CHAPTER - I
INTRODUCTION

Education is a central agency to all developments—cognitive, social, emotional and spiritual — that facilitates shaping the future of individuals and the nation. Plato, long ago observed that the quality of the citizens and developments in the personality of a person are recognized from the basic fact of the type of education that has been imparted to them. In view of that concept and perspective, we are fully convinced that each and every progress and its development thereto are impacted on the basis of the type of education delivered, has been a vital force in the regeneration of nation. But the hard fact and the present scenario of education in our country is in a mesh. Education, previously, was stereotyped, monotracked, examination-ridden and catering to conformist approach in society. It was the Secondary Education Commission headed by Shri A.L. Mudaliar (1952-53) after which education on all fronts stood promoted and developed. This commission viewed and reviewed various aspects of education by keeping in fore the industrial and scientific developments in the country and thereby enunciating vocationalisation and work experience at the secondary school level. The approach of introducing vocationalization and work experience definitely was to create scientific aptitude in the secondary school students and consequently promoting in them the embryonic of creativity and intelligence. It is psychologically a settled preposition that the mental level and the intelligence in a child gets germinated between the age group of twelve plus and fourteen plus and mature by the age of sixteen plus to eighteen
plus which perhaps is the reason for introducing various National Talent Search Schemes for the secondary school students in the age group of fourteen plus and eighteen plus.

The nineteenth century was the age where stress was simply laid on the concept of ‘3 Rs’ Subsequently, the twentieth century reflected towards the promotion of intelligence and competence along with development of skill. The recent 21st century has made a man very busy achieving his ultimate objectives of securing a job in the era of competitions and exerting more and more for acquiring knowledge from various sources. In doing such type of activities involving competitions and to reaching to the targets- achieved or unachieved, various types of intervening factors come into play. Such factors oftenly hinder the progress in the children and the human beings. Implicitly and apparently reflecting that the risk factors come into play even in things which otherwise go smooth. However, the progress of a person is hampered when any barrier or hindrance come into play or otherwise intervene/interfere into the normal working schedule of a person. Even otherwise also in a risk- free promotional avenue or in a risk- free environment, people may not make to the targets. The unforeseen circumstances which have lead them not achieve the targets or goals become still deeper under the risk which has not permitted them to reach to the targets aspired or so assumed. In general life, we do see politicians, leaders, educationists, scientists, industrialists, businessmen, engineers and all others persons allied to different areas having progressed after taking due risks in their life and without risking oneself, it is perhaps practically not possible to achieve the aims, goals and targets, which once
one had focused on. Any progressive approach, thus, is seen as risk oriented.

The perfection is never achieved or attained by any one of us and even going towards perfection, barriers and risks are sure to occur and coming out of any risk in which one gets involved is by virtue of his intelligence. Thus, risk and intelligence have a positive relationship with each other and it is very difficult to conclude which one is more important that is, risk or intelligence.

It is very clear by this august judgement that risk in life is essential, if one has to progress and advance in one's life. When no risk is involved no benefit is reaped. Risks are also considered to be the result of one's own behaviour which sometimes result in ultimate and such type of risks are not advised to be undertaken simply on account of their fatal results. But, as said earlier, taking risks also becomes essential if one has to gain and achieve something in his life. 'Risk taking behaviour' is certainly not the same for all the individuals in the society. It differs from person to person that may vary from one situation to other and also in broader sense, we may conclude that finding a way out from coming out of the risk successfully, is the form of decision making by a person which generates only through his intelligence. It means that under those particular situations where some shortcomings in using one's own intelligence has gone wrong in making that decision making process and the form of intelligence that he has, has not been properly and accurately used. In other senses, it has been misused in the language of decision making theory; it has been stated to be the decision under uncertainty.
1.1 CONCEPTUAL FRAMEWORK

1.1.1 Risk Taking Behaviour

Risk has been an integral part of human life since ages to contend with the harsh realities of nature (Yates, 1992; Trimpop, 1994; Vaughan, 1997; Ale, 2009). People nowadays experience risks relating to close proximity, industrialisation (Vaughan, 1997), technology, as well as, overpopulation (Ale, 2009). With every advancement there comes an element of uncertainty. Although the environmental conditions change, risk remains the same and is prevalent, in one way or the other, with a varying degree of intensity.

Defining risk is a controversial issue (Yates, 1992; Trimpop, 1994), as people define risk in different ways. Some people view risk as the probability of losing money, other people view risk as possible loss of crop, damage to buildings and infrastructure, not keeping to a budget or a time constraint. Still, others view risk as potential loss of safety, health and life (Yates, 1992). Risk is essentially a subjective construct as everyone agrees on a set definition of risk and two people discussing risk may hold very different ideologies (Fischhoff, Lightenstein, Slovic, Derby and Keeney, 1983; Trimpop, 1994). Still, there is an agreement that risk taking behaviour can be assessed, objectively, as a number of research tools for the same have been from time to time (Kogan and Wallach, 1964; Weber et al., 2002; Rubio et al., 2004).

In order to define risk one needs to understand the relevance of risk in its context. Differing definitions of risk have been generated because risk has been analysed differently by individuals, groups, departments and organisations. Popularity,
risk has been classified into eight dimensions. Financial vs. non-financial, static vs. dynamic, fundamental vs. particular, speculative vs. pure. The diversification of risk has made it difficult to define risk precisely and has made the term risk conceptually specific to its context (Vaughan, 1997):

- **Financial vs. non-financial risks** are concerned with financial loss or loss of assets.
- **Static vs. dynamic risks** are concerned with changes to the economy.
- **Fundamental vs. particular risks** are concerned with groups of people, where fundamental risks are concerned with impersonal losses experienced by a group, and on the other hand particular risks, however, are concerned with loss which effects all or some members of a group.
- **Speculative risks** are concerned with loss vs. advancement, whereas pure risk assesses only the probability of loss or no loss.

Pure risk is further divided into areas of personal, property, liability and failure of others.

- **Personal risk** involves loss of income or assets.
- **Property risk** involves loss or destruction of property.
- **Liability risk** involves compensation to injured parties because of carelessness or negligence.
- **Risk by failure of others** involves financial loss because a person did not fulfil an obligation.

However, there remains elements of risk that give meaning to its conceptualisation. For example, risk contains elements of
uncertainty, potential loss, potential advancement and a
cognitive component about whether or not to engage in risk­
taking (Yates, 1992; Trimpop, 1994).

Risk is the potential that a chosen action or activity
(including the choice of inaction) will lead to a loss (an
undesirable outcome) or vice-versa. The notion implies that a
choice having an influence on the outcome exists (or existed).
Potential losses themselves may also be called “risks”. Almost
any human endeavour carries some risk, but some are much
more risky than others. The Oxford English Dictionary (1971)
defines risk as: (exposure to) the possibility of loss, injury, or
other adverse or unwelcome circumstance; a chance or situation
involving such a possibility. It also defines risk as a hazard,
danger; exposure to mischance or peril.” Therefore, to put
oneself “at risk” means to participate voluntarily or involuntarily
in an activity or event that could lead to injury, damage, or loss.

The ISO 31000 (2009) /ISO Guide 73 definition of risk is
the ‘effect of uncertainty on objectives’. In this definition,
uncertainties include events (which may or not happen) and
uncertainties caused by a lack of information or ambiguity. This
definition also includes both negative and positive impacts on
objectives. Another definition is that risks are future problems
that can be avoided or mitigated, rather than current ones that
must be immediately addressed. According to Factor Analysis of
Information Risk (2006) Risk can be seen as relating to the
probability of uncertain future events. For example, risk is the
probable frequency and probable magnitude of future loss.
OHSAS (Occupational Health and Safety Advisory Services; 2007) defines risk as the product of the probability of a hazard resulting in an adverse event, times the severity of the event.

Financial risk is often defined as the unexpected variability or volatility of returns and thus includes both potential worse-than-expected as well as better-than-expected returns. References to negative risk below should be read as applying to positive impacts or opportunity (e.g., for “loss” read “loss or gain”) unless the context precludes this interpretation. Hubbard (2009) also argues that defining risk as the product of impact and probability presumes (probably incorrectly) that the decision makers are risk neutral.

Insurance is a risk-reducing investment in which the buyer pays a small fixed amount to be protected from a potential large loss. Gambling is a risk-increasing investment, wherein money on hand is risked for a possible large return, but with the possibility of losing it all. Purchasing a lottery ticket is a very risky investment with a high chance of no return and a small chance of a very high return. In contrast, putting money in a bank at a defined rate of interest is a risk-averse action that gives a guaranteed return of a small gain and precludes other investments with possibly higher gain.

Information technology risk, or IT risk is a risk related to information technology that are relevant to IT and the real world processes it supports, and coming of new terms like IT risk and Cyberwarfare (Cortada, 2007)

Flyvbjerg (2008) argued that economic risks can be manifested in lower incomes or higher expenditures than expected. The causes can be many, for instance, the hike in the
price for raw materials, the lapsing of deadlines for construction of a new operating facility, disruptions in a production process, emergence of a serious competitor on the market, the loss of key personnel, the change of a political regime, or natural disasters.

Means of assessing risk vary widely between professions. Indeed, they may define these professions; for example, a doctor manages medical risk, while a civil engineer manages risk of structural failure. A professional code of ethics is usually focused on risk assessment and mitigation (by the professional on behalf of client, public, society or life in general). In the workplace, incidental and inherent risks exist. Incidental risks are those that occur naturally in the business but are not part of the core of the business. Inherent risks have a negative effect on the operating profit of the business.

Some industries manage risk in a highly quantified and enumerated way. These include the nuclear power and aircraft industries, where the possible failure of a complex series of engineered systems could result in highly undesirable outcomes.

In finance, risk is the probability that an investment's actual return will be different than expected. This includes the possibility of losing some or all of the original investment. In a view advocated by Damodaran (2003), risk includes not only "downside risk" but also "upside risk" (returns that exceed expectations). Some regard a calculation of the standard deviation of the historical returns or average returns of a specific investment as providing some historical measure of risk; see modern portfolio theory. Financial risk may be market-
dependent, determined by numerous market factors, or operational, resulting from fraudulent behavior.

In a peer reviewed study of risk in public works projects located in twenty nations on five continents, Flyvbjerg, Holm, and Buhl (2002, 2005) documented high risks for such ventures for both costs and demand. Actual costs of projects were typically higher than estimated costs; cost overruns of 50% were common, overruns above 100% not uncommon. Actual demand was often lower than estimated; demand shortfalls of 25% were common, of 50% not uncommon. Due to such cost and demand risks, cost-benefit analyses of public works projects have proved to be highly uncertain.

Huge ethical and political issues arise when human beings themselves are seen or treated as 'risks', or when the risk decision making of people who use human services might have an impact on that service. The experience of many people who rely on human services for support is that 'risk' is often used as a reason to prevent them from gaining further independence or fully accessing the community, and that these services are often unnecessarily risk averse.

Flyvbjerg et al. (2003) demonstrate that big ventures (big construction projects, big capital investments, etc.) are highly risky. For instance, such ventures typically have high cost overruns, benefit shortfalls, and schedule delays, plus negative and unanticipated social and environmental impacts. The audit risk model expresses the risk of an auditor providing an inappropriate opinion of a commercial entity’s financial statements.
These are few examples of risk taking in different socio-economic conditions and by the stakeholders. It can be observed that these risk taking behavioural tendencies are prevalent among people in different situations across different population groups.

As usually perceived risk taking is not a negative connotation. Rather, most of risk takers are innovators and fearless. They are for a positive change, but do not hurt the system or common man. Essentially they are explores of nature and in search of new truths and believe in a positive change.

On the basis of positive and negative behaviour as observed in adolescents a comprehensive approach of risk taking has been given by Gullone and Moore (2000) as:

a) thrill seeking,

b) rebellious risk,

c) reckless, and

d) antisocial risk

Thrill seeking risks involve behaviours that are challenging but socially acceptable, such as, skydiving or bungee jumping. Rebellious risk behaviours are often "experimental rites of passage" for adolescents seeking independence (Gullone, 2000). These behaviours include such things as smoking, drinking or swearing, which are acceptable for the adult generation, but usually disapproved of for adolescents. Reckless risk behaviours, on the other hand, are thrill seeking but have a higher chance of not being accepted in the adult population, and having a negative social or health related risks (Gullone, 2000). Examples of reckless behaviours are drinking and driving. Antisocial risk
behaviours are unacceptable behaviours for adults as well as adolescents. Examples of antisocial behaviours include cheating and teasing others. The most important factor on whether adolescents choose to engage in risky behaviours as if they themselves view or make a judgement that the behaviour is risky (Moore, 2000). Overall viewing risk taking as being both positive and negative to adolescent development is still a controversial topic that is in the process of producing new research.

From the above discussed definitions and types of risk taking behaviour it is clear that each activity of our life includes some extent of risk whether it is related to intellect, physical, emotional, social, aesthetic, financial, academic or cultural aspect of our life. Results of these risks may be desirable or undesirable. No doubt it is argued that risk taking is subjective, still efforts have been made to assess it in a generalized construct. Since risk taking is being seen as a psychological construct, different measurement tools have been developed to make an objective measurement of risk taking behaviour.

The Kogan-Wallach Choice Dilemmas Questionnaire (Kogan and Wallach 1964) consists of 12 situations, and the subjects are asked to indicate the minimum odds of success he would require before recommending a risky course of action on a seven point scale.

The Chance Bets Instrument (Kogan and Wallach 1964) consists of 66 pairs of dice bets varying the probabilities of winning and losing, and amounts of money to be won/lost (with the same expected value EV=0). Individuals could choose the bet they preferred to play.
The most well-known instrument for assessing risk taking behaviour is the Zuckerman’s Sensation Seeking Scale (SSS, Zuckerman, 1979) consists of four subscales (Thrill and adventure seeking, Experience seeking, Disinhibition and Boredom susceptibility). Its widespread use has produced an amount of psychometric and cross-cultural data and it has become the most frequent instrument for assessing risk taking.

Risk Taking Questionnaire by Sinha and Arora (1983) has been designed to measure the extent of ‘risk’ taken by a particular individual in his personal as well as in his social life. Eight areas of risk are included in the test, which are considered to be the most important and affiliated areas of ‘risk’ for Indian life by a number of sociologists, psychiatrists and psychologists. These are- Hills, Space, Sea, Commercial Trades, Police and Intelligence Services, Fire, Professional Trades and Military Services.

HIV Risk Taking Behaviour Scale (HRSB) is being used to assess HIV risk among intravenous drug users including two subscales to measure injecting and sexual behaviour (Darke et al. 1991).

A risk-taking scale was developed by Field and Yando, (1991) which was divided into two sub-scales of sports-related and danger-related risk questions. The sports related risk taking subscale measure students’ participation in the sports like rock climbing, water skiing, mountain climbing, scuba diving, sky diving, downhill skiing, wind surfing, horseback jumping, white water rafting, flying an airplane, parasailing, surf boarding, and long-distance sailing. On the other hand, in "danger-related" risk-taking subscale students were asked if they would do the
ride a roller coaster, try marijuana, drive over the speed limit, try crack or cocaine, drink alcohol, ride a motorcycle, and hitchhike across the country. In addition, the scale included two "gambling" risk-taking items: Students were asked if they would bet a dollar on a 50/50 chance of winning two dollars and whether they would buy a book of lottery tickets. Thus the scale measures three aspects of risk taking behaviour.

Three computerized task-based tests for an objective assessment of the risk tendency construct-The Betting Dice Test (BDT), The Roulette Test (RT) and The Crossing Street Test (CtST) have been developed (Sante and Santacreu 2001; Arend, Botella, Contreras, Hernandez and Santacreu 2003; Rubio, Santacreu and Hernandez 2004). The Betting Dice Test (BDT) consists of a task in which individuals have to bet on one alternative out of four in order to estimate the result of the sum of two dice: more than 4, more than 7, more than 9, a straight bet on number 12. Each alternative is associated to a prize 1, 2, 5 and 30 points respectively. It is assumed that the choice of an option with a higher probability (though a lower prize) is a more conservative choice than the choice of a highly improbable alternative. Thus, the lower the score, the more conservative the risky tendency is. The Roulette Test (RT): The RT is similar to the BDT. In this case subjects have to bet on one of the four options of the game of roulette. Thirty numbers (from 1 to 30), fifteen numbers (even numbers from 2 to 30), six numbers (from 31 to 36) and a straight bet (17). Prizes, instructions, lack of feedback, system messages and scoring are the same in BDT. The Crossing Street Test (CtST) consists of a task in which individuals should decide where to cross a pedestrian from one side of a road to
another in order to reach a chemist. Here the issue is to look into avoidance of risk in crossing the road and achieving the goal. Subjects have to 10 trials and they are not informed about any sort of accident they might have produced. Risk score is equal to the average of the distance from the right side of the screen in a horizontal axis.

Weber, Blais and Betz (2002) have developed a Risk Attitude Scale that consists of 8-item subscales in four content domains (health/safety, ethical, social and recreational risks) and two 4-item sub scales (investment and gambling) for financial risk taking.

Nicholson et al. (2005) have also developed another Risk Propensity Scale which assess the reported frequency of risk behaviours in six different domains i.e. recreation, health, career, finance, safety and social.

From the description of these measures of risk taking behaviour, it is amply clear that the researcher are, in continuity of research efforts, trying to establish psychometric properties of construct of risk taking behaviour using different population groups, which is multidimensional and situation specific. Researchers have found through longitudinal (long term studies) that risk taking behaviour among adolescents is statistically normative and psychologically adaptive (Moore, 2000). This means that experimenting in risky behaviour is a normal part of adolescent life, and that experimentation with risky behaviours may have positive benefits for older adolescents. Risky behaviour may serve as a “mode of roles experimentation” (Moore, 2000).

From above discussion the question arises whether risk taking among secondary school adolescents depends on
cognitive factors such as intelligence and creativity and non-cognitive factors such as socio-economic status, locale and gender.

1.1.2 Intelligence

Intelligence is the general mental ability involved in calculating, reasoning, perceiving relationships and analogies, learning quickly, storing and retrieving, information using language fluently, classifying, generalizing and adjusting to new situations. WEBSTER'S Dictionary defines intelligence as (a) the ability, (b) the ability to respond quickly and successfully to a new situation; use of the faculty of reason in solving problems, directing conduct etc. effectively, (c) in psychology, measured success in using these abilities to perform certain tasks.

In general sense, intelligence means the ability to learn from experience and to deal with new situations and also the ability to deal effectively with the task involving expressions. Voluminous research in the field of education and psychology has lead us to the belief that intellectual superiority of an individual is the most important determinant in the field of academic performance. Intelligence paves a way for brilliance in academics. The concept of intelligence has been defined in various ways and a few of them are as under:

Binet (1905) holds that the essential characteristics of intelligence is the ability to judge well, to comprehend and compare well and to reason well, viz, the adaptation or adjustment and the ability to carry on abstract thinking.

Stern (1914) defines intelligence as a general capacity of an individual consciously to adjust his thinking to new
requirements. It is the general mental adaptability to new problems and conditions of life.

Thorndike (1914) Intelligence may be defined as “the power of good responses from the point of view of truth or fact.”

An intelligent person in his view is the one who is able to come up with the right answers to difficult problems. According to him, there are three kinds of intelligence: (i) the abstract (ii) the mechanical and (iii) the social. These three types are neither absolutely independent nor necessarily correlated mutually in a person. He thought that learning new material was facilitated by being able to use connections between stimuli and responses that had already been made.

Terman (1916) defines intelligence as the ability to think in abstract terms. The importance of the ability to think in abstract terms is paramount in Termon’s view on intelligence.

Terman (1921): “an individual is intelligent in the proportion that he is able to carry on abstract thinking.”

As per Encyclopaedia Indica Britannica (1926), “intelligence is described as the general mental ability of the organism acting as a whole: to utilize understanding gained in past experience in dealing with a similar or new situation; to adjust or adapt quickly and readily to the environment; to learn without difficulty; or to form new behaviour patterns to meet a new situation by the modification or readjustment of those already acquired.

Opposed to Spearman’s two Factor theory is that of Thorndike's (1927) multifactor theory of intelligence entering around social, mechanical and abstracts factors. According to
him, there is no such thing as ‘general intelligence’. He proposed that there are specific stimuli and specific mental responses and intelligence is just a name for an almost definite numbers of actual or potential specific connections between these stimuli and responses.

Wagnon (1937) “Intelligence is the capacity to learn and adjust to relatively new and changing conditions.”

Burt in 1940 separated statistically four factors of intellect, namely (i) general factors, common to all traits (ii) group factors, common to some of the traits (iii) specific factors, limited to each trait whenever it is measured and (iv) error factors, limited to each trait and each trait on each particular occasion it is measured. He proposed a five level hierarchical model, involving the hierarchical levels as (a) human mind (b) Relational level or general factor (c) Associations (d) Perceptions (e) Sensations.

Stoddard (1943), “Intelligence is the ability to undertake activities that are characterized by – (i) difficulty (ii) complexity (iii) abstractness (iv) economy (v) adaptiveness to be a goal (vi) social values (vii) the emergence of originals, and to maintain such activities under conditions that demand a concentration of energy and a resistance to emotional forces.”

Stoddard (1943) ‘presents a comprehensive description of term intelligence’. According to him,” intelligence is the ability to undertake activities that are characterized by:

a) Difficulty
b) Complexity
c) Abstraction
d) Economy
e) Adaptiveness to a goal
f) Social values and
g) Emergence of originals

And to maintain such activities under condition that demand a concentration of energy and a resistance to emotional forces.

But according to Wechsler (1944), “Intelligence is that aggregate or global capacity of the individual to act purposefully to think rationally and to deal effectively with his environment.

Being dissatisfied by a number of definitions and interpretations, Boring (1950) defined, “intelligence is what intelligence tests test”.

Stephen (1952) holds that “Intelligence is what intelligence tests measure”.

Guilford (1956), in his model of ‘structure of intellect’, observed that creativity involved the interplay of all the factors of divergent thinking.

Drever (1958) has given various definitions of intelligence: “As the capacity to meet novel situations or to learn to do so, by new adaptive responses”.

“The ability of perform tests or task, involving the grasping of relationship. The degree of intelligence being proportional to the complexity or the abstractness or both of the relationship”. “The relative activity of the mind.” “Insight as understood by the Gestalt psychologists.”
In the Dictionary of Education Good (1959) contends that intelligence is nothing but the ability to learn and to criticize what is learnt.

Freeman (1962) gave three definitions of intelligence:

a) Intelligence is the adaptation or adjustment of the individual to his environment.

b) Intelligence is the ability to learn.

c) Intelligence is the ability to carry on abstract thinking.

Garry (1965) intelligence has been defined as, “the innate ability to solve problems. The innate ability is that which is present in a person from birth and not acquired through self study or as a result of class room instruction.

In Weisman (1968) view, intelligence is a summation of learning experience implying thereby that intelligence tests do not measure an ability or potential as much as they do measure achievement. In a sense, these tests measure knowledge. Our difficulty with such an approach is that it does not fit in with popular notions of what intelligence is.

Hebb (1969) made a distinction between Intelligence ‘A’ and Intelligence ‘B’. According to him, Intelligence ‘A’ is innate potential or unborn capacity for development. Intelligence ‘B’ is the functioning and the ongoing development of the brain, the average level of performance or comprehension which the child or adult shows. Hebb suggests that intelligence ‘B’ is more accessible to measurement than intelligence ‘A’.

Goods (1973) regards intelligence as the ability to learn and to criticize what is learnt; the ability to deal effectively with tasks involving abstractions, the ability to learn from experience
and to deal with new situations, and a degree of ability represented by performance of the group tests selected.

In Halsey and Friedman’s (1979) view, three concepts occur most in conceptualizing intelligence: (a) the ability to deal with abstract symbols, concepts and relationships, (b) learning or the ability to profit from experience and (c) the ability to adapt to new situations or problems solving in the broadest sense. However available research work indicates that intelligence is not a unitary capacity and that the generality of the function cannot be overlooked. The same individual may, e.g. deal effectively with concepts and be deficient in handling quantitative aspects and vice versa.

According to Jarial and Sharma (1980), “Intelligence is an ability which involve the generation of logical imperatives”.

Kitano and Kirbe (1986) state “An individual can be extremely bright but uncreative, or highly creative but not necessarily intellectually gifted.”

Some researchers consider that the degree of intelligence is determined by the degree of complexity of the situation (or problem) which is met and solved by the speed with which solution is completed and by the number of problems which can thus be treated. It is generally accepted that intelligence is both the product of heredity and environment.

Guilford (1956) provided a complete factorial picture of the intelligence. In his theoretical “structure of the intellect” in which he suggested that the mind is composed of three dimensions, namely, contents (the terms in which we think), products (the ideas we came up with) and operations (the act of thinking). He
argued that five factors in the operation domain i.e. cognitive, memory, divergent thinking, convergent thinking and evaluation are operating. Of four factors in the content domain (figural, symbolic, semantic and behavioural) resulting into six factors belonging to products (units, classes, relations, systems, transformations and implications) give rise to 120 mental factors that are responsible for someone being intelligent.

Meaning of intelligence as per Webster’s Dictionary (1954) is:

a) The ability to learn or understand from experience; ability to acquire and attain knowledge; mental ability;

b) The ability to respond quickly and successfully to a new situation; use of the faculty of reason in solving problems, directing conduct, etc. effectively;

c) In psychology, measured success in using these abilities to perform certain tasks.

Anastasi (1992) “Intelligence is not a single, unitary ability, but rather a composite of several functions. The term denotes that combination of abilities required for survival and advancement within a particular culture”.

Gardner (1993) “An intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings”.

Gottfredson (1997) “Intelligence is a very general mental capability that, among other things, involves the ability to reason, plan, solved problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience”.

1.1.3 Creativity

The word creativity has been derived from the Latin word “creare” which means “to create”. To create means to bring into existence some form or character as a work of thought or imagination. Despite wide significance of creativity for an individual in every hook and cranny of educational field, it is disgusted to note that no universal definition of ‘creativity’ avails so far.

Generally speaking, psychologists have tried to define creativity in terms of:

i). A mental ability consisting of many component abilities.

ii). A capacity to do things or produce something of a particular nature; and

iii). As a subjective experience or process having special characteristics.

Webster’s dictionary: Creativity or creative ability is an artistic or intellectual inventiveness.

Simpson (1922) defined creativity as the “initiative which one manifests by his power, to break away from the usual sequence of thought, into an altogether different pattern of thought.”

Spearman (1931) viewed creativity as the power of human mind to create new content by transforming relations and thereby generating new co-relates.

Hebb (1949) defined creative thinking as a function of the relative strength of conscious and unconscious processes.
Wilson (1951) while offering an operational definition of
'creativity' synthesized the diverse meanings of creative process
prevalent at that time and gave the following main
characteristics of creativity:

a) the outflow of individual or group through which, a product
is structured;

b) an action of the mind that produces a new idea or insight;

c) the mental process of manipulating the environment which
results in the production of new ideas, patterns or
relationships;

d) the capacity to produce, through thought or imagination,
the capacity for original work;

e) the emergence in action, of a novel relational product,
growing out of the uniqueness of the individual on the one
hand, and the materials, events, people or circumstances
of his life, on the other;

f) the mental process that involves the rearrangement of past
experience, with possibly some distortions, into new
patterns to better satisfy some expressed or implied need;

g) the process which results in any process by which
something new is produced—an idea or an object including
a new form or arrangement of old elements. The new
creation must contribute to the solution of some problems.

Stein (1953) believes that novelty or newness implied in
creativity means that creative product did not exist previously in
the same form. It may involve a reintegration of existing
materials or knowledge, but it must contain new elements. Stein
also believes that to be creative that novel work must be accepted as tenable or useful or satisfying a group in time.

Drevdahl (1956) considers it as “ability of human beings to produce conclusions of a discretionary kind which are essentially new and were previously unfamiliar to the one who produced them.” This can involve a synthesis of ideas which is more than a mere collection of thought; “creativity”, according to Drevdahl, “can mean the formation of new systems and new combinations from known information as well as transference of known connections to new situations and the forming of new correlations. A creative activity must be purposeful and directed, not useless and fanciful—although the product does not have to be immediately of practical use nor perfect, not absolutely complete. It can assume an artistic, literary or scientific form to be connected with the implementation of technology or of a methodological kind.”

To Roger (1961), it is the emergence of new relationships; to Murray (1959), it is new composition and to Taylor (1975) moulding of experience into new organization.

Mackinnon (1962) pointed out that true creativity involves a response or an idea extended in time and characterized by originality, adaptiveness and realization. It must serve to solve a problem, fit a situation or accomplish some recognizable goal.

A product may be a creative one if it is new or novel to the individual involved, if it is his creation, if it is expressive of himself rather than dictated by someone else. It need be neither useful nor unique its social recognition and cultural impact may be zero, but if is a unique personal experience, it is creative (Maslow, 1970 quoted by Telford and Sawney, 1977).
Ghiselin and Zimmersen (1964) felt that it is difficult to arrive at a universally accepted definition of creativity and different meanings can be assigned to it by different workers.

According to Taylor (1964) A person is creative when it results in a novel work that is accepted as tenable, useful or satisfying by a group at a point in time.

Jackson and Messick (1967) have proposed that creative products are characterized by four features: novelty, value, transformation and condensation. A creative product must be novel, possess some value or appropriateness and characterized by properties of transformation and condensation.

Mednick (1967) defined the creative process as “the forming of associative elements into new combinations which either meet specified requirements or are in some way useful.”

Guilford (1968) says that the unique features of a creative or divergent thing are that a variety of responses are produced.

Guilford (1968) says that the unique feature of a creative or divergent thinking is that a variety of responses are produced.

Torrance (1969) conceives creativity as “a process of being sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies and so on; making guesses or formulating hypotheses about the deficiencies, testing and re-testing them and finally communicating the results.”

Skinner (1974) observes “creative thinking” as where the predictions or inferences drawn for the individual are new, original, ingenious and unusual.

Mansfield and Busse’s (1981) Model of creative process in scientific fields involves five steps;
a) selection of the problem that is important and potentially solvable,
b) extended effort to solve the problem,
c) setting constraints to the solution of the problem,
d) changing the constraints through a restructuring process, and
e) Verification and elaboration of results.

Paplia and Olds (1987) say that, “Creativity is the ability to see things in a new and unusual light, to see problems that no one else may even realize exist, and then to come up with new, unusual and effective situations”.

In nutshell creativity is defined as the tendencies to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and entertaining ourselves and others. Three reasons why people are motivated to be creative:

1. Need for novel, varied, and complex stimulation.

2. Need to communicate ideas and values.

3. Need to solve problems.

Creativity is most commonly used when persons who express unusual thoughts, who are interesting and stimulating— in short, people who appear to unusually bright; people who experience the world in novel and original ways. These are who perceptions are fresh, whose judgements are insightful, who may make important discoveries that only they know about; and individuals who have changed our culture in some important way.
Intelligence and creativity go together in the cognitive functioning of subjects to determine convergence (i.e. high intelligence and low creativity) and divergence (i.e. low intelligence and high creativity). This classification of convergence and divergence in different combinations explain distribution of subjects either being intelligent only or creative only or being high on both the abilities and being low on both the abilities. The cognitive function in terms of spatial distribution of these two related variables has a bearing on human performance in all the activities of life.

Creative people are an asset to the society as they lead to all round intellectual, cultural and industrial developments in the society and the country. It is a fundamental duty of schools and educational institutions to identify such people at their early age and provide them with better developmental scope. As already stated ibid in the foregoing paragraphs that intelligence in children gets germinated in the embryonic stage between the age groups of 12+ and 14+ and mature by the age of 16+ and 18+, the identification of children in these age groups for intelligence and creativity is a must. Further, there are controversial ideas too expressed if creativity is possessed by a few blessed or it is more or less normally distributed over the whole range of population.

1.1.4 Socio-Economic Status

Socio-economic status refers to social and economic standing. A person who has high standing in the community, has good income and lives in a well furnished house of good quality is said to have a good socio-economic status.
An important consideration in regard to the family background relates to its status in the socio economic status hierarchy comprising of variables such as education, income and occupation. Family status conceptually refers to the socio-economic position of the family and its location in the social strata. The social hierarchy determines the socio status of a family which as mentioned above is determined by the education, income occupation, as well as the property owned is any size and type of the family.

Chaplin (1928) has defined socio economic status as the position that an individual or family occupies with reference to the prevailing average standard of cultural possessions, affective income, material possessions and participation in group and achievements in the community.

The dictionary meaning of socio economic status is “state conditions or standing of a person.”

Green (1940) a sociologist defines it as “a position in a social group or grouping in relation to other positions in a social group or grouping “.

Hollingshead (1949) as a result of his Elmstown study states that lower class children have limited their horizons to the class horizons and in the process have unconsciously placed themselves in such a position that they will occupy the same levels as their parents. A number of studies from India and abroad have pointed out the influence of socio-economic status on the various aspects of the personality of adolescence.

Brubacher (1950) states that “socio-economic status is something more than the objective surrounding which
encompass the students. More exactly it is made up of everything which concerns with him/her which is continuous with his/her own interests and purpose."

According to Bogardus (1950), “Socio-economic status includes the attitude of other person towards a given person”.

Hollingshead (1954) developed a scheme to determine the social status of a person. His index of social position utilizes three factors namely, (i) occupation, (ii) education (iii) ecological area of residence. Each factor is scaled and assigned a weight determined by a standard regression equation.

Maciver and Page (1955) define it as a position in the social scale that determines for its possessor, apart from its personal attributes or social service, a degree of respect, prestige and influence.

Lundeberg (1956) in defining socio economic status writes, “we shall be content to say that it is that which under certain circumstances make people beg on the streets cringe before the local banker or behave arrogantly, the status which is associated with certain kinds of houses, food, clothes, education and occupation.

A study of Swell, Halter, Straues (1956) also indicated that values specific to different status positions are important and influence upon level of educational and occupational aspirations. Thus it would appeal that although it is rare for an adolescent from any walk of life not to get a head or to maintain the level that places him ahead and the lower class to limit their occupational aspirations to the class horizon their aspirations
tend to be less lofty than those of the children in the upper strata.

Rodehaver (1957) writes, “A social class is not an organized group. Rather it is a fictitious group, a category of people who are differentiated from others by a common characteristics but whose membership is not a basis for interaction. More precisely defined, a social class is a horizontal division of society based on economic and social criteria. Those who comprise such a division look upon others in the same category as their social equals. Status refers to an individual’s position in a particular group in relation to the positions occupied by others: it has the connotation of relative prestige.

Biersted (1957) defined status as “simply a position in a society or in a group”.

Gerth (1958) says “it is determined to a certain extent by the type of occupation one holds. It may also be based upon differences of birth, wealth, occupation, political power, race and intellectual attainments”.

As per Stephen (1958), “socio-economic status refers to a cluster of factors which include occupation, income and cultural features of the home”.

Levin and Spates (1976) are of the view that one of the most important characteristics of social structure is the widespread presence of social stratification. Stratification refers to a ranked set of categories reflecting inequality in the things that society considers valuable.

Good (1979) explains “socio-economic status as the level indicative of both the social and economic position of an
individual or a group”. In Kuppuswamy’s (1981) view, attempts made to estimate the socio-economic status of the individual are based on three assumptions: (a) there is a class structure in society (b) status positions are determined mainly by a few commonly accepted characteristics can be scaled and combined using statistical procedures. Socio-economic status refers to social and economic standing of a person or a family. Good socio-economic status of the family in the community, good income and living of the family in a well furnished good quality house. Family socio-economic status influences the personality of the child to a great extent. Various studies revealed the influence of this factor on the various aspects of the personality of adolescents.

Hawes and Hawes (1982) state that socio-economic status “is the background or standing of one or more persons in the society on the basis of both social class and financial situation”.

Devis (1986) refers socio-economic status as “a person’s position in the community”. The major factor involves in determining socio-economic status include income, employment, location and cost of home and social status of the family”.

Golenick and Chinn (1998) too refer to socio-economic status as a powerful agent in creating the cultural environment in which individual is raised. The cultural environment provides processes through which individual is learned about such roles as mother, husband, student teacher, banker, plumber or politician. Culturally bound experiences become the lens through which other's performances behaviours, beliefs and appearance are judged. They are guidelines used to formulate
values, perception and beliefs about concepts such as family, loyalty, honesty, pride and love for country, what is moral or immoral, prestige and status. Socio-economic status as National Center for Educational Statistics (2008) is an economic and sociological combined total measure of a person’s work experience and of and an individual’s or family’s economic and social position relative to others, based on income, education and occupation are examined, as well as combined income, versus with an individual, when there own attributes are assessed. Socio-economic status is typically broken into three categories- high socio-economic status, middle socio-economic status and low socio-economic status to describe the three areas a family or an individual may fall into. When placing a family or individual into one of these categories any or all of the three variables (income, education, and occupation) can be assessed.

Socio-economic status is evaluated as a combination of a factors including income, level of education and occupation. It is a way of looking at how individuals and families fit into society using economic and social measures that have been shown to impact individuals’ health and well-being. It is not only an indicator of being high and low in social order, but a facilitator in one’s orientation in life including intellectual and psychomotor performance.

1.1.5 Rural and Urban Environment

The human nature is shaped through the interaction which takes place between the human or organism and the environment. Environment is habitation in fullest sense. Not only our physical surroundings but also the people around us,
social customs and traditions, education and training, all constitute our environment. Social heritage, ideas and ideals are also part of environment.

The influence of this environment on the interests and other characteristics of personality have been systematically studied by a number of investigators.

Every individual bears an imprint of the environment in which he is brought up. The difference between rural and urban background is very sharp. In urban areas, the people lead a very comfortable life and most of them have luxury items like refrigerators, TV, VCR, AC, telephones and cars etc. radio and television, broadcasts, motion picture programmes and the vast amount of printed reading matter that is readily available, all contribute to development of those who are simulated thereby. In this environment, the child is being constantly stimulated by influences that effect his development either desirably or undesirably.

Life in rural areas is quite hard. They do not have many comforts. Moreover, the majority of parents in rural area are less educated than the parents in urban areas. Adult illiteracy is found more in rural areas which leads to too many superstitions and beliefs. On the other hand, urban homes provide a better mental and educational environment. There is an availability of good libraries, better schools and advanced educational facilities in urban areas. But there is lack of such educational environment and facilities in rural areas. Social and religious environment is also different in these areas. Rural people have their own philosophy of life, their own beliefs and are more superstitious. Urban people have less time to spend with their
children, whereas in rural areas, joint family system is still popular. Elders have enough time to guide the youth and fulfill their emotional needs.

Adolescent problems are not developed or formed in isolation. In order to understand adolescent problems it is necessary to know something concerning the differences in views and values which characterize the different sub-cultures in which adolescents mature.

Thus it is clear that there is difference in the environment of rural and urban areas which subsequently influences the personality development of people and the problems faced by them. People living in both types of environment have their own privileges and handicaps and hence their problems vary to some extent according to the environment in which they live.

1.2 THE PROBLEM

From the overview of these researches, it is evident that risk taking behaviour has been focus of psychological and educational researches since 1960s to explain human behaviour in different social and economic conditions of social life. It is a well known fact that the secondary school students in today's world are facing a number of threatening uncertainties and are over exposed to mass media depicting a lot of antisocial behavioural patterns including violence, drug/sexual abuse and cheating/forgery and unfair means to earn quick money etc. So, in such a situation, it was thought worthwhile to look into risk taking behaviour in secondary school students in relation to certain cognitive and non-cognitive variables. More specifically,
the risk taking behaviour of secondary school students, in relation to certain cognitive and non-cognitive variables taken together has not been much explored.

Reference to some pertinent studies on risk taking vis-à-vis intelligence (Jose, 1970; Dave and Dave, 1972; Sharma, 1990; Saran, 2003), creativity (Taylor, 1963; Taylor and Holand, 1964; Anderson and Cropley, 1966; Pankove and Kogan, 1968; Piyavadee, 1988; Aggarwal, 1982; Tripathi, 1983; Krishnan, 1993), socio-economic status (Rosen, Tsai and Downs, 2003; Saran, 2003; Kaur, 2010) and locale (Jhag, 1979; Saran, 2003; Kaur, 2004; Kumari, 2006; Meenakshi, 2009) indicates that this variable has been under investigation by the researchers in different combinations. The nature of risk taking behaviour has been tried to be explained by these studies, both as an antecedent and as a cause. Still there is no consensus to make and authentic conclusive statement to explain risk taking behaviour.

Hence, the present study is an endeavor to look into risk taking behaviour among intelligent and creative secondary school students in term of gender, locale and socio-economic status.

1.3 SIGNIFICANCE OF THE STUDY

Educational thinkers have been concentrating their attention on the creative aspects of learners' behaviour and personality. This focus is amply clear in the researches and writings of outstanding scholars like Torrance, Guilford, Taylor, Holland and others. Creativity has come to be recognised as one of the most valuable attainment that is being assiduously
investigated. Indicators and measures to assess the trait are being scientifically developed. Methods, strategies and devices to develop, guide and reward creative behaviour among children are being systematically defined. All these researches are bringing its fruit for the development of personality of learners and teachers that is the modification of behaviour in both. Thus the findings of the study with regard to risk taking behaviour in relation to intelligence and creativity among secondary school students will be helpful to the educational planners and practitioners to design educational programmes in the light of the results of the study. Also an insight into positive aspect of risk taking behaviour will prompt teachers to promote divergence in thought and risk taking in action to have more innovations for betterment of the society.

Moreover, the findings of the study will provide a rationale to explore the phenomenon of risk taking behaviour, both informative years and in adult life, for conducting more researches in this vital area of human behaviour.

1.4 OBJECTIVES OF THE STUDY

1. To study risk taking behaviour of secondary school students in relation to intelligence.

2. To study risk taking behaviour of secondary school students in relation to creativity.

3. To study risk taking behaviour of secondary school students in relation to gender.

4. To study risk taking behaviour of secondary school students in relation to locale.
5. To study risk taking behaviour of secondary school students in relation to socio economic status.

6. To study interactive effect of gender, locale and socio economic status with intelligence and creativity on risk taking behaviour of secondary school students.

1.5 DELIMITATIONS OF THE STUDY

1. Risk taking behaviour among secondary school students was studied and compared in relation to selected cognitive and demographic variables only.

2. The study was restricted to plus one students of government and privately managed recognized secondary school of Punjab, affiliated with Punjab School Education Board.

1.6 OPERATIONAL DEFINITION OF THE TERMS

1. Risk Taking Behaviour: It connotes a tendency in human behaviour that takes into account the possibility of loss – physical, economic, social and political, which are not anticipated or intended, but may comes as a consequence of an action, as measured by Risk Taking Questionnaire (Sinha and Arora, 1983).

2. Intelligence: Intelligence refers to non-verbal mental ability of a person to apprehend meaningless figures presented to see the relations between them, to conceive the nature of the figure, completing each system of relations presented, and by so doing developing a systematical method of reasoning as measured by Raven’s Standard Progressive Matrices (1977).
3. **Creativity:** Creativity means a multidimensional attributes, differentially distributed among the individuals, involving the abilities of fluency, flexibility, originality as measured by Torrance’s Test of Creative Thinking (1966).

4. **Socio-Economic Status:** It refers to ‘social and economic’ position of a subject (adult) or his parents (if minor) that is constituted of educational, occupational and financial attainments, as measured by socio-economic status scale (Bhardwaj, 1990).