theory is based on main approach that the emotional state of the individual affects the acquiring, learning, saving and, memorizing, but it doesn't put Controls and determinants to examine the validity of the hypothesis on which it is based.

4- Rusting Theory (Théorie de Rusting): This theory distinguishes between the effects of both personality and mood state on the pattern and rate of processing and treatment of cognitive information. The author of this theory believes that there are three methods that affect emotional processing through personality traits and mood state.

From the traditional approach point of view: both personality traits and mood state have separate or independent effects on emotional processing.

From the meditative approach point of view: personality traits affect affective or emotional processing indirectly through mood states on this processing, and there is a significant effect of the interaction of both personality traits and mood states on the emotional or affective processing. (Runco, 1990, p.42)

The following figure illustrates Rustin's assumptions

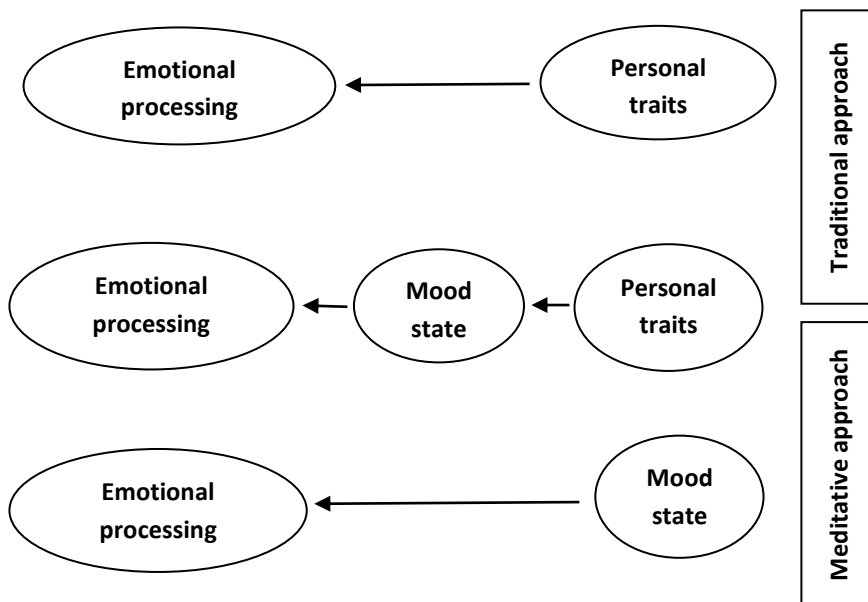


Figure 1 the approaches
The effect of the personal traits and the mood state on the emotional processing

Comment: This study differed from previous studies in this field, which dealt with the effects of personality traits or mood states on the cognitive processing and treatment and the emotional or mood processing and treatment as an independent, where this theory came to study the impact of both personality traits and mood states in their interaction and its impact on the emotional processing.

1. The cognitive reconstruction approach:

The cognitive structure of the individual became one of the central variables to know his psychological state. Despite of the variation in the definition of cognitive reconstruction, it relates to a rational approach of the treatment of human problems by correcting his knowledge, ideas and mental methods. As well as being an approach connecting the personal disorders of memory and ideas accumulated in the human

mind and a method of appropriate mental interpretation of the individuals past and present problems. Adler summed up this point of view in the following words:

- Human behavior is a twin of his thoughts.
- By modifying the ideas, the behavior will be modified. (Al-Farahati, 2005, p.64)

A - Justifications for the cognitive reconstruction approach:

- 1- The efforts of scientists to study the cognitive structure and clarify the role of the environment in the modification of cognitive structure, and personal structures and then change behavior or improve or modify it.
- 2- The emergence of the modern scientific revolution, in which the computer became the cause and the result, and some analogues of the processing that occur in the human brain with the processing of the computer in the form of (inputs - outputs – feedback).
- 3- Emotions are the next thing that the man uses. First he is governed by the ideas, and if his thoughts confused, he would begin to use the emotions. But this emotion would be eliminated if it was settled on certain ideas as an alternative to the emotion. (Ellis, 1994)

B- Objectives of the cognitive reconstruction: Theorists set a number of goals on which the operations, procedures and techniques of cognitive reconstruction build, as well as the individual mental and physical health. These objectives include:

- 1-Develop the will and ability of the self to change, modify, interpret and rationalize things
- 2-Develop the individual's ability to tolerate and absorb frustration: through rational interpretation, rational practices, and realistic practices, not self-harming and without overstating positive or negative emotions.
- 3-Scientific thinking: study the indicators of the individual's beliefs and objective knowledge and support them to be more rational and objective in interpreting his life (AlFarhati, 2008, p. 486)

C- Characteristics of the cognitive reconstruction: Ellis (1994) put a list of characteristics of the cognitive reconstruction:

- 1-Rent: cognitive reconstruction is provided through a relatively short schedule.

2-Depth: concentrating on the real causes of the problem of the individual, and increasing his understanding and his perception of the causes and sources of lack of control and controlling over things and inability to continue performance.

3-Expansion: Do not think only of the individual symptoms, but thinking of other problems in his life and help the individual to maximize the possibility of a happier and more satisfying life.

D- Assumptions of the cognitive reconstruction:

1- Human thought is considered as a conscious operation that is determined by his emotions, motives and behavior. Therefore, the problem of the individual lies in the feeling field. The person under the pressure positions needs to help him to discover the sources of strength in his life that is surrounded by his emotions and feelings.

2- This tendency is based on an assumption that some individuals pursue irrational ways of thinking, that lead to irrational behavior in the environment where he lives, as well as those around them. The rationality of the individual's thoughts and behavior can be judged by the real ideas, the possibility to help the individual to achieve his goals.

3- The ability to process information and create cognitive representations of the environment, which is essential and central to human adaptation and survival.

4- The cognitive processing in human beings takes place at different levels of awareness as means of improving their efficiency and adaptability. This approach assumes that cognitive processing takes place in a continuous form that extends between feeling and unconsciousness, resulting in different degrees of awareness and the ability to process information appropriately.

5- One of the basic functions of cognitive processing is "personal construction of reality" where man actively participates in understanding reality through the cognitive processing system, a process that includes a degree of creativity, as the meanings are simply derived from the experiences of individuals and the understanding according to certain characteristics including:

- Cognitive structures (diagrams).
- Previous experiences which succeeded in providing content for these constructions.

- Characteristics or features of current construction (Rafea Naser, 2003, p.112).

1- Information processing serves as a directing and guiding principle for the emotional, behavioral and physiological components of the human experience.

2- Psychological disorder is characterized by hyper disorder in the activation of the meaning-building structures in the information processing system, psychological disorders vary to the extent that the cognitive disorder is resulted from the increasing of the activation in the unconscious schemes or weak activation of the most adaptive schemes, Cognitive reconstruction is an internal learning process that includes the reorganization of cognition, ideas related to the relationships between different events and environmental indicators. Here the cognitive reconstruction operation consists of the following steps:

- Identify illogical thinking patterns.

- Helping the individual to understand the negative impact of irrational thinking patterns.

- Training the individual on everything that would develop self-control (Ellis, 1994)

- **Comment:** The authors of this trend believe that the cognitive structure of individuals with negative emotions, who are aware of their lack of competence and control, should be rebuilt. The authors also believe that the relationship between the person and the environment can be described according to the mutual inevitability between the internal constructs of the meaning- making or diagrams and the characteristics or features of the environment.

- **Conclusion:** The dynamic concept of mental formation and processing of information will raise the ever-changing interactive integrative nature of the neurobiological and mental cognitive configuration of responses. PASS is a contemporary cognitive theory that assumes that the growth of mental cognitive functions is a common product of the neural structure and the social environment of the individual. The higher functions have their own neurological, cognitive, social and environmental origins, and there is integration between mental cognitive processes and neurological physiological organizations.

The concept of cognitive processing operations (PASS) represents four types of processing operations: attention-processing, synchronous processing, sequential processing, and planning processes, where contemporary definitions of learning can be seen as a link between what occurs in the brain as a physiological structure and what happens in the mind as a psychological formation.

Brain activity includes all emotional and motivational aspects and is not limited to academic or technical aspects. There are several principles that govern the processing and treatment of information within the brain that are related to the learning process and have important educational applications in the fields of learning, memory, thinking and problem solving. The mood affects the retrieval and may lead to activate the appropriate emotional endings and then distribute the activation of these stimuli to the associated endings.

Through the meditative approach, Rusting's theory considers that personality traits affect affective or emotional processing indirectly through mood states on emotional or affective processing.

-Arabic References:

- 1- AlFarhati Alsayed Mahmoud (2005): the psychology of immunization the children against the learned disorder "cognitive visions," series of positive psychology, Cairo, Dar Alshahab Publishing.
- 2- Alfarhati Alsayed Mahmoud, Ahlam Al-Bar Hassan (2008): Mental Cognitive Composition of the Learner "Standards and Quality Achievement, Alexandria, University Publishing House.
- 3- Alzayat Fathi Mustafa (1998): The Biological and Psychological Basis of Mental and Cognitive Activity, Cairo, University Publishing House.
- 4- Alzayat Fathi Mustafa (2001): Cognitive Psychology, 1st edition, Cairo, University Publishing House.
- 5- Alzayat Fathi Mustafa (2006): The Cognitive basics for the mental formation and Information Processing, Cairo, University Publishing House.
- 6- Zaghloul Rafea Naser, Emad Zaghlaz (2003): Cognitive Psychology, Amman, Dar Al Shorouk for Publishing and Distribution.

7- Zayton Kamal Abdel-Hamid (2003): "Teaching" its Models and Skills ", Cairo, Dar Alelm Books.

- English references:

8- Da-Silva,R (1999) : psychologie cognitive, paris, Armand colin.

9- Denis, M (1998) : les images mentales, Paris PUF

10- Ducarn, C.P (1961): Attempts to influence performance on an insight problem, psychological Report, Vol;9, 97-120

11- Duran, J; E (1992): Attribution for achievement outams Among Behavioural Sub-Grades of children with the learning Disabilities; The; J; Of spec. Educa.V (127) N3,306-320.

12- OCDE (2002): comprendre le cerveau, Paris, organisation de coopération et de développement économique.

13- Partier, J.F (1999) : J.F (1999): Le cerveau et la pensée, Paris, sciences humaines.

14- Rabarel, P (1995) : Les hommes et les technologie, approche cognitive des instruments contemporains, paris, Armand colin.

15- Richard, J.F (1990) : les activités inalesent, comprendre, raisonner, trouver des solution, paris Armand colin.

16- Richard, J.F (1993) : les modèles de la cognition, In liberg hien Encyclopédie des sciences cognitive, paris.

17- Runco, M.A (1990): Maximal performance on divergence thinking, journal of research in science thinking, 29(1),28-4

18- Wagner, D.A (1978): memories of morocco, the influence of age, schooling, and environment on memory, cognitive psychology (10),193-221.