

Significance of Emotion and Cognition as Essentials for Learning

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Abstract

In the formal classroom scenario, to ensure the achievement of learning objectives, the learners have to get involved, in the learning task, emotionally and/or cognitively in behavioural terms. Emotion and cognition work out in synchronization and facilitate the learners' participation, by engaging meaningfully, in the learning task and support them in investing their potentials. Emotion, as a trait, is reflected in the personality of an individual as emotional intelligence which refers to the ability to unite emotions and thoughts, intuition and logic together. Cognition refers to the ability of an individual to know that comprises all thoughtful mental processes like reasoning, judgment, awareness, problem-solving, perception etc. Cognitive style, as the cognitive parameter, refers to the ways that are preferentially adopted by the learners in attention, problem-solving, memorization etc. Cognitive styles comprise the patterns in which the learners cognize & assimilate the information to acquire knowledge and conceptualize to process the information. Cognitive styles depend upon cognitive skills which are positively correlated with the academic achievement. In the formal school system, cognitive skills are not directly taught to the learners, thus at school level due care must be focussed on developing these skills by organizing classroom activities which provide the learners a scenario to share, assert, share, exchange, reject and accept each other's views. Classroom activities need to support and enrich the learners by facilitating social interactions among them and offering the cognitive challenge to them.

Key Words: Emotion, Cognition, Cognitive styles, Trait, Mental processes, Cognitive parameter

Introduction

In the formal classroom scenario, to ensure the achievement of learning objectives, the learners have to get involved, in the learning task, emotionally and/or cognitively in behavioural terms that are the learners have to invest their learning potentials at behavioural, emotional and cognitive level. This tendency represents learners' capacity and aptitude to take ownership of their educational experiences. As the personality imperatives of learning, emotion and cognition are the functionally viable components of the personality and play a significant role in learning. Emotion and cognition work out in synchronization and facilitate the learners' participation, by engaging meaningfully, in the learning task and support them in investing their potentials. Mentioning specifically, the personality of learners, as humans, is characterized by emotion and cognition which as functional measures facilitate them to adjust, contribute and survive. Emotion is a positive or negative mental state that is in action and some autonomous way is closely related to temperament and combines physiological input with cognitive appraisal. An individual, born with certain temperamental dispositions, shows specific organizational patterns of emotion reactivity. Emotions play a significant role in thought and action (**Thagard, 2006**). Cognition refers to the ability of an individual to know that comprises all thoughtful mental processes like reasoning, judgement, awareness, problem solving, perception etc. Cognition supports the individual to develop an organized structure of the aspect under deliberation. The following section discusses the role of emotion and cognition in learning.

Emotion as Learning Essential

Emotions are the inherent part of rational processes like decision making (**Thagard, 2006**) and are concerned with goal accomplishments and problem solving also (**Oatley, 1992**). As personality imperatives, in an individual, cognition, as working memory, and emotion, as ability to regulate emotions that is emotional intelligence, develop separately and then over time they begin to work together. The abilities of working memory facilitate an individual in regulating his/her emotions which in turn support working memory. The interaction between emotion and cognition takes place and they become inextricably bound and with respect to this interaction there may be individual differences among persons. The regulation of emotion is dependent upon the extent of brain development, quality of learned behaviour, intensity of temperament and desired parental guidance. Emotion, as a trait, is reflected in the personality of an individual as emotional intelligence which refers to the ability to unite

emotions and thoughts, intuition and logic together. Emotional intelligence is the tendency on the part of the individual to judge, gauge and monitor his/her own as well as others feelings and emotions (**Goleman, 1995**). Emotional intelligence is an integrated concept and it links the cognitive and affective domains of personality. It supports an individual in making sense of his/her acts, thoughts etc. Emotional intelligence acts as a parameter that reflects the intensity of social interaction of an individual (**Kanoy, 2011**) and helps him/her in problem solving & decision making, managing the stress, and, through effective communication, in developing empathy also. Even success, achievements in the life depend upon emotional intelligence component of personality and with progress in career it, as a skill, becomes more and more essential (**Kolb & Hanley, 2003**). The characteristics like the ability of an individual to control anxiety, anger, fear, frustration are developed if an individual has substantial emotional intelligence (**Snarey & Vaillant, 1985**). Emotional intelligence is positively correlated with academic achievement of pupils (**Kattekar, 2010; Ogundokun & Adeymo, 2010; Fayombo, 2012; Chamundeswari, 2013**) and through its subcomponents like confidence, persistence, self-control, communication etc. it supports the learners to learn at their end (**Low & Nelson, 2005**). In education, the learning set up must focus on offering the challenges to the learners so that they learn to share, assert, accept each other's views as an individual with high emotion quotient attains more success in comparison to a fellow with average or low emotion quotient.

Cognition as Learning Essential

In general terms, cognition refers to thinking process and it is an abstract feature of human personality. It is a central concept in educational psychology. Cognitive psychology regards learners as active constructor of knowledge as they assign meaningfulness to the events of outer world, cognitively process the information/ideas, categorize and make connections of the new information with their previous knowledge etc. In such situations, the teacher should act as facilitator of the learning process and first step, in that respect, is identifying the learning styles of the learners and learning strategies adopted by the learners. The terms learning style and learning strategy are closely related to each other. Learning styles refer to the characteristics of learners' and their preferred way of thinking, accessing, gathering, analysing, interpreting, and organizing some information (**Wang, 2008**). Learning strategies stand for the set(s)/combination(s) of operation(s), route(s) or plan(s) adopted/used by learners to facilitate them in accessing, retrieving, storing and using the information (**Macaro, 2006**). Learning styles are learners' traits which are operational at unconscious

level but learning strategies involve conscious choices and are specific ways adopted by the learners to enhance the efficiency of learning (**Messick, 1976**). Learning styles comprise cognitive styles which are a psychological construct related to information processing calibre of learners (**Liu, 2008**). Cognitive style, as cognitive parameter, refers to the ways that are preferentially adopted by the learners in attention, problem solving, memorization etc. Cognitive styles comprise the patterns in which the learners cognize & assimilate the information to acquire knowledge and conceptualize to process the information. Specifically emphasizing, cognitive styles are relatively stable attitude, preference and strategy which determine most typical modes of perceiving some information, remembering facts and information, retrieving the information and ultimately problem solving (**Messick, 1976** and **Witkin & Goodenough, 19812**). Cognitive styles significantly influence learners' choices in using learning strategies (**Shi, 2011**) and can be classified on the basis of cognitive processes like perception, memory and thought (**Pithers, 2002**). In comparison to general intelligence, abilities or situational factors cognitive styles can be a reliable predictor of an individual's accomplishments, success in some specific situations (**Kozhevnikov, 2007**) or professional fields namely education (**Sternberg & Zhang, 2001**), cognitive neuropsychology, information science and computer technology and system designs as these fields comprise the information processing by users (like students, information seekers and computer users etc.) and they have a vision that a system as a whole (like teaching styles, information systems or computer interfaces) can be improvised to accommodate the diverse user population (**Froehlich, 2003**). Cognitive style, as a fundamental factor, play a crucial role in determining individual as well as organizational behaviour (**Sadler-Smith & Badger, 1998; Streufert & Nogami, 1989** and **Talbot, 1989**) and as a critical variable in exercising personnel selection, facilitating internal communications, conducting career guidance and counselling sessions and ensuring conflict management (**Hayes & Allinson, 1994**). The concept of cognitive styles was given by **Klein (1951)** and **Klein & Schlesinger (1951)** as they were keenly interested to explore plausible relations between personality and individual differences in perception. In fact, **Klein (1951)** was the first to focus on cognitive styles and he addressed them as perceptual attitudes that reflect a kind of pattern of adaptation with respect to the real world which regulate an individual's cognitive functioning. Even in virtual environments, that is information space which exists out of the limits of traditional print world like internet, the way(s) in which users adapt and work, along with the understanding of human-computer interaction principles, is significant in building more intelligent information retrieval systems in comparison to their physical counterparts (**Saracevic & Kantor, 1991**) and cognitive style

is one of the characteristics that affects user interaction with systems. As an application of virtual environments, efforts are also being exercised to associate artificial system with the real world by using metaphors which facilitate the users in linking the abstractions of the web resources with some already underwent interaction. User's understanding in choosing metaphors depends upon their cognitive styles (**Palmquist, 2001**). Cognitive styles depend upon cognitive skills which are positively correlated with the academic achievement and thus can predict academic performance, so schools that focus upon academic performance may also improve cognitive skills. In developing cognitive skills, there may be individual differences among the learners so; attending schools can improve cognitive skills (**Ceci, 1991** and **Ceci & Williams, 1997**). In the formal school system, cognitive skills are not directly taught to the learners, thus at school level due care must be focussed on developing these skills by organizing classroom activities which provide the learners a scenario to share, assert, share, exchange, reject and accept each other's views. Knowledge construction is an active process and it depends upon some previous knowledge so, classroom activities need to support and enrich the learners by facilitating social interactions among them and offering cognitive challenge to them. Following section discusses the types of cognitive styles.

Types of Cognitive Styles

There are four types of cognitive styles namely reflection-impulsivity, field dependence-independence, holist-serialist and deep level-surface level processing. The following section discusses these types:

i) Reflection-Impulsivity

Kagan (1965) was the first to conduct studies in the reflection-impulsivity domain of cognitive styles. He administered Matching Familiar Figures Test on the subjects. The time taken by the participants in decision making and responding was noted. One of the group looked at the figures very briefly and respondents were assessed as cognitively impulsive and another group of respondents meticulously worked on all available options and then arrived at some decision and were found to be cognitively reflective.

ii) Field Dependence-Independence

In 1950's and 1960's Witkin for the very first time proposed the notions of field dependence and its educational implications were suggested by Witkin, Moore, Good enough and Cox in 1970's. Body Adjustment Test and the Rod & Frame Test were used for original testing and

subjects were instructed to determine the alignment or misalignment with the absolute vertical with given varied external and internal stimuli (**Witkin et al, 1977**). One group of subjects determined the alignment as vertical based and it was solely based on available visual cues and these subjects were field dependent that is these subjects were not able to determine their vertical alignment as a discordant visual field was operational. Other subjects were able to perceive their alignment in some distinct way from the visual surroundings.

In another experiment that used Embedded-Figures Test, the field dependence- independence of a subject was determined by the time taken in searching a simple figure through some complicated visual field (**Witkin et al, 1977**). Some subjects spent comparatively more time in locating the figure and they were field dependent while other subjects did so quickly and they were field independent. Generally, the subjects were reported on a continuum that ranged at one extreme as field dependent and other extreme as field independent. Field-dependent students tend to be extrinsically motivated and require structured reinforcement from the teachers and have a tendency to work in groups. Field independent students are intrinsically motivated and prefer to work at an individual level. Field independence-field dependence is the cognitive style that has been widely probed and is exclusively practiced.

iii) Holistic- Serialistic

This cognitive style was described by **Pask (1976)**. He instructed the subjects to develop a category of imaginary animals and then develop a group. He observed and concluded that there were a few subjects who preferred the way(s) which support them in understanding the underlying fundamentals, develop & test multiple hypotheses. These subjects were holists with respect to cognitive styles. They were also known as comprehension learners. Other subjects worked with one hypothesis at a time and did not shift to another hypothesis until the hypothesis in the frame was not tested and these subjects were serialists or operation learners. Some subjects can switch between these two cognitive styles that are holistic and serialistic and are called as versatile learners.

Deep level-Surface level Processing

In this cognitive style, the approach adopted by the subjects for learning was probed by **Marton & Säljö (1976)**. In the deep level information processing, the subjects focus on whatever is signified, that is intended meaning of the information, rather than the sign which refers to the rote learning of the material. The surface level information processors have a reverse preferential choice for learning of the material. Deep level information processors are

intrinsically motivated and tend to quickly grasp the concepts in totality. Surface level information processors require extrinsic motivation and focus on details. The approach towards material chiefly discriminates between these cognitive styles. On the part of the teachers there is a need to properly comprehend, both, deep as well as surface-level processing (**Ford, 2000**).

Conclusion

Cognitive development as the essential parameter of the personality of the learners must focus on building a scenario that honors their individuality as they think differently. The instructional designs in the classrooms must motivate the learners to construct the meaning at their own ends. Due care must be given by the teachers to the content and quality of previous knowledge of the learners. Besides this social interactions in the classrooms must find a definite place as social interactions promote the cognitive development. Emotions support an individual to socially act and interact with others and support cognitive processes to adapt to diverse situations. So by associating emotion and cognition together, there may be proper utilization of learners' potentials in learning as human personality is continuous and different personality components don't work in isolation but strive together to achieve a common goal.

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