Chapter-2
Conceptual Framework
The students are considered as the bedrock of any civilization. Capacity to behave intellectually is one of the most precious possession that enable them to learn, reason, take advantages of past, predicts future, manipulate their environment and transcend their thinking in the barrier of time and space (Lakshmi, 1995). But the poverty has enmeshed them by exerting a consistent and significant negative effect on intellectual development (Guo & Harris, 2000). There are two models that look at how poverty affects children: the parental socialization model and the financial capital model (Guo & Harris, 2000). The parental socialization model comes from the research conducted by Duncan and Brooks-Gunn, (1997) which states that poverty may affect the way in which parents monitor their children and respond to their needs. An example would be how a sick child is taken care and treatment in his home. The financial capital model (Guo & Harris, 2000) maintains that an impoverished family has fewer material resources and the children growing up with fewer material resources tend to do less well in education. The factors that define poverty are in some cases the same that lead to poverty. A lack of social support for a families or lack of family structure is one such influential factor (Fujinra & Yamaki, 2000). Most of the families in India may not be able to provide quality childcare and positive parenting skills due to the lack of social support. Further, overpopulation, urbanization and immigration are other factors (Agbenyega & Jiggetts, 1999) behind poverty. Thus, the poverty worsens child health, cognition and performance.

2.1 Life and Abilities of Socially Disadvantaged Students

The life and cognitive abilities of the students reared in impoverished environment has gained momentum in the present scenario (Zinta, 2006, 2008). Generally the life of the students belonging to socially disadvantaged section is full of challenges. They have to face socio-economic constraints and socio-cultural
challenges that pose threat to their wellbeing. Not only wellbeing is influenced but also it laid its impact on their cognitive abilities and performance. The environments as well as families in which they are reared definitely affect their global wellbeing and functioning in various domains. There are many reasons why parental socioeconomic status matters for child health. Richer families can purchase more and better quality health “inputs” and better off parents may be able to combine given health inputs more productively. It seems that the lower socioeconomic status families have lower endowments of human capital at birth. The “fetal origins hypothesis” as originated by David Barker suggests that conditions in utero might have lasting effects on health in later life. Thus, low socioeconomic status children may have poor endowments at birth because of circumstances, rather than because their parents have “inferior” genetic endowments. Therefore, It is quite evident that the children of poor or less educated parents are in worse health on average than other children, even in a rich country like the United States (Currie & Lin, 2007). The economists also think of “human capital” in terms of education whose investments may pay off in the form of higher future earnings and many other positive outcomes. Health and psychological wellbeing may determine child’s educational success that is implicated in the intergenerational transmission of socioeconomic status which can be broken through favorable policies (Currie & Lin, 2007).

It is always the poor who are trapped in vicious circle of poverty marked by chronic mal-nutrition, poor health, and unsanitary conditions, which in turn increases their vulnerability to infectious disease and hinders their motivation and capacity towards physical work (Dreze & Sen, 2002). Thus, the poverty is directly related with ones mental health (Patel, 2001: WHO, 2001) that seems to have its various routes. The relationship between poverty and mental health is quite complex and
multidimensional in nature that may be associated with behavioural disorders and performance deficit. For example, the deprived students belonging to poor social status and lower castes (SC) show higher prevalence of mental and behavioural disorders (Patel, 2001) that on the one side affect their performance on the other as health which is ideally a state of physical, social, mental and spiritual well-being of the person not merely the absence of diseases or infirmity. According to World Health Organization (2001) there are direct link between poverty, economic impact and mental as well as behaviour disorder among the students.

Figure 2.1 Vicious cycle between impoverishment and mental disorder (Source: Patel, 2001 WHO, 2001a)

The impoverish environment may definitely affect school students wellbeing and performance that in turn affect their personality development. The scheduled caste students are not able to pursue better education due to their poverty. It is very
true that the education system is the backbone of any country that involves all kinds of programs related to literacy, providing theoretical and practical training may prove as greater resource for proving their well-being. In the context of the growth of the nation education system of any county should be very effective. It is a matter of great concern that the majority of the students belonging to the disadvantaged sections of the society (SC/ST) are not availing higher education and employment training in a nominal rate. Although the resolution of National Policy on Education 1968 lay an emphasis is on equality improvement and planned, equitable expansion of educational facilities yet there seems to be a need to focus on the education of students especially of the socially deprived sections of rural as well as in urban areas to promote their wellness and performance. It is very clear that psychological wellbeing is directly related to the general mental ability, intelligence and scholastic achievement of the students. Famous psychologist Jean Piaget also believed that abstract symbolic reasoning of the human being separates them from animal. The behaviour according to him is controlled through mental schemas that once again reflect on the importance of mental wellbeing and achievement. Most of the social scientists believe that the mental schemas, rationality and creativity of the students belonging to poor class are less than to their affluent counterpart.

The students belonging to scheduled caste suffer from prolonged deprivation that forces them to experience psychological trauma, wherein damage to the psyche occurs as a result of a traumatic event. When that trauma leads to posttraumatic stress disorder, damage may involve physical changes inside the brain and to brain chemistry, which changes the person’s response to future stress. A traumatic event involves a single experience, or an enduring or repeating event or events, that completely overwhelm’s the individual’s ability to cope or integrate the ideas and
emotions involved with that experience. The sense of being overwhelmed can be delayed by weeks, years or even decades, as the person struggles to cope with the immediate circumstances. Trauma can be caused by a wide variety of events, but there are a few common aspects. The psychological trauma may accompany physical trauma. Typical causes and dangers of psychological trauma are sexual abuse, bullying, domestic violence, indoctrination, being the victim of an alcoholic parent, the threat of either, or the witnessing of either, particularly in childhood. It may affect the happiness level of the concerned families as well as students.

Generally Wilson (1967) discussed that satisfaction from the fulfillment of needs depends largely on the degree of expectation and adaptation. Michalos (1985) in his multiple discrepancy theory of satisfaction stated that the students compare themselves to many standards such as other students, past conditions, ideal levels of satisfaction, and needs or goals. A discrepancy due to an upward comparison (my expectation was better than the other) results in decreased satisfaction whereas a downward comparison (my expectation was worse than the other) will result an increase in satisfaction. An orientation to happiness model presumes different path ways for achieving the same (Guignon 1999; Peterson 2006; Russell 1930; Seligman 2006; Peterson 2008). Seligman (2006) delineated three roads to happiness, which included positive emotions and pleasure (the pleasant life), engagement (the engaged life), and meaning (the meaningful life). Similarly Veenhoven (2004) showed that differences in how long and happy the people in general and the students in particular live in a country can be explained in terms of variations in societal characteristics (e.g. economic development, political democracy, and mutual trust). Further the mental health continuum may be other the important factor for the same (Keyes 2002). Similarly, the 3P model categorizes the components of subjective well-being and
happiness under the temporal states of the Present, the Past, and the Future prospects of the students and their families. Thus the level of happiness and wellbeing is definitely associated with the better performance of the students (Zinta, 2006, 2008). The academic achievement in turn is important for successful life and crucial mandate for schools. The expectancy-value model of achievement proposes that the students' achievement behaviors including persistence, choice, and performance are directly linked to their expectancies for success and perception of task value (Eccles, 1983). The expectancy generally deals with the beliefs about how well the students in perform upcoming tasks. The study of Eccles (1983) observed the role of intrinsic, attainment, utility and cost values in learning and performance.

Learning is being transformed into a structure that is more Self directed nested with working and personal life; is perhaps based on resources that require continuing access to learning resources. Moreover, it shifts from "know what" to "knowing how, how to learn, how to secure information, use it, and how to relate to a changing society" (Sacchanand, 2002; Thomas, 1995). Thus in learning psychological wellbeing and mental processes may play an important role. The cognitive psychology also delineated mental processes as related with objective events such as perceiving, conceiving, remembering, reasoning, judging, imagining, and problem solving (Bos, 2007, p. 187). More appropriately, it deals with information processing view of an individual and its psychological functioning as well as development of concepts in individual mind and the groups. The cognitive processes dealt with the performance of composite actively operation that affect mental content (Sternberg, 2007). There are various socio-cultural and psychological factors that may affect the performance and wellbeing of the students studying in various schools across the
countries. The description that how social factor influence the students can be best understood by the social theory whose description is as follows:-

2.2 NATURE OF SOCIAL THEORY

It was Banton, Clifford, Erosh, Lousada and Rosenthal, who in 1985 developed social theory at the first instance. Further it was reviewed by Jones and Moon in the year, 1987. The goal of social theory is to understand how the society enters into the life of an individual and construct them socially. Generally, this theory laid emphasis on economic, political and the ideological forces, which are more powerful than other conscious factors affecting individuals in general and students in particular. It also talks about the process of subjectification that aims to reveal the individual, the way she/he is subject to unconscious forces. This theory also analyzes such forces until their social determinants are uncovered. So, the distinguishing characteristic of social practices is to work out the structure of power relations in the individual’s to Self-control. This theory states that the power relationships determine the need for change and also talks about how that change can be brought out.

The social theory distinguishes between ‘remembered’ and ‘real’ community. It is through remembered community that the contradictions and antagonisms develop inside the individual. The ‘remembered community’ reflects a paradigm of community life that is reinforced or strengthened through media, politicians and welfare workers. The structure of the state also influences community in various ways. On this basis the distinction or classifications are made between rich and poor, different classes or castes. The control of the state extends to an extent that there is virtually management of subjectivity through mental health industry. This theory calls for development of real community alternative, which involves various processes of socialization. For example, various social, psychological, ecological and cultural
factors may affect the well-being of the students. According to Bandura (2004) a responsible social science must concern itself not only with the advancement of knowledge but with the social effects of its applications. The social factors not only works independently rather it damages psychological process. For example social psychological model as proposed by Crook (1995) states that the psychological processes may play an important role in genetic co-evolution. Similarly eco-cultural model incorporate contextual, social and cultural variables that interact with ecological variable and lead to cultural and biological adaptation in human being (Mishra, Sinha & Berry, 1996). However, the native cognitive model talks about holistic approach where cooperative interdependence is the basic characteristics (Pirta, 2002) of the group. These are in some way related to the wellbeing and performance of the students.

2.3 SOCIAL COGNITIVE THEORY

The propounder of social cognitive theory has been derived from the Albert Bandura (1961, 1977, 1986, 2001, & 2004) who derived it from social learning theory of Miller and Dollard (1914). According to social learning theory human behaviour is motivated by drive where cognitive variable work. According to Bandura “Learning would be exceeding laborious, not to mention hazardous of people had to rely solely on the effects of their own action to inform them what to do. Fortunately most human behaviour is learned observationally through modeling; by observing other’s one forms and ideas of how new behaviour are performed and later occasion this information serve as a guide for action” (Bandura, 1977). Basic purpose of social cognitive theory was to understand and predict individual and group behaviour; to identify methods in which behaviour can be modified or changed and to use intervention aimed at personality development, behaviour pathology and health
promotion. The theory defines human behaviour as triadic, dynamic, and reciprocal interaction of personal, behavioural and the environmental factors.

In reciprocal determinism there is an interaction between environment, personal factors and behaviour. The symbolizing capability dealt with the most external influences that affect behaviour through cognitive processes and the symbols (e.g. images or mental pictures or words) serve as the mechanism for thought. Vicarious processes refer to human ability to learn not only from direct experience but also from the observation of others. Forethought is a person's capability to motivate them and guide their action anticipatorily (Bandura, 1989). Self-regulatory systems are an internal control mechanism that governs what behaviour is performed and the self-imposed consequences for that behaviour. The self-reflective capability enables people to analyze their experiences, think about their own thought processes, and alter their thinking accordingly (Bandura, 1986, 2001, 2004).

Therefore, the response consequences of behaviour are used to form expectations of behavioural outcomes. Thus, the key concept in this theory is reciprocal determinism, symbolizing capability, vicarious capability, forethought capability, self-regulatory capability, and self-reflective capability. It contends that behaviour is largely regulated antecedently through the cognitive processes. It gives strong emphasis on one's cognition by suggesting that the mind is an active force that constructs one's reality, selectively encodes information, performs behaviour on the basis of value and expectations and imposes structure on its own actions.

More appropriately, the social cognitive theory involves four types of agencies named as personal where cognitive, motivational and affective and choice processes through which it is exercised to produce given effect. The manner in which human agency operates has been conceptualized in at least three different ways-as
autonomous agency, mechanical agency or emergent interactive agency. In the concept of agency self-referent processes are epiphenomenalism by products of conditioned responses that do not enter into the determination of action. Successful functioning requires an agentic blend of these different modes of agency (Pajares, 2002). Gandhiji once mobilized massive collective force that brought socio political change, although lives ascetically not self-indulgently (Bandura, 2001). There involves the greater role of brain in cognitive processing upon which social cognitive theory rest. According to Bandura (2002) culture are diverse and dynamic social system not static monoliths that exert its influence on human well being and performance.

The social cognitive theory posits that factors such as economic conditions, socioeconomic status, and educational familial structure do not affect human behaviour directly instead they influence people’s aspiration, self-efficacy beliefs, personal standards, emotional states. It reveals human and collective functioning as the profound influence on psychological thinking and theorized on fundamental human capabilities. Bandura (1997) regard role of self-efficacy beliefs in human functioning and told that peoples level of motivation, affective state and actions are based more on what they believe than on what is objectively true. Self-efficacy beliefs are critical ingredient in human functioning, that help in determining efforts people spend in their activities. It influence thought pattern and emotional reactions that in turn are related to the performance and wellbeing of the students as well.

2.4 SELF-EFFICACY THEORY

During behavior therapy movement, a paradigm shift took place where in an emphasis was given on internal factors rather than of external one. The concept of self-efficacy lies in the center of Bandura’s social cognitive theory, which emphasizes
the role of observational learning and social experience in the development of personality. The component processes underlying in observational learning is the attention, retention, motor reproduction, and motivation. The self-efficacy theory holds that the initiation and persistence of particular behaviour and courses of actions are affected by people’s beliefs about their behavioural capabilities and their likelihood of coping with environmental demands and challenges (Bandura, 2001).

![Diagram](https://via.placeholder.com/150)

**Figure 2.2 Foundation of human agency (Source: Bandura, 2004)**

Generally self-efficacy can be best understood in the words of Bandura (1986), as the “peoples” judgment of their capabilities to organize and execute course, of action required to attain designated types of performance. It is concerned not with the skill one has but with the judgments of what one can do with whatever skill they possesses. The expectation influences the thought patterns, emotional reactions, and orchestration of performance through the adroit use of sub skills, ingenuity resourcefulness and so forth. Bandura in his non-recursive conceptual model of self-efficacy development and described the term reciprocal determinism by suggesting
that people can have two types of self-efficacy high and low. The people with high self-efficacy are engaged in challenging activities through which self-evaluation are based on competency mastery and control. They experience more optimism, expend more energy and envision success scenarios to attain designated goal by maintaining wellbeing as compared to their counterpart low self-efficacious. Beliefs in personal efficacy affect life choices, level of motivation, and quality of functioning and performance, as well as vulnerability to stress and depression and promote resilience for maintaining wellbeing. Gandhiji also mobilizes massive collective force that brought socio political change in India although lives ascetically not self-indulgently (Bandura, 2001) and helped a lot for the people of the country. Beside this Amartya Sen an eminent economists also gave some other dimension of human development that includes life (health, reproduction, security); knowledge, work and play; relationship; spirituality, participation, inner peace, appreciation of beauty, and harmony with non-humans. It has been shown in figure number 2.3 in the below mentioned section.

Figure 2.3 Capability approach to the quality of life (Source: Dreze & Sen, 2002)
Further the freedom, individualism, principle, human right, motivation, psychic state of an individual, adjustment, relationship, wealth, along with capabilities are some other predictors of the development. Women bear a disproportionate burden of poverty as a consequence of the patriarchal structures. Thus enhancement of one's capability will definitely promote powerlessness, exclusion, exploitation, oppression, deprivation, alienation and a loss of dignity (Ray, 2010, pp. 22). Thus, this approach may be used to understand student's performance and wellbeing. For example, Dale, Schunk of Purdue University emphatically observed that the self-efficacy is an academic construct. Similarly, Pajare and Miller, 1984 examined the mediational role of self-efficacy in the mathematically problem solving is the result revealed that self efficacy held greater predicted power for problem solving. It is a domain specific construct in academics. According to Bandura, (1986) it is a task specific. The self-efficacy expectancies predict behaviors in varieties of contexts such as in decision making (Cervone, Jiwani & Wood, 1991), task performance (Bandura, 1982; 1999; Bandura, Adams & Beyers, 1977; Feltz, 1982), and problem solving task (Sanna, 1977) like anagram solution. Bandura (1982, 1986) has proposed self-efficacy and outcome expectancy as the two mechanisms of cognitive self-evaluation that are mediated in skilled performance.
Figure: 2.4: A model of self-efficacy and performance relationship (Source: Albert Bandura, 1982).

Three types of assessment processes appear to be involved in the formation of self-efficacy. First of all, it involves an analysis of the task to be performed at various levels. The second form of analysis typically involves an attribution analysis of experience. This involves the individual’s judgments, or attributions, about any particular performance level. Finally, an assessment of task requirement and attribution analysis of experience provides some sense of what it takes to well on the task in terms of ability as a motivational component. Self efficacy is typically operationalized in precise task-specific terms (Gist, 1987). Tipton and Worrington (1984) examined self-efficacy and task performance relationship and obtained positive results. During the past decades, self-efficacy has emerged as highly as an
effective predictor of student’s motivation and learning (Zimmerman, 2000). The self efficacy is positively related to academic performance in special circumstances (Vrugt & Koelis, 2002). As per the study of Stone (1994) the high self efficacy led to overconfidence in one’s abilities. Instead of high-self efficacy individuals contributing more of their resources toward the task, they contributed less; expand less attention and effort than were of their low-self efficacious counterparts. Most of the studies indicate a positive relationship, relationship between self efficacy and task performance (Gupta, Kumari & Sinha, 2002, Zeldin, 2000).

![Figure 2.5: A model of self-efficacy, task value, achievement goals, effort and mathematic achievement (Source: Nasiriyan, Azar, Noruzy & Dalvand, 2011)](image)

Self-efficacy was theorized to predict how much effort will be applied to attain a performance outcome (Bandura, 1997). Previous research has been shown evidence of the predictive validity of self-efficacy in academic settings (Brosnan, 1998; Wolters & Pintrich, 1998; Lane & Lane, 2007; Manstead & Van-Eeklen, 1998; Newby-Fraser & Schlebusch, 1998; Payares 1996; Vrugt et al., 1997;). Lane and Lane (2007) found that self-efficacy scores significantly predicted academic performance. Therefore, most of the studies found positive relationship between self-efficacy and
performance but some studies also found negative and non-signification relationship. Some studies (Bendalos, Yates & Thorndike, 1995; Montague & Applegate, 2000; Vancouver, Thompson, Tischner & Putika 2002; and Zinta, 2006) have found no difference in high and low level of self efficacy group in the measure of performance. Self efficacy is also negatively related with anxiety, depression and phobias and positively related with self esteem, self confidence or self-worth.

2.5 RESERVE CAPACITY MODEL

This model was developed by Gallo and Matthews in 2003 in order to examine psychosocial factors in socio-economic status-driven health disparities (Gallo & Matthews, 2003). It begins with the premises that stressful versus positive experiences and environments are unequally distributed according to socio-economic status. Individuals in disadvantaged circumstances endure more frequent exposure to risk, threat, conflict, ambiguity, daily hassles, and major life events (Gallo, Bogart, & Vranceanu, 2005; Hatch & Dohrenwend, 2007; Matthews, Raikkonen, Everson, Flory, Marco, Owens et al., 2000; Myers & Hwang, 2004; Stansfeld, Head, & Marmot, 1998; Turner & Turner, 2005). Moreover, social status may shape appraisals in a way that further increases stress burden. For example, prior research suggests that individuals with low socio-economic status (Chen, Langer, Raphaelson, & Matthews, 2004; Chen & Matthews, 2001) and those previously exposed to the racial discrimination (Broudy, Brondolo, Coakley, Brady, Cassells, Tobin et al., 2007) devise negative interpretations of even ambiguous social interactions, express hostility and unfriendly attitude (Gallo, Smith, & Cox, 2006) in later life that influence the well being and performance.
Figure 2.6 Reserve capacity model (Source: Gallo & Matthews, 2003)
According to the Reserve Capacity, enhanced vulnerability reflects inadequate resource reserves that could otherwise attenuate negative appraisals or facilitate adaptive coping. It states that the interpersonal (e.g., supportive social relationships) and intrapersonal resources (e.g., control perceptions; optimism) may be scarce in individuals with low socio-economic status or in ethnic minorities where individuals are exposed to discrimination, segregation, and unsafe neighborhoods, as well as discourage trust and limit opportunities for supportive social interaction (Gehlert, Sohmer, Sacks, Mininger, McClintock, & Olopade, 2008). A lack of education may create low sense of control and poor self-esteem through failure experiences wrought by less-developed communication and problem-solving skills (Mirowsky & Ross, 1998). Similarly, jobs held by individuals with low social status are often low in control and support. Research revealed that psychosocial resources are directly related to the physical and mental health (Cohen, Gottlieb, & Underwood, 2001; Singer & Ryff, 1999; Taylor & Seeman, 1999). According to conservation of resources theory, actual loss or the threat of loss is the critical determinant of psychological outcomes. Loss events have been documented as the cause of 90% of cases of depression or dispositional depression that threaten an individual's social status, economic stability, daily routine, basic beliefs, self concept or identity as well as performance and wellbeing. It further states that initial loss can deplete resources. Therefore, there are fewer resources (emotional or financial) available to meet subsequent demand (Wells, 1995). The emotional factors in particular can contribute to the socio-economic gradient in health and performance.

Hence, the Reserve Capacity Model (Gallo & Matthews, 2003) is a potential framework to examine psychosocial pathways in health disparities. In nutshell, the model posits that socioeconomic status is connected to health, in part through
associations with stress and concomitant negative emotions, and their subsequent links with bio-behavioral functioning. In addition the socioeconomic status may predict enhanced emotional and physiological reactivity to stress due to a deficiency in resilient psychosocial resources and limited opportunities to replenish resource reserves. In addition to this, the stress may shape health indirectly through associations with the emotional and attitudinal factors, which themselves affect health via bio-behavioral mechanisms (Cohen & Pressman, 2006; Everson-Rose & Lewis, 2005). Some research also suggests that persons with low social status experience enhanced emotional (Kessler & Cleary, 1980; McLeod & Kessler, 1990) and physiological (Lepore, Revenson, Weinberger, Weston, Frisina, Robertson et al., 2006; Williams, Marchuk, Siegler, Barefoot, Helms, Brummett et al., 2008) reactivity to stress, increasing the potential deleterious consequences and allostatic load that in turn affect psychological well-being.

More appropriately, this model asserts that lower the socioeconomic status environments faster or greater will be the exposure to stress, which in turn, elicits more negative and less positive emotions. In addition, lower socio-economic status environments can lead to a greater use and depletion of mitigating psychological resources as well as fewer opportunities to develop resource reserves. Resource discrepancies and changes may contribute directly to emotional distress and greater emotional reactivity to stress exhibited by individuals with low SES, subsequently, negative emotions and low positive emotions may faster deleterious health outcomes. The model emphasizes towards the role of material, social and personal resources in determining psychological and other stress consequences, when faced losses as well as an inability to gather additional resources may ensure, fostering loss spirals and escalating damage, tangible and financial reserves as well as social and personal
assets. The loss of resilience or mental health may be due to use reserve for coping with stress. A similar analysis has been applied directly to the observed relationship between low socio-economic status and cognitive decline related to disease. Specifically observers have suggested that the association between low educational attainment and cognitive decline is not simply due to fact that less educated people have lower mental abilities throughout their lives but that education encourages the development of a set of reserves that allows more efficient processing or develops compensatory processes to protect against age related decrements in functioning.

Certain studies have found psychosocial factors to be associated with socioeconomic status and metabolic syndrome – a constellation of risk factors that is associated with negative health outcomes (Gami, Witt, Howard, Erwin, Gami, Somers et al., 2007; Raikkonen, Kajantie, Rautanen, & Eriksson, 2007). In a study of 401 middle-aged women from the Healthy Women Study (Matthews, Meilahn, Kuller, Kelsey, Caggiula, & Wing, 1989), socioeconomic status showed an inverse, linear association with incident metabolic syndrome risk assessed across a 12 year follow-up period. The low socioeconomic status people showed low reserve capacity, high negative emotions and more metabolic syndrome risk (Matthews, Raikkonen, Gallo, & Kuller, 2008). Substantial research has identified a robust, linear association between socioeconomic status and health, across many different populations and outcomes. Among myriad influences, psychosocial factors may affect health and cognitive abilities of the person that in there influences performance an surface caste.

2.6 PARADIGMS OF COGNITIVE ABILITIES

According to Sankhya Yoga, an individual acts through five sense organs and five motor organs those are the organs of perception and action. These 10 organs work outwards and form various gates and doors to the environments. It represent the
subtle functions of seeing, hearing, smelling, taste, touch, speech, grasping, locomotion, reproduction, and excretion. Further, there are also the internal organs that may the mind, ego, and intelligence (manas, Ahankara, buddhi). Sankhya views intelligence in its purest form that consist of five attitudes namely the knowledge, rules of conduct, renunciation, detachment and training in order to maintain pure intelligence. It conceptualized intelligence in terms of eight bhavas or states of being such as dharma (virtue), Jnana (knowledge), virago (nonattachment), and aisvarya (power) of all which constitute the satvika or pure state (Pandey, 2000).

According to Srivastava, Tripathi, and Misra (1995), the intelligence in Indian philosophical treatises’ has been treated as a state, a process and an even entity, the realization of which depends upon one’s effort, persistence and motivations. It deals with the Suktis or good words on various subjects. Similarly includes a number of concepts related to intelligence such as Buddhi, Vidya, Vivek and Jnana and their antonyms. The Vidya or knowledge can be acquired through the exercise of intelligence, and Vivek refer to experimental intelligence. Thus intelligence can be derived from perceptual analysis, analogical reasoning and material learned from books and authorities (Das, 1994). According to Shri Aurobindo, intelligence can be purified through the action of mind that is dominated by sensory experience and memory. The Nyaya Vaisesika and Prajna in Patanjali’s Yoga system talks about Pratibha that stands for a flash of light, that is a revolution and indicative of knowledge that is neither sensory based nor inferential (Kaviraj, 1966) rather a conglomeration of both.

About two decades earlier Wechsler defined intelligence as “the aggregate or global capacity of an individual to act purposefully, to think rationally, and to deal effectively with the environment (Wechsler, 1994). Thus, capacity to behave
intellectually is one of the man's most precious possessions. It enables him to learn, to reason, to take advantage of the past, predict the future, manipulate his environment and transcend his thinking to the barrier of time and space. Intellectual or cognitive development is growth and change in such processes as learning language use, concept formation, reasoning, and imagining, that is dependent on both inner motivational processes and an opportunities provided by the environment especially for acquiring language, knowledge, and competencies. Neuropsychological findings also teach us a great deal about knowledge and its representation in the mind. Over arching issue that was the central focus of Luria was the mind-brain relationship that includes such considerations as the nature and measurement of intelligence. It is felt that intelligence comprises of cognitive processes involved in the brain activities. According to McCarthy and Klarrinyton (1990) intelligence deals with object and face recognition, spatial perception, voluntary action, sentences processing reading, mathematical calculations, memories of various kinds, and problem solving.

Antecedents of intelligence or cognitive processes can be traced from the philosophy of Greek propounded by Plato and his student Aristotle. Plato Famous philosopher described three aspect of the “Soul” as intellectual, emotional and moral that was later labeled as cognition, affection and conation. Aristotle combined source of power; emotional and moral aspects and separated it from the cognitive aspect. He confined intelligence both to the discriminative capacity as well as an integrative capacity. It is the cognition that comprises sensory, perceptual, associative and relational processes. Stenberg in 1990 observed bumps in the skull for separate faculties. The three facts of the triarchic theory of intelligence as described by Sternberg (1958a; 1985b), relate to internal world of the individual that specifies the cognitive mechanisms which result more or less intelligent behaviour. Learning how
to do the things and actually doing them is the essential characteristic of the second face of Stenberge’s theory of intelligence. The first face covers components of intelligence that Sternberg defines as a component of mental process. It may translate a sensory input into a mental representation into another, and finally translate a mental representation into motor output. Herbert Spencer citing with Mendel rather than with Galton believed that all different mental abilities could not be put on the one “scale of merit as Galton (1869) observed. It seems that Cicero was the one to have first used the word intelligentsia (Burt, 1955). Much later, Saint Augustine defines intelligence as quickness of understanding and acuteness in discerning; and saint Thomas Aquinas as success in acquiring perfect knowledge (Sternberg, 1990). Similarly Hebb (1949) defined potential intelligence as innate and the outcome of maturation as modified by the environment.

In the same tune as mentioned above Jensen (1969) see mental functioning as falling less than two level of ability. The level-I is associated with the ability essentially to the capacity of receiving stimuli, storing and later recalling the material, thus are being the synonymous with memory processes. Level- II dealt with the cognitive ability that involves the transformation and manipulation of information and centrally involved the concept and abstract reasoning tasks. Jenson suggested that aspects of culture also need to be taken into account for a full picture of mental functioning. He therefore introduced a biological or genetic component into his discussion, and made much of this, by relating his ideas to educational scene. Spearman (1904) portrayed mental ability as involving a ‘g’ factor (general intelligence) and ‘S’ factor (an unspecified number of specific abilities) which are closely related and function as a unit.
Thurston (1938) was most well known-psychometric in the first half of the century. He proposed separate primary ability such as verbal spatial, and fluency so on. His primary ability was in opposition to the belief in the one’s general ability or the g factor. Fodor (1983) also suggested that various measure of intellectual function are modular relatively independent to each other. The theory as proposed by Gardner’s (1983) also admits the seven separate modules of the intelligence such as linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, and interpersonal and the intrapersonal one. Further, Cattell (1971) actually splits ‘g’ factor into two parts: gf and gc. The gf factors deals with fluid intelligence whereas the gc factor is labeled with ‘crystallized’ general ability, is primarily verbal (i.e. vocabulary tests) and acquired by cultural experience, that involves numerical skills, memory and mechanical knowledge. Gf factor represents “fluid” that which is more culture free involved in perceptual and performance test dealing with the spatial judgment and inductive reasoning including matrices, analogies and classifications.

The expansion of dichotomous Gf-Gc model by Jon Horn (1965) involves four additional abilities that dealt with visual perception or processing (GV), short-term memory (short term acquisition and retrieval or Gsm), long term storage and retrieval (testing storage and retrieval TSR or GLR), and speed of processing (GS). The auditory processing ability (Ga) dealt with GV, GS and GLR (Horn, 1982). In the early 1990's, Horn added a factor representing an individual’s quickness in reacting (reaction time) and making decisions (decision speed). The abbreviation of this factor was Gt (Horn, 1991). Finally, factors for quantitative ability (Ga) and broad reading/writing ability (Gw) were added to the model, based on the research of Horn (e.g., 1991) and Woodcock (1994), respectively. Based largely on the results of
Horn’s thinking and research, Gf-Gc theory expanded into an eight-factor model that became known as the Cattell-Horn GF-GC theory (Horn, 1991).

Cattell-Horn-Carroll (CHC) theory has a significant impact on the measurement of cognitive abilities and interpretation of intelligence test performance. It is the most comprehensive and empirically supported theory of the structure of cognitive and the academic abilities. It represents the work of (Carroll, Flanagan, Mcgrew & Ortiz, 2000). It is used for selecting, organizing and interpreting intelligence and cognitive abilities. Recently it has been used for classifying achievement tests to facilitate interpretation of academic abilities; to provide a foundation for organizing and assessing individuals with learning disabilities. The three-stratum theory of cognitive abilities as proposed by Carrol (1993a, 1995) deals with the nature of identification and structures of human abilities. It proposes that there use to be a fairly large number of distinct individual differences in cognitive abilities and that the relationship among them can be derived by classifying three different strata named as narrow ability, broad ability and general ability. A Stratum-I deals with the specific level and involves eight factors such as fluid intelligent, memory, learning, visual perception, retrieval ability, cognitive speediness, auditory perception and processing speed. Finally the stratum III deals with the general intellectuality that is similar to the g factor. It combines major aspects of Spearman’s theory of general intelligence as well as Horn and Cattell’s crystallize and fluid intelligence.

It is predicated on the idea that D-PFCA broadens people’s conception of ability to measure something roughly equivalent, but not identical, to the fluid intelligence. Each of the levels of overlapping circles represents a perspective on intelligence informed by different data, from the more biologically concrete to the
more statistically abstract. At the most basic level, there do exist an array of interrelated physical phenomena, brain volume/organization, prefrontal volume/organization, and neural transmission speed. At the second level from the bottom of is a representation of the potential nature of the profound functional relationship between prefrontal cognitive abilities and the other primarily cognitive abilities of the brain. In light of the role of the prefrontal cortex in the construction of novel habits, skills, and concepts, it is reasonable to view it as the programmer of other brain areas. So, not only is there inseparable physiological overlap between the prefrontal cortex and other parts of the brain (in terms of size and speed) but also there is inseparable functional overlap (except in special, pathological cases and circumstances). More appropriately more specific and less prefrontal dependent on cognitive abilities will inevitably be contaminated with prefrontal ability because of the manner in which they see initially programmed. The measures of non-prefrontally dependent intelligence (crystallized IQ, personal function) will inevitably reflect prefrontal function—even after prefrontal damage sustained in adulthood, if they are measure in adulthood, after a long developmental history. The third level from the bottom is the first of those in psychometric and statistical domain (Carroll, 1993).

The planning, attention, simultaneous, and successive (PASS) model of Jack A Naglieri and Johnnes Rojahn as quoted by Janak Pandey, (2001) was a way to “provide an important taxonomy for understanding gender differences in basic cognitive processes”
Figure 2.7: PASS Model (Source: Janak Pandey, 2001).

The PASS theory is based on the assumption that "girls outperform boys in cognitive abilities especially on tests of verbal fluency, foreign language, fine motor skills, speech articulation, reading and writing and math calculation, and they typically earn higher grades in school in all or most subjects. The boys have been found to do better on tasks such as mental rotation, mechanical reasoning, math and science knowledge, and verbal analogies (Pandey, 2001). These tasks were then organized into three areas, planning attention, and simultaneous and successive..."
processing, to show the underlying gender differences. The pass theory is a blend of neuropsychological, cognitive and psychometric approaches. Operational definitions of the four processes and the rationale for test construction are derived from the theory (Naglieri & Das, 1990). In terms of PASS model, meta component are the part of planning including decision-making judgment and evaluation, to deal with the use of strategies for different kinds of problem solving. Planning processes would be involved when a person is asked to decide how to perform a test would be inhibited when strict rules about how to perform are impaired. The base of knowledge include in PASS model in intended to represent all information obtained from the cultural and social back-ground of the individual because this determines the mental activities. Planning provides an important link between motivation and personality on the one hand, as well as cognitive activities on the other. The performance component, on the other hand, is concerned with the inductive reasoning or other types of mental activities such as problem solving and information processing. Finally the knowledge acquisition components permit to understanding of the process of learning.

All such randomly selected measures are nonetheless going to be highly contaminated with prefrontal function or fluid intelligence because of the physiological and functional overlap between that brain area and all others, as previously described. This statistical contamination, inevitable because of the underlying physiological and functional overlap, finds its representation in the fourth level from the bottom, in the factor representing fluid intelligence, and in the fact of thigh levels of correlation between all the so-called stratum II factor. Finally, at the topmost level, g emerges, very tightly associated, statistically, with fluid intelligence because of all the overlap of physiology, function, and measurement between prefrontal cognitive function and general rain function at the lower levels. Moreover,
g emerges, reliably, even if there are no specific fluid intelligence measures at the narrow, Stratum-1 measurement levels because all the specific sub domains of intelligence are inextricably contaminated with fluid intelligence. The socio-economic status and self-efficacy seems to affect well-being and performance of the school students. For exploring its effect the investigator has tried to review the literature on the same in the chapter-3 whose description has been given in next section.