Chapter I
INTRODUCTION

A nation’s educational philosophy reflects not only significant economic, religious, social, cultural and political trends but also the life goals of the people. Basic to any nation’s way of life is its struggle for survival. The fulfillment of physical needs probably was a strong motivation of behavior and attitudes among primitive peoples, and was closely allied to religions beliefs and practices. Economic welfare has continued to exert major influence on educational objectives. All efforts and experiences of an individual, whether mental or physical; indicates his striving towards obtaining right type of adjustment for the achievement of the highest aim of life. Education is a vast field, which seeks to humanize as well as socialize the child. One type of education does not suit to all; it should be according to the interest, ability and needs of the children.

The more fundamental question of what is the purpose of formal (or non-formal) education needs to be understood and communicated clearly. Why do we send our children to school at all? To teach them to earn a certificate which can be traded with earning a livelihood? Is it to keep them out of harm’s way; to learn to read and write; to socialize; to learn values; to develop faculties and skills or to gain plenty of information? All of these, but if we choose one reason, which would it be? Formal education needs to make space for different talents and abilities, which can be taken, right up to the university level.
Today, even if a school-going child is extremely talented in dance or sports, there is yet the pressure of doing mathematics, science, languages and other subjects, because the parents have higher goals. Therefore, talent development is often reduced to a hobby and is not a serious option. Although the number of different courses that have come up in the past decade in higher education institutes is significant, it is not enough. If a student does not get admission in a regular college due to overwhelming competition, he is often regarded as a failure. India has a strong hold over mathematics and science, because of its aspiring middle class that push their children to these fields - something that has come under fire - and should! However, a majority of our children cannot analyze, or practically apply concepts they have diligently picked up, or crammed, even in mathematics and science.

As time is used up in schools, to race over a vast syllabus, which is skewed to accommodate mountains of information, a thorough understanding and assimilation of concepts is lacking. There is little focus on skill and talent development and more importantly, mastering learning skills. Education needs to be balanced so that it gives space for a child to discover his or her abilities and develop them. Education needs to address all the facets of human abilities.

Ability is generally considered synonymous with intelligence. Intelligence is often considered how well one can score on tests or the grades in the schools. Historically, intelligence has been considered to reflect the capacity to learn and therefore, to achieve. Efforts extended to measure the concept of “intelligence”
and its relationship to achievement has been hampered by researchers’ inability to develop and agree upon a central definition, (Campine & Brown, 1982).

Sahakian, (1968) one of the earliest explorers of individual differences, referred to intelligence simply as “natural ability”. Since the earliest days of academic interest in the intelligence of individuals, theorists have arranged themselves on either side of the on-going debate regarding the nature of intelligence as a single, global entity versus intelligence as a combination of several, separate factors. In 1927, Spearman postulated an intellectual concept called the “g factor” which he conceived as a general mental energy.

Thurstone (1938), believed, that intelligence could not viewed as unitary. He believed intelligence could be categorized into multiple factors – verbal, perceptual, speed, inductive reasoning, number, rote memory, deductive reasoning, word fluency, and space for visualization, which he considered to have equal weight.

Thorndike, (Linden & Linden (1968) also believed intelligence was best described as multifactor. He saw intelligence as resulting from a large number of interconnected intellectual abilities. Intelligence is often considered how well you score on tests or what your grades are in school. Intelligence is harder to define.

French psychologist Alfred Binet tried to come up with some kind of measure that would predict the success or failure of children in the primary grades of schools. The results were the forerunner of the standard intelligence
quotient tests of today. This gave the dimension of mental ability by which we could compare everyone. In the heyday of the psychometric and behaviorist eras, it was generally believed that intelligence was a single entity that was inherited: and the human beings - initially a blank slate-could be trained to learn anything, if it was presented in an appropriate way. For decades, scientists relied on single measure of intelligence to categorize people. In recent years, though criticism of intelligence tests has mounted, and some researchers now argue that intelligence is multifaceted-that it cannot be reduced to a single number. An increasing number of researchers believe precisely the opposite; that there exists a multitude of intelligences, quiet independent of each other; that intelligence has its own strengths and constraints; that the mind is far from unencumbered at birth; and that is unexpectedly difficult to teach things that go against early native theories of that challenge the natural lines of force within an intelligence and its matching domains.

Gardner had a pluralistic view of the mind, and recognized the many discrete facets of cognition. Gardner (1983) defines “intelligences as the ability to solve problems or to fashion products that are valued in one or more cultural settings. And acknowledged that people have different cognitive strengths as well as different cognitive styles”. The theory is an account of human cognition in its fullness. The intelligences provided a new definition of human nature; cognitively speaking, human beings are organisms who posses a basic set of intelligences. Gardner bases his view in part on findings from sciences that
were non-existent in Binet’s time. The first is cognitive ability, out of this came Gardner’s “theory of multiple intelligences”.

A theory that has recently been propounded by Howard Gardner (1993), suggests the existence of separate, autonomous intelligences, which function according to their own procedures and have distinct biological bases. Gardner (1985) defined intelligence as “the ability to solve problems, or to create products, that is valued within one or more cultural settings”. In attempting to identify the various intelligences, Gardner (1985) set forth eight criteria to distinguish the separate abilities.

1. “Potential isolation by Brain Damage: To the extent that a particular faculty can be destroyed or spared in isolation as a result of brain damage, its relative autonomy from other human faculties seems likely.”

2. “The existence of Idiot savants, prodigies and other exceptional individuals: Second only to brain damage in its persuasiveness is the discovery of an individual who exhibits a highly uneven profiles and deficits.”

3. “An identifiable core operation or set of operations: Central to my notion of intelligence is the existence of one of more basic information-processing operations or mechanisms, which can deal with specific kinds or input.”

4. “A distinctive developmental history, along with a definable set of expert ‘End-state’ performances: Intelligence should have an identifiable developmental history, through which normal, as well as, gifted individuals pass in the course of ontogeny.”
5. “An evolutionary history and evolutionary plausibility: A specific intelligence becomes more plausible to the extent that one can locate its evolutionary antecedents, including capacities that are shared with other organisms. One must also be on the look out for specific computational abilities that appear to operate in isolation in other species but have become yoked with one another in human beings.”

6. “Support from experimental psychological tasks: Many paradigms favored in experimental psychology illuminate the operation of candidate intelligence. Such experimental tests can provide convincing support for the claim that particular abilities are manifestations of the same intelligence.”

7. “Support from psychometric findings: outcomes or psychological experiments provide one source of information relevant to intelligences; the outcomes of standards tests provide another clue.”

8. “Susceptibility to encoding in a symbol system: While it may be possible for intelligence to proceed without its own special symbol system, or without some other culturally devised arena, a primary characteristic of human intelligence maybe its ‘natural’ gravitation toward embodiment in a symbolic system.”

Using the above criteria, Gardner has identified seven separate intelligences, which he considers present in each human being in varying degrees.
**Linguistic** – the ability to use language to describe events, to build trust and rapport, to develop logical arguments and use rhetoric, or to be expressive and metaphoric. Possible vocations that use linguistic intelligence include journalism, administrator, contractors, salesperson, clergy, counselors, lawyers, professor, philosopher, playwright, poet, advertising copywriter and novelist.

**Logical – Mathematical** - the ability to use numbers to compute and describe, to use mathematical concepts to make conjectures, to apply mathematics in daily life, to apply mathematics to data and construct arguments, to be sensitive to the patterns, symmetry, logic, and aesthetic of mathematics, and to solve problems in design and modeling. Possible vocations that use the logical-mathematics intelligence include accountant, bookkeeper, statistician, trades person, homemaker, computer programmer, scientists, composer, engineer, inventor, or designer.

**Musical** – the ability to understand and develop musical techniques, to respond emotionally to music and to work together to use music to meet the needs of others, to interpret musical forms and ideas, and to create imaginative and expressive performances and compositions. Possible vocations that use the musical intelligence include technician, music teacher, instrument maker, choral, band, and orchestral performer or conductor, music critic, aficionado, music collector, composer, conductor, and individual or small group performer.

**Spatial** - the ability to perceive and represent the visual-spatial world accurately, to arrange color, line, shape, form and space to meet the needs of others, to interpret and graphically represent visual or spatial ideas, to
transform visual or spatial ideas into imaginative and expressive creations. Possible vocations that use spatial intelligence include illustrator, artist, photographer, interior decorator, painter, clothing designer, weaver, builder, architect, inventor, or cinematographer.

**Bodily-Kinesthetic** - the ability to use the body and tools to take effective action or to construct or repair, to build rapport to console and persuade, and to support others, to plan strategically or to critique the actions of the body, to appreciate the aesthetics of the body and to use those values to create new forms of expression. Possible vocations that use the bodily-kinesthetic intelligence include mechanic, trainer, contractor, craftsperson, tool and dye maker, coach, counselor, salesperson, sports analyst, professional athlete, dance critic, sculptor, choreographer, actor, dancer or puppeteer.

**Interpersonal** – the ability to organize people and to communicate clearly what needs to be done, to use empathy to help others and to solve problems, to discriminate and interpret among different kinds of interpersonal clues, and to influence and inspire others to work toward a common goal. Possible vocations that use the interpersonal intelligence include administrator, manager, politician, social worker, doctor, nurse, therapist, teacher, sociologist, psychologist, psychotherapist, consultant, charismatic leader, politician and evangelist.

**Intrapersonal** - the ability to assess one’s own strengths, weaknesses, talents and interest and use them to set goals, to understand oneself to be of service to others, to form and develop concepts and theories based on an examination of
oneself, and to reflect on one’s inner moods, intuitions, and temperament and to use them to create or express a personal view. Possible vocations that use the intrapersonal intelligence include planner, small business owner, psychologist, artist, religious leader, and writer.

**Naturalist** – the ability to recognize and classify plants, minerals, and animals, including rocks, grass and all varieties of flora and fauna, and to recognize cultural artifacts like cars and sneakers. Possible vocations that use the naturalist intelligence include conservationist, biologist, teacher, lobbyist, and park ranger.

The bodily-kinesthetic intelligence is the capacity to use your complete body in expressing ideas and feelings (e.g., actor, athlete, dancer, mime), including the facility to use your hands to create or transform things. Students with bodily-kinesthetic intelligence have these physical-based skills:

- coordination - harmonious functioning of muscles;
- balance
- dexterity - grace in physical movement
- muscle strength
- flexibility
- speed, and
- sensitivity of touch
Bodily-kinesthetic intelligence is the ability to control body movements and handle objects skillfully. These learners express themselves through movement. They have a good sense of balance and eye-hand co-ordination. Through interacting with the space around them, they are able to remember and process information. They learn best through a hands-on approach, actively exploring the physical world around them. They may find it hard to sit still for long periods and may become distracted by their need for activity and exploration. Bodily-kinesthetic kids use body gestures and physical movement to express themselves, good at sports, well coordinated physically, likes to invent things, put things together, take things apart; likes to demonstrate to others how to do something. While the bodily-kinesthetic intelligence is recognized as one of the multiple intelligences, it is one of the most undervalued in schools. Learning requires a physical response, physical interaction, all of which are natural to most children. Learning is not a spectator sport! Students need to be provided with structures that allow them to actively process information. Using Piaget’s theory, between the ages of two to seven years, the preoperational period, the child begins to conceptualize “through concrete and motor examination of the many dimensions of the external world. This information, derived from the child’s active, physical interaction with the environment, provides the data base for building more complex conceptual representations of reality and for supporting the elaboration of these conceptualizations into higher-order, abstract thought processes.” In other words, young children are processing the world through information they are
taking in with their bodies, which later becomes the foundation for abstract thought. It stands to reason, then, that during this period children can more easily grasp a lesson that is taught with an active, physical language.

Each of the intelligences is available to everybody but strong in at least one, and often more than one, intelligence. Just as we have a dominant hand, foot and eye, we have a dominant intelligence, which reflects our preferred way of seeing and dealing with the complexities in our environment. Each gather information differently-some prefer auditory means, some are visual learners, while others acquire information and learning by tactile or kinesthetic means. Consequently, students prefer to show their understanding through different media, through drawing their solutions, through explaining what they mean, through constructing models or chanting or putting ideas inverse, or perhaps a combination of sorts. The list of ways to demonstrate is as diverse as the demonstrators. The various intelligences are present in virtually every realm of human activity and the significant achievement of humankind involves a blend of intelligences. Intelligences typically work in harmony, and so their autonomy may be invisible.

According to the culture and environment in which we live, different intelligences are differentially valued. Indian cultures and educational systems have a bias toward the linguistic and mathematical-logical intelligences, these are the curriculum’s core, and in which high achievement is rewarded. It is believed that all children can develop and strengthen each of the intelligences
given appropriate opportunities within a rich environment and the encouragement to do so by teachers who focus on the individual development of every child.

Armstrong’s (1987) contention is that current teaching methods address only two of Gardner’s seven intelligences—linguistics and logical-mathematical. Armstrong (1987) stated that our cultural and educational emphasis on linguistics and mathematical abilities has created a narrowness of school curriculum that teaches to only a portion of the population, leaving a large percentage of children struggling to learn and achieve with their non-dominant intelligences. Many of these children manage to maintain their grade levels through hard work and perseverance; other children, whose dominant intelligences are rarely addressed in the educational systems, are frequently labeled learning disabled.

The challenge of any educational system is to provide for the development of a widely diverse group of individual students. Snow (1986) defined education as “an aptitude development program in the sense that its primary concern is human preparedness for later states of life”.

Anastasi (1970) suggest that genetics plays a role in ability development; yet, none of these abilities is fixed at birth. He contends that development and differentiation of these abilities seem clearly a function of accumulation and enrichment of educational experiences.

However, some researchers are convinced that survival skills can be taught so that student learning can be significantly increased. Some of the
survival skills mentioned are attending, volunteering, and complying with directions. This approach seems to be implying that the educational system as an entity is more important than the individuals involved. The message to students is that they have to adapt to the instruction instead of the instruction being adapted to them. When students have work related behavior that does not match the traditional system, thus become low achievers therefore likely to be referred to special education. While special education has value for some, referral to these services is frequently experienced as confirmation of students’ failure in attempting academic tasks. Referral to special classes can then create a vicious cycle of self-defeating behavior. Students feel less encouraged to work towards success when they have not experienced success in previous attempts. Zeeman (1982) equated school failure with alienation because failing students are typically not involved in their environment and therefore do not reap rewards which are primarily based upon academic achievement.

Academic achievement has been attributed to family and cultural background. Coleman (1966) wrote, “the inequalities imposed on children by their home, neighborhoods, and peer environment are carried along to become the inequalities with which they confront adult life at the end of school”. Many since his original statement have rejected Coleman’s position.

Another area of contention regarding the impact of family and cultural background is in the area of the causal direction of ability and achievement. The question simply is: does intelligence cause achievement or vice versa? Traditional
psychometric conception holds that intelligence is a characteristic of organisms, which can be measured independently of content, context, and culture (Burt, 1955; Cattel, 1971; Spearman, 1927). These researchers strongly believed that ability is predominantly fixed at birth and therefore, not significantly affected by subsequent learning.

However, Crano, Kenny, and Campbell (1972) found that for suburban children, the predominate direction of impact was from ability to achievement, while for inner-city students the predominate direction of impact was from achievement to ability. Any study in this area is of course, highly impacted by test validity, but the findings seem to indicate readiness and ability to learn the question of magnitude of impact by the family and cultural environmental on student achievement is largely unanswered.

Another significant factor that affects student’s achievement is teacher impact. Teacher criticism and negative attitudes correlate with depressed learning. Conversely, use of praise by teachers can be unproductive because research has observed that children frequently are the initiators of praise and teachers are merely reactive. The students are actually, in these situations, providing reinforcement for teacher behavior. Teacher praise often lacks credibility and specifically of the behavioral elements to be reinforced (Good & Brophy, 1973; Hawley et al., 1984).

“A consistent finding in effective schools research is that when teachers hold and communicate high expectations for student’s learning, student
achievement is greater” (Hawley, et. al., 1984). Teacher expectations are influenced by many factors, but few are as significant as the use of ability grouping. When children are classified as high or low achievers, according to their ability in certain subjects such as math or reading, the tendency is strong for teachers to establish expectations according to individual’s assigned groups. The intent is to adapt instruction to student’s needs, yet such grouping is more likely to impose a slower pace and lower goals on lower ability groups rather than to increase achievement (Good & Brophy, 1973; Snow, 1986) Another teacher behavior which is a predictor of absence of student learning is lack of response to student questions. This was more likely to occur in homogenous grouping than in heterogeneous grouping (Hawley et. al. 1984).

While there is considerable research on teacher’s behaviors, there is little research on teacher’s adaptations to different student’s characteristics (Snow, 1986). Teacher’s adapting to the individual student’s needs has often been considered difficult, and teachers are judged as ill equipped to understand various learning styles and provide alternative methods for learning (Good & Brophy, 1973). Individualized learning has been criticized as too costly and as inhibiting to social skills development (Hawley et. al. 1984).

Learning will be enhanced by teacher’s utilization of space, time, multiplicity, difficulty level, language, and interpersonal relationships. Teacher’s willingness to implement new ideas and methods has often been questioned. “In most situations, teachers do not readily abandon topics and
methods they understand and believe despite the changes that are presumed to occur as a result of curricula innovations” (Hawley et al., 1984).

Researcher’s in the area of curriculum conclude that the effect of curriculum has on academic achievement is limited. They do suggest, however, that how subjects are taught is important (Hawley et al., 1984). Although teachers are more likely to adopt new teaching methods when they play a role in shaping curricula choices, they have often been ignored in curriculum development. New curricula are more successfully used when teachers shape the values espoused by the curricula and teachers are provided with adequate training to fully understand new curricula as well as support in implementing it. Since curriculum does affect teacher expectations, teacher involvement in curriculum development is critical.

Some researchers have suggested since teachers are seen as incapable of managing individualized instruction effectively, that varying teaching methods that include some flexibility for differences would be more realistic in large group or whole group instruction. Knowing how to stimulate teacher’s experiences of competency with diversity is the challenge of institutions, which provide teacher training.

Although teachers are a significant element in the classrooms, the school environment and school district policies have a broader effect on student achievement. Snow (1986) wrote, “Society imposes two kinds of goals on its educational institutions. Common goals reflect the expectations that all citizens
will be brought to minimally acceptable levels of commonly valued achievement reading, writing and mathematics, for example. There are also individualized goals: the systems is expected to help bring all citizens as close as possible to their own maximal potential for individual development and for specialized contribution to society” How each school decides to meet these goals varies significantly. Snow (1986) believes that there are three kinds of paths for adaptive education:

(1) An individualized path;

(2) Alternative paths toward common goals;

(3) Paths designed to remediate inaptitude’s directly.

According to Snow (1986), “fluid ability develops presumably through experience in adapting to movably in the natural world”. Unfortunately, many school systems emphasis on testing is harming the teaching process. In order to prepare for the test, more objective, less creative materials are being used which do not require much adapting. Putting the emphasis on test scores narrows the school agenda to materials, which will be covered, by the test. Aspects of the curriculums that are not being tested may be ignored by teachers. Some of the tests used to determine basic minimal competencies do not include higher order skills; therefore, lower achieving students may never be expected to develop some of the higher order skills.

An important and widely accepted belief is that there is no one system or method of teaching that will result in achievement for all students, at all grade
levels, under all circumstances (Hawley et al 1984). Each student has his or her own aptitude differences, which are a function of person – situation interaction (Snow 1986). Personality-type research reveals that students have tendencies, characteristics and preferences inherent in their personalities, not necessarily related to their environment. It may be that these factors shape participation and achievement. Recognition and adoption of individual differences is critical of today’s youth who are going to be educated to excel with their own unique characteristics. Students for too long have adapted to the learning environment with little adaptation of the learning environment to their uniqueness. More complex classrooms are needed where authority is delegated and help giving among students is encouraged, so that a wide range of differences among students are addressed.

Hawley, (1984) “recent attempts to increase achievement have focused on a “back to basics” return to pre-1900 concepts of uniform curriculum, whole group instruction and lecture-recitation-seatwork methods which disregard inherent individual differences among students and leaves the accepted measure of achievement –test scores – as priority.

Student achievement scores have often directly linked to student promotions. The logic behind this focus on tests is firmly based on the presumed validity of achievement tests to reflect actual student learning; a validity, which is considered questionable by some. Despite the fact that questions remain regarding these tests reflecting actual learning, the emphasis
on test scores continues and leads almost invariably to the counter productive phenomenon of ‘teaching to the test’. While studies of achievement scores indicate a general increase in scores reflecting basic skills, scores on tests requiring inferential skills have declined or remained the same”.

Educators like Cuban (1983) are concerned about testing emphasis increasing school standardization and narrowing schools agenda to the extent of restricting student access to a variety of subjects and textbooks. This narrowing effectively reduced the learning opportunities for students in whom linguistic and mathematical-logical abilities are not primary.

Although theorists through the history of formal education have suggested methods for addressing individual differences, the reality is that practices of teaching have remained fixed. Within narrow educational systems, students must adapt to the learning environment. While most are successful within the traditional systems, there are those who struggle to achieve.

If cognitive abilities is not a part of teacher’s perception of intelligence, then students who are strong in intelligence areas other than linguistic, logical and mathematical may have limited or no opportunities to learn and exhibit their knowledge through their areas of strength. Learning methods also contribute to one’s academic success. What a student learns depends up on his learning method. Students think and learn in many different ways. It also provides educators with a conceptual framework for organizing and reflecting on curriculum assessment and pedagogical practices. In turn, this reflection has
led many educators to develop new approaches that might better meet the needs of the range of learners in their classrooms.

Gardner (2000) says that we should also place equal attention on individuals who show gifts in the other intelligences: the artists, architects, musicians, sports persons, naturalists, dancers, therapists, entrepreneurs and other who enrich the world in which we live. Unfortunately, many children who have these gifts do not receive much reinforcement for them in school. Many of these kids in fact, end up being labeled “learning disabled” or simply under achievers, when their unique ways of thinking and learning are not addressed by a heavily linguistic or logical-mathematical classroom.

Gardner’s theory has been applied in educational settings and in schools. There is no single way to adapt his theory; he has given only some guide lines. Nevertheless, although Gardner’s theory has been highly praised in the educational field because of its potential applications, it has not received widespread attention within in the scientific community. There has been a noticeable lack of supporting research and substantiating reliability and validity tests. Sternberg (1985) likes Gardner’s assessment at a theoretical level; he believes them to be a psychometric nightmare. Sternberg is calling for hard data that would show that the theory works operationally in a way that will satisfy scientists as well as teachers. However, a series of studies emerged to measure objectively and validate the intelligences posited by Gardner’s theory. Shearer (1996) demonstrated that each of Gardner’s proposed intelligences was
indeed a distinct, identifiable construct, which had an anatomical representation in the brain and could be effectively measured by one or more intellectual scales. Shearer’s studies demonstrated a correspondence between a person’s strongest intelligence and his or her selected career field.

Another challenge for low achievers is the lack of commitment of teaching resources for them. Flattrey and Simus (1986) wrote, “low achieving secondary school students have been described as isolated in the school environment. They may receive little support from teachers and few rewards from the educational systems”. This experience of isolation is heightened by ability grouping or tracking. In addition to affecting teacher expectations, research has shown that ability tracking reduces the opportunity to learn for those who are placed in the least demanding and least academics tasks. In the low ability groups, more time is spent on administrations and discipline and the quality of instructional material is often lower than the other groups.

There are children of various learning types. Some learn best by passively taking in what is presented to them by their teachers; others learn best by doing and being physically active when they learn. Individuals possessing higher levels of kinesthetic intelligence process knowledge through bodily sensations. Bodily-kinesthetic children communicate effectively through gestures and other forms of bodily language and learn by moving or acting things out. Furthermore, it seems that healthy children with highly active needs become increasingly inhibited in the effort they bring to intellectual efforts the
longer they are confined to a classroom. These active children are not dumb and do not become dumb when sitting, they just become unable to apply appropriate effort in passive situations when their personalities and needs literally cry for movement, (Bryant, 1985).

Learning new information can occur easily or may require great effort. Many factors influence success and acquisition of new skills. Learning requires attentions, concentration and effort but some things are learned more easily than others are. An assessment can help the student to identify his abilities, which is the basic thing he requires for success.

The obsession of Indian parents with high marks and high percentage in board exams is legendary. Leave children free to grow and nurture their capabilities and passion for becoming great human beings and building up a better society. Trust in them and hope that they can be winners and they will be. Without recognizing their abilities, teachers simply degrade them. Automatically they will drop out of school. Sometimes they would not get the opportunity to exhibit their abilities in school. They may stop their studies and be labeled as school dropouts. Studies conducted by the Association for Learning Disabilities India among the street fighters in Trichur district disclose that, out of twenty, nineteen are low achievers.

A student who posses bodily-kinesthetic intelligence cannot neglect his academic studies because he must meet minimum academic standards to remain in school, struggling to keep up with their classmates, these students
develop survival skills which enable them to barely maintain their grade levels. A student who shows low abilities in academic achievement usually gets frustrated because of the lack of recognition he gets.

So automatically, the child wants to disregard his dominant intelligence, bodily-kinesthetic intelligence, will struggle to cope with his non-dominant intelligence aspect, and will be labeled as learning disabled. This was the motivation of the researcher to conduct a study about the relationship between academic achievement and bodily-kinesthetic intelligence.

**Significance of the study**

1. Not many studies of an athlete’s academic ability could be found, so this study could be beneficial for them.

2. To chart out the opportunity difference in the quality of education.

3. To help the teacher to identify the learning differences of pupils.

4. To focus on the identification and use of strength to compensate for limitations.

5. To get an awareness of the real world educational goals.

6. To give attention to the students who got their strengths in motor ability.

7. To chart out the correlation between academic achievement and bodily-kinesthetic intelligence.

8. To explore the differences caused by sports participation and academic achievement.
To motivate the students, teachers, parents, and the society to understand the students who got their strength in other abilities.

**Statement of the problem**

1. The purpose of the present study was to find out the relationship between academic achievement and bodily-kinesthetic intelligence of schoolchildren.

2. A subordinate purpose of the study was to assess the relationship between intelligent quotient and academic achievement.

**Delimitations**

1. The study was restricted to the age group of thirteen years.

2. The averages of the marks obtained for the core subjects in the terminal examinations were considered as scholastic achievement.

3. The subjects were 2004 schoolchildren from three districts.

4. The intelligent quotient was quantified by using Pramila group of Intelligence test.

5. The bodily-kinesthetic intelligence was measured by using Barrow motor ability test and Scott motor ability test.

6. The study was confined to three districts of Kerala, [Idukki, Kottayam, and Ernakulam].

7. The study was delimited to the bodily-kinesthetic intelligence of students.
Limitations

1. The disparity could be expected in the standards of evaluation by different teachers for awarding marks in the examinations was considered as a limitation.

2. The responses of students to the Intelligence quotient test may not be honest in all cases and this has been recognized as a limitation.

3. The ability to perform motor ability tests by the students could not be same on all days and this was considered as a limitation.

4. The life style, general mood, family background, food habits, parent’s and teachers’ attitudes, which could not be controlled, were considered as limitations.

Hypotheses

1. There would be positive significant difference between high academic achievers and low academic achievers in bodily-kinesthetic Intelligence.

2. There would be positive significant difference between high academic achievers and low academic achievers in general intelligence.

3. There would be positive significant relationship between bodily-kinesthetic intelligence and low academic achievement.

4. There would be positive significant relationship between general intelligence and high academic achievement.
5. There would be no significant district-wise difference in bodily-kinesthetic intelligence, general intelligence and academic achievement.

6. There would be significant relationship between school syllabus academic achievement, intelligent quotient, and bodily-kinesthetic intelligence.

Definition and Explanation of Terms

Academic Achievement

According to Kamalesh (1983), “Education is more than mere learning or amassing knowledge. If it is taken for granted that education connotes ‘modification of behavior’ or drawing out the best in man’. ‘Behavior’ is the basic element in the processes of entire educational endeavor. Education is a life long process, which cannot be confined only to four walls of the school or college. Experience is the keynote of education. Unfortunately, to the man in street, education means only classroom teaching or reading, writing and arithmetic. For a layman stuffing one’s brain with bits of knowledge is the highest aim of education. In this light, the learner exerts mentally rather than physically. Idealistically, education aims at the ‘total’ and ‘wholesome’ or ‘harmonious’ development of the personality of the child. It should afford opportunities to the individual to develop physically, mentally, intellectually, morally and socially”.

According to the definition given by dictionary of education (1960) by Mac Milan book company, “academic achievement is the knowledge attained or skills developed in the school subject, usually determined by test scores or by marks assigned by teachers or both.”
According to Vroom (1964), “academic achievement, a specified level of attainment of proficiency in academic work as evaluated by the teachers, by standardized tests or by a combination of both.”

According to Maslow (1954), “the need for academic achievement has little or no effect on a person’s behavior unless his physiological safety needs and his needs for love and esteem have not been met.”

According to Gray (1970), “academic achievement, a broad concept, may for practical purposes, be defined as scores in the examination which measure in quantitative terms ones mastery of some given content.”

According to Irvin and Forsythe (1977), “Attainment of all goals will enhance the education of boys and girls and contribute towards the development of better citizens for a democratic society. They will not however, be achieved by chance. It is only by helping a student to clearly understand what the objectives are and by carefully directing him to her in appropriate, well planned learning situations that he or she will master the aims.”

According to Gray (1978), “Education is the means by which the accumulated experiences of a race or a people are brought to bear upon each new generation. It is the means of the growth of societies, as advancements in social and technological living are handed down to successive generations. Much informal education goes on without anyone intending to teach or intending to learn simply as a process of social interaction”.
Bodily-Kinesthetic Intelligence  

According to Shearer (1996), “bodily-kinesthetic intelligence is the capacity to think in movements and to use the body in skilled and completed way for expensive and goal directed activities. A sense of timing, coordination for whole body movement and the use of hands for manipulating objects.”

According to Gardner (1993), “bodily-kinesthetic intelligence entails the potential of using one’s whole body or parts of the body to solve problems. It is the ability to use mental abilities to coordinate bodily movements.”

Multiple Intelligence  

According to Gardner (1990), “intelligence is much more than intelligence quotient because a high intelligence quotient in the absence of productivity does not equate to intelligence. In his definition, “intelligence is a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture.”

Intelligence  

According to Stern (1978), “intelligence is a general capacity of an individual consciously to adjust his thinking to new requirements. It is general mental adaptability to new problems and conditions of life.”

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