1.0 Introduction

People have different connotations of the term intelligence. To a layperson, it conveys the meaning inherent capacity, something that the child inherits from his/her ancestors, which determines the mental growth, which he/she is capable of. Intelligence is a universal faculty, a trait, which develops differently in different physical and cultural environments. Intelligence is a sort of mental energy, in the form of mental or cognitive abilities, available with an individual which enables him to handle his environment in terms of adaptation to face novel situations as effectively as possible. Intelligence derives from the Latin verb “intelligere” which derives from inter-legere meaning to "pick out" or discern. Intelligence involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings—"catching on," "making sense" of things, or "figuring out" what to do.
1.1 Intelligence

Intelligence is the capacity for learning, reasoning, understanding, and similar forms of mental activity; aptitude in grasping truths, relationships, facts, meanings, etc., manifestation of a high mental capacity, the faculty of understanding, knowledge of an event, circumstance, etc., received or imparted; news; information, the gathering or distribution of information, especially secret information.

According to Stern (1914)\textsuperscript{1}, Intelligence means a general capacity of an individual consciously to adjust his thinking to new requirements. It is general a mental adaptability to new problems and conditions of life.

Alfred Binet (1916)\textsuperscript{2} defined intelligence as “Intelligence manifests in purposive direction, active adaptation and conscious correction. It is the ability to take and maintain a given mental set, the capacity to make adaptations for purpose of attaining the desired end and the power of self criticism”.

\textsuperscript{1} S.K.Mangal, “Advanced Educational Psychology”, Prentice Hall, 2\textsuperscript{nd} Edition 2005
\textsuperscript{2} K. Suresh, “Social Intelligence of Student Teachers”, Discovery Publishing House, 1\textsuperscript{st} Edition 2009
Spearman (1923)³ defined intelligence as “Intelligence is the analytic and synthetic ability of mind”

Stoddard (1944)⁴ defined intelligence as the ability to undertake activities that are difficult, complex and abstract and which are adaptive to a goal and are done quickly and which have social value and which lead to the creation of something new and different.

Wechsler (1958)⁵ has defined intelligence as the global capacity of an individual to think rationally, to act purposefully and deal effectively with his environment.

1.2 Concept of Intelligence

Intelligence as a concept has been understood in different ways by different psychologists. Vernon perceived three broad categories for defining intelligence. These were (a) biological, (b) psychological (c) operational. Biological definitions emphasise the individual’s capacity to adjust or adapt to environmental stimuli. Adaptation here refers to modifying behaviour either overtly or covertly as a result of experience. Psychological definitions stress mental efficiency and the

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capacity for abstract thinking. Operational definitions involve making detailed specifications of intelligent behaviour and then finding measures of these specifications. Intelligent behaviour is thus expressed in terms of these measures. The expression “Intelligence is what intelligence tests measure” is often used to describe the operational definition.

Intelligence is a very wide concept which not only means the intellectual activities but also includes the capabilities for solving practical problems of life as well. We use the word ‘intelligence’ in everyday life. Dictionary has defined it as “the capacity to acquire and apply knowledge” in our day today life. It is intelligence that makes man differ from the animal. Endowed with certain cognitive abilities man is able to reason, think, discriminate, understand, adjust and face new situations. Therefore, man is superior to animals in all such aspects of behavior. Besides these, attitude, interest, knowledge, skill etc. all are associated with the concept of intelligence.

The word ‘intelligence’ finds a fairly comprehensive use, but it has been defined in a number of ways by the psychologists. One group of psychologists has defined intelligence as a general mental ability to learn. Another group has defined intelligence as the power of
adaptation or adjustment to his or her environment. Terman has defined intelligence as the ability to carry on abstract thinking.

A comprehensive definition of intelligence is given by Wechsler. According to him, “Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally, and to deal effectively with his environment.” It means intelligence is a capacity to act, think and deal rationally in order to adjust to any type of environment. From the above definitions of intelligence, we can find out the real structure of intelligence and what it actually is. It reveals that intelligence is a capacity of an organism, all round mental efficiency possessing the power of discrimination and adjustment to a relatively novel situation. It means that intelligence is such a capacity through which we can judge well, understand properly and reason well and thus it helps basically—to carry on the higher process of thinking, to learn, to adapt oneself to a novel situation.

Based on the concept and ideas intelligence means

i) The power or capacity of human being which helps to make reason, understanding and well-judgment. Intelligence is the capacity which is innate as well as acquired.
ii) All-round mental efficiency which means that it includes all the qualities in mental development of an individual. Through the process of intelligence the whole general and abstract thinking, reasoning powers are revealed.

iii) A power of good responses from the point of truth.

iv) The ability of adaptation and adjusting to a new situation which means that intelligence is the potent factor through which the adjustment and re-adjustment to any situation is easily possible.

v) The ability for abstract thinking as well as the capacity to learn from the past experience and hence, it makes the profitable use of the past.

vi) Intelligence is not knowledge though acquisition of knowledge depends to a great extent on intelligence and vice-versa.

vii) Intelligence is not a guarantee against abnormal behaviour, backwardness and delinquency in spite of the fact that it is one of the factors contributing towards achievement, adjustment and character formation of a person.

In short, we may say that intelligence is the power or capacity through which man can identify himself as ‘man’ that is, a man of ‘super-human’ ability. It is the capacity through which we can reason, think, comprehend or appreciate, analyze and judge. Even on the
controversy on intelligence about its nature as ‘acquired or innate’, the modern psychologists are of the opinion that intelligence is partly innate but due to repetition or exercise it can be developed. Therefore, we can say that the capacity of intelligence is both innate and acquired.

E.L. Thorndike classified intelligence into three categories. These are (i) concrete intelligence (ii) abstract intelligence (iii) social intelligence.

(i) Concrete Intelligence:

Concrete intelligence is also known as mechanical intelligence. It is the intelligence that has the relation with concrete materials. It is the ability of an individual to comprehend actual situations and to react to them adequately. The concrete intelligence is evident from various activities in our daily life. This kind of intelligence is measured by performance tests and picture tests in which an individual is asked to manipulate concrete materials.

(ii) Abstract Intelligence:

Abstract intelligence indicates the ability to respond to words, numbers, formulas, diagram and letters etc. This formula is conspicuously absent in animals. An abstractly intelligent person is able to discover relations among symbols and to solve the various
problems with the help of such aids (symbols, formula, diagram, letter etc.)

(iii) Social Intelligence:

Social intelligence means the ability of an individual to react to social situations of his or her daily life. Social intelligence is possessed by those people who are able to handle people well and also have the ability to make friends easily and understand human relations. Adequate adjustment in social situations is the index of social intelligence.

In fact, although Thorndike has divided intelligence into three categories, yet in real sense, all types are more or less inter-related. Some people may have more abstract intelligence than the mechanical and social intelligence, or some may have more mechanical intelligence than the abstract and social intelligence. Psychologists have found that abilities are positively related. The abstractly intelligent scientist may not be a skilled mechanic, but he or she is likely to be better than the average in mechanical sense and so forth.
Intelligence is often required to act wisely in human relations and get along with others. Therefore, Moss and Hunt (1927) have termed this dimension of intelligence as social intelligence.

1.3 Social Intelligence

Social Intelligence describes the exclusively human capacity to use very large brains to effectively navigate and negotiate complex social relationships and environments. Psychologist and professor at the London School of Economics Nicholas Humphrey believes it is social intelligence or the richness of our qualitative life, rather than our quantitative intelligence, that truly make humans what they are. Social scientist Ross Honeywill believes social intelligence is an aggregated measure of self and social awareness, evolved social beliefs and attitudes, and a capacity and appetite to manage complex social change. A person with a high social intelligence quotient (SQ) is no better or worse than someone with a low SQ, they just have different attitudes, hopes, interests and desires. Social intelligence is indicative of the human capacity to comprehend what is happening in the world and responding to the understanding, in a personally and socially effective manner. It is the tradition of wisdom, not the more current

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idea of ‘smartness’. A major element in social intelligence is the ability of persons to see through the social myths dominant during their lifetime. And at any given time achieve the necessary understanding of their social conditioning to break through the delusions, myths, and fantasies peddled by the people controlling social ideology and behaviour.

According to the original definition of Edward Thorndike, Social Intelligence is defined as "the ability to understand and manage men and women, boys and girls, to act wisely in human relations". It is equivalent to interpersonal intelligence, one of the types of intelligences identified in Howard Gardner's Theory of multiple intelligences, and closely related to theory of mind.

Albrecht (2005)\(^7\) defines social intelligence as the ability to get along well with others while winning their cooperation.

Cantor and Kihlstrom (1987)\(^8\) have defined social intelligence to refer to the individual’s fund of knowledge about the social world. So, how intelligently, or effectively a person responds to his/her social environment is taken as social intelligence.

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Further, Vernon, P.E (1933)\(^9\) provided a comprehensive definition of social intelligence as “the person’s ability to get along with people in general, social technique or case in society, knowledge of social matters of a group, as well as insight into the temporary moods or underlying personality traits of strangers”.

Ford and Tisak (1983)\(^10\) defined social intelligence in terms of behavioural outcomes and were successful in supporting a distinct domain of social intelligence. They defined social intelligence as “one’s ability to accomplish relevant objectives in specific social settings”.

Showers & Cantor, (1985)\(^11\) define social intelligence as “The knowledge and strategies used to achieve personally relevant life goals”.

According to Jones & Day, (1997)\(^12\) social intelligence is “The ability and flexibility to apply social knowledge to solve problems”.

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\(^12\) K., Jones, & J. D.  Day, “Discrimination of two aspects of cognitive-social intelligence from academic intelligence”. *Journal of Educational Psychology*, 89, 486-497.
Marlowe, (1986)\textsuperscript{13} define social intelligence as “The ability to use the feelings, thoughts, and behaviours of one’s self and others in understanding and solving interpersonal problems”.

Social Intelligence is a combination of sensitivity to the needs and interests of others, sometimes called the ‘social radar’, an attitude of generosity and consideration, and a set of practical skills for interacting successfully with people in any setting. It provides a highly accessible and comprehensive model for describing, assessing, and developing social intelligence at a personal level. Thus, social intelligence includes the ability to initiate, develop and maintain congruent mutually satisfying whole range of inter-personal relationships. It is much broader than political awareness or psychological savvy or enlightened act vision. Looking at its components, socially intelligent persons have patience, cooperativeness and confidence. They are sensitive and can recognize the social environment. Further they have tactfulness, sense of humour and a sharp memory (Chadha and Ganesan, 1986)\textsuperscript{14}. All these aspects of social intelligence play a major role in the life of human beings.


\textsuperscript{14} N.K.Chadha and Usha Ganesan, “ Social Intelligence Scale”.Web (April 15, 2010)\url{http://books.google.co.in/books?id=ByuPMB9h3m8C&pg=PA91&lpg=PA91&dq=Social+intelligence+scale+by+Chadha+and+Ganesan+(1986)} & source.html
Social intelligence apparently, is a vital element of social support and social acceptance.

The word ‘Social Intelligence’ is simply the degree to which we ‘get along with’ and relate to other people around us. Almost all of us would admit that our ‘social skills’ could do with a quick polish, and there is a vast range of skills which comprise Social Intelligence. To begin with, we need to be able to relate to people on a one-to-one basis, in small groups, to a whole roomful of people, and to even larger gatherings. We need to be involved in Brain-to-Brain communication. The human brain is the most complex, sophisticated and powerful organ in the known universe. To deal with one (your own!) is a hard enough task. To deal simultaneously with large numbers of other brains successfully is surely a sign of genius!

Goleman (2006)\textsuperscript{15} theorized that social intelligence is comprised of two broad categories: (a) social awareness, or what we sense about others, and (b) social facility, what we do with that information. The amount of social awareness for each individual is determined through four distinct skills; or, (a) primal empathy, the ability to perceive nonverbal emotions and feelings of others, (b) attunement, complete attention to listening to establish rapport, (c)

empathic accuracy, the ability to understand another’s thoughts, feelings, and intentions, and (d) social cognition, understanding how the social world works. Additionally, an individual’s social facility is determinant on four skills; or, (a) synchrony, the successful interaction at the nonverbal level, (b) self-presentation, an effective presentation of oneself, (c) influence, the ability to shape an interaction using tact and self-control, and (d) concern, the ability to care for another’s needs and act accordingly. Goleman posited that while traditional theories of social intelligence have focused solely on cognitive aspects of social intelligence, it is the combination of emotional and cognitive functions which work synchronously to form social intelligence. In essence, “empathic accuracy builds on listening and primal empathy; all three enhance social cognition. And interpersonal awareness in all its guises provides the foundation for social facility”. Goleman summarizes the capacity for social understanding, attuned listening, and empathic concern are vital skills for social intelligence. Therefore, an appropriate measure of social intelligence is needed that accurately assesses the ability to comprehend and successfully interact in social situations.

Socially Intelligent people have to use all of the power of their own brains and bodies to communicate with and to ‘read’ others. They have to acquire attitudes that encourage others to grow, create,
communicate and befriend, and they have to know both how to make
and to keep friends!

A person who is Socially Intelligent is a superb
conversationalist and listener, able to relate successfully with the wider
world. Socially Intelligent people are comfortable with others from
different backgrounds, ages, cultures and social strata, and (more
importantly) are able to make those people feel relaxed and
comfortable around them.

A person who deals with any other people in the course of the
day need to acquire Social Intelligence. Managers need Social
Intelligence to do their jobs effectively. So do sales assistants,
receptionists, teachers, doctors, social workers, hotel staff etc... Social
IQ is one of the most important and beneficial intelligences that we can
cultivate.

More than half of all communication is through body language.
Therefore to acquire social intelligence we need to become adept at
reading other people’s body language – sensing whether they are
uncomfortable, bored, enthusiastic, upset or worried. This will increase
our Social Intelligence. The most Socially Intelligent people are not the
ones who say the most – they are the ones who listen the most.
Listening well is the vital ingredient in a successful, productive and
interesting conversation. Socially intelligence people like to influence people, to converse easily, to negotiate with others successfully, and to deal with social relationships in a way that produces the results they desire. A person who is socially intelligent will always have a positive attitude towards himself as well as towards others. He will never put a person down instead he will help him to direct his life and future in a positive and promising way. Self-confidence is the key to Social Intelligence and success. A social intelligent person always belief in himself and his own strengths and abilities. In this way he will find it much easier to relax and be himself in any social situation. This, in turn, will allow others to relax and enjoy his company. This principle is probably one of the most important that we can instil in our children. For example a self confident child, secure in the knowledge of his or her own worth, will not have to go around ‘proving’ anything to the other kids in the playground – literally throwing his or her weight around. Self-confident children will have the self-respect, the motivation and determination to go out and achieve their own personal goals in life. Everyone likes to be appreciated, and Socially Intelligent people will make sure that they show appreciation of people, thanking them for favours, for doing their job well, or simply for being there.
1.4 Concept of Social Intelligence

The concept of Social Intelligence was coined by Thorndike in 1920 and was referring to a person’s ability to understand and manage other people and to engage in adaptive social interactions. Kihlstrom and Cantor recently clarified the SI discussion by stating; “Social behaviour is intelligent – mediated by cognitive processes of perception, memory, reasoning and problem solving, rather than being mediated by innate reflexes, conditioned responses evolved genetic programs, and the like.” (Kihlstrom/Cantor: Social Intelligence). They argue that differences in social knowledge causes differences in social behaviour; thus they state the question is not how much SI one has but what SI an individual possesses. Goleman and Boyatzis add a powerful new dimension to the understanding of SI with their article, “Social Intelligence and the Biology of Leadership,” HBR, Spring 2011. They say that Social Intelligence is a relationship based construct for assessing leadership and define SI as “a set of interpersonal competencies built on specific neural circuits (and related endocrine systems) that inspire others to be effective.” Social intelligence has a connotation closely related to notions such as social skills and competence. Emotional intelligence (e.g., Mayer & Salovey, 1990; Goleman 1995) clearly is a partly overlapping concept, and
interpersonal intelligence (Harch & Gardner, 1993) another. According to the present authors, social intelligence has a perceptual, a cognitive-analytical, and a behavioural (skills) component. Cleverness in analyzing the social behaviour of others is central, and, reciprocally, so is the ability to recognize motives and cognitive traps of one's own. Furthermore, the socially intelligent individual is capable of producing adequate behaviour for the purpose of achieving desired social goals.

Social intelligence is closely related to cognition and emotional intelligence, and can also be seen as a first level in developing systems intelligence. Research psychologists studying social cognition and social neuroscience have discovered many principles which human social intelligence operates. In early work on this topic, psychologists Nancy Cantor and John Kihlstrom outlined the kinds of concepts people use to make sense of their social relations (e.g., “What situation am I in and what kind of person is this who is talking to me?”), and the rules they use to draw inferences (“What did he mean by that?”) and plan actions (“What am I going to do about it?”).

More recently, popular science writer Daniel Goleman has drawn on social neuroscience research to propose that social intelligence is made up of social awareness (including empathy,
attunement, empathic accuracy, and social cognition) and social facility (including synchrony, self-presentation, influence, and concern). Goleman’s immense research indicates that our social relationships have a direct effect on our physical health and the deeper the relationship the deeper the impact. Goleman states that some physical effects of our relationships upon our health are the blood flow of one’s body, one's breathing, one's mood (such as fatigue and depression), and even decreased power of one's immune system.

Educational researcher Raymond H. Hartjen asserts that expanded opportunities for social interaction enhance intelligence. Traditional classrooms do not permit the interaction of complex social behavior. Instead children in traditional settings are treated as learners who must be infused with more and more complex forms of information. Few educational leaders he adduces have taken this position as a starting point to develop a school environment where social interaction could flourish. If we follow this line of thinking then children must have an opportunity for continuous every day interpersonal experiences in order to develop a keen well developed 'inter-personal psychology'. As schools are structured today very few of these skills, critical for survival in the real world, are allowed to
develop. Because we so limit the development of the skills of "natural psychologist" in traditional schools our students as graduates, enter the job market handicapped to the point of being incapable of surviving on their own. In contrast those students that have had an ability to develop their skills as a "natural psychologist" in multi-age classrooms and at democratic settings raise head and shoulders over their less socially skilled peers. They have a good sense of self, know what they want out of life and have the skills necessary to begin their quest.

1.5 Social Intelligence Models

Social skills represent a broader range of abilities that is most closely linked to the construct of social intelligence. Although social intelligence, the ability to think and act wisely in social situations, was first explored by psychologist Edward Thorndike (1920), and later by Guilford (1967) in his model of “behavioural intelligence,” it is only in the last few years that social intelligence has been popularized by Goleman (2006) and Albrecht (2006). Social skills that are key components of social intelligence include the following:

• The ability to express oneself in social interactions,

• The ability to “read” and understand different social situations,

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• Knowledge of social roles, norms, and scripts,
• Interpersonal problem-solving skills, and
• Social role-playing skills (Riggio & Reichard, 2008)\textsuperscript{17}.

Martinussen and Dahl (2001) operationalized social intelligence into a scale (TSIS) containing three distinct components: social information processing, social awareness and social skills. The first two factors are related to cognitive aspects of understanding and interpreting ambiguous social information. The last factor, social skills, is vastly different and relates to positive beliefs about one's social performing abilities (Friborg, et al. 2005)\textsuperscript{18}.

Also, Marlowe’s (1986) model of social intelligence comprised five domains: pro-social attitude, social performance skills, empathetic ability, emotional expressiveness, and confidence. Pro-social attitudes were indicated by having an interest and concern for others; social performance skills were demonstrated in appropriate interaction with others; empathetic ability refers to one’s ability to identify with others; emotion expressiveness describes one’s “emotionality” toward others;

\textsuperscript{17} R.E Riggio, & R.J. Reichard, “The emotional and social intelligences of effective leadership”. \textit{Journal of Managerial Psychology}. 23 (2), P. 171.
and confidence in social situations is based on one’s comfort level in social situations (Dong, et al. 2008).\footnote{O. Dong, R.G. Koper, & C.M. Collaço, “Social Intelligence, Self-esteem, and Intercultural Communication Sensitivity”. Intercultural Communication Studies. XVII (2), P.162-165.}

In another model, social Intelligence includes the following aspects:

- Primal empathy: Feeling with others, and sensing non-verbal emotional signal.
- Attunement: Listening with full receptivity, and attuning to a person
- Empathy accuracy: Understanding other’s thoughts, feelings, and intentions.
- Social cognition: Knowing how the social world works.
- Social facility builds on social awareness to allow smooth and effective interactions, and includes the following aspects.
  - Synchrony: Interacting smoothly at the nonverbal level.
  - Self-presentation: Presenting ourselves effectively.
  - Influence: Shaping the outcome of social interactions.
  - Concern: Caring about others’ needs and acting accordingly (Murata, 2008).
1.6 Theories of intelligence

Theories of intelligence help define intelligence in a measurable way. Different psychologists have given different viewpoints and formulated their own theories of intelligence. There are different theories of intelligence. Some of the major theories are:

- Two factor theory of Spearman
- Multi factor theory of Thorndike
- Group factor theory of Thurstone
- Structure of intellects by Guilford
- Triarchic Theory of Intelligence by Robert Sternberg
- Hirarchial theory of Bert-Vernon
- Multiple theory of intelligence by Howard Gardner

1.6.1 Two Factor Theory of Intelligence

Spearman proposed this two factor theory of intelligence in 1904. As the name implies, the theory involves two factors namely General (G) and Specific(S) factors. The first factor was a general capacity which was basically a reasoning factor. According to this theory every different mental ability involves a general factor(G), which it shares with all other mental activities and a specific factor(S), which is shared with none. The general factor is largely innate and
accounts for success in all activities. It is constant in the sense that for any individual it remains the same of all the correlated activities. It differs from individual to individual. But success in any specialized field very much depends on the concern specific factor which is essentially learned.

Thus no person is absolutely uniform in his mental performance. So persons who are good in certain field or discipline may be poor in the other. Some who excel in Mathematics might be poor in language or literature.

Thus, performance in any situation is predicted by the amount of share of General and Specific factors in different intellectual activities.

1.6.2 Multi-Factor Theory of Thorndike

Thorndike was an Associationist and he opposed the theory of General intelligence. He proposed that they are Specific stimuli and Specific response. According to him, Intelligence is nothing more than a convenient name for almost infinite number of actual or potential specific connections between these stimuli and responses. According to the theory intelligence is said to be constituted of multitude of separate factors or elements each being a minute element or ability. A mental act involves a number of these minute elements operating together. If any two tasks are correlated, the degree of correlation is due to the
common elements involved in the two tasks. Thorndike distinguished 4 attributes of intelligence. They are:

- Level
- Range
- Area
- Speed

**Level**

This refers to the difficulty of a task that can be solved. If we think of all test items arranged in a sequential order of increasing difficulty, then the height that we can ascend on this ladder of difficulty determines our level of intelligence.

**Range**

This refers to the number of tasks at any given degree of difficulty that we can solve. Theoretically an individual possessing a given level of intelligence should be able to solve the whole range of task at that level. Range is determined not only by Level but also by the Breadth of experience and by opportunity to learn. In intelligence tests range is represented by items of equal difficulty.
Area

It refers to the total number of situations at each level to which the individual is able to respond. Area is the summation of all the ranges at each level of intelligence processed by an individual.

Speed

This is the rapidity with which an individual can respond to items. Speed and altitude are positively related. Speed is much closely bound up with altitude than are the other attributes. We should not therefore emphasize speed too much in our intelligence test.

1.6.3 Group-Factor Theory of Thurstone

Thurstone and his associates proposed the Group factor theory. According to this theory, intelligent activity is not an expression of innumerable highly specific factor as Thorndike claimed. Nor it is the expression primarily of a general factor as Spearman held. Instead the analysis and interpretation of Thurstone and others, lead them to the conclusion that certain mental operations have in common a primary factor that gives them psychological and functional unity and which differentiates them from other mental operations. These mental operations then constitute a group. A second group of mental operations has its own unifying Primary factor; a third group has a third Primary factor and so on. Each of these primary factors is said to
be relatively independent of others. From further analysis, Thurstone and his associates concluded that seven Primary mental abilities emerged clearly enough for identification and used in test designing. They are:

- Space visualisation: The ability to visualise geometric pattern.
- Perceptual speed: Speed and accuracy of noting details.
- Numerical ability: Speed and accuracy in simple arithmetic operations.
- Verbal comprehension: Knowledge of meaning and relationship of words.
- Word fluency: Ability to think and use many isolated words at a rapid rate.
- Rote memory: Immediate recall or retrieval of material learned.
- Reasoning: Ability to see relationship in situations described in symbols.

This theory has more clearly specified and defined test categories and types of test items to be included. Several test batteries have been constructed on the basis of this theory. Based on the findings of this theory, H.E.Garret has postulated a developmental theory of intelligence in which he argues that with increasing age, abilities
differentiates out of general abstract intelligence into relatively independent factors.

1.6.4 Structure of Intellect By Guilford

Guilford and his associates proposed the theory of Structure of Intellects on their attempt of factor analysis. Guilford suggests that mind is composed of 3 major dimensions namely

- Process of operation
- Material or content
- Product

Process of operations

There are six process of operations and these are

1) Cognition: This involves immediate discovery, rediscovery, awareness, comprehension and understanding.

2) Memory recording: It is a fundamental operation. It refers to the retention of what is recognized for a short duration.

3) Memory retention: It means the retention of what is recognised for a long period of time.

4) Convergent thinking: It refers to the generation of information from the given data where the emphasis is on conventionally accepted best outcomes.
5) Divergent thinking: It involves thinking in different directions, searching and seeking some different variety and novelty. It is closely related with creativity. It simply means thinking out of the box.

6) Evaluation: It refers to the reaching of conclusion and decision as the goodness, correctness, adequacy and desirability of information.

- Materials or Contents

In materials or content Guilford divided into five and they are:

1) Visual content: It refers to the concrete material perceived through ideas and thoughts.

2) Auditory contents: It refers to the matter or information perceived through ears.

3) Symbolic content: It refers to the composition of letters, digits or other conventional signs and symbols usually organised in general patterns.

4) Semantic content: It refers to the clear verbal form of meanings or ideas for which no examples are necessary.

5) Behavioural content: It refers to the social intelligence which enables one to understand human communications.
• Products

Guilford divided products into six categories. They are

1) Units: This is similar to Gestalt psychology of figure and ground; relatively segregated items.

2) Classes: It refers to conceptions underlying sets of information or data grouped by virtue of their common properties.

3) Relations: It refers to the connections between items of information based on variables. These connections are more meaningful and definable.

4) Systems: It refers to the aggregate of items of information or data with a structure.

5) Transformation: It refers to the changes like redefinition, modification in existing information or its functions.

6) Implications: It refers to the explorations of information in the form of expectancies, predictions and consequences.

Thus according to Guilford there can be only 180 mental abilities that comes as a result of six processes operating on any one of the 5 contents to produce anyone of the 6 products. Thus 6*5* 6=180 mental abilities.
Guilford neglects the idea of some fixed amount of intelligence. Instead, he claims that development of intellectual skill as in any other skill depends on practice. Unlike others, he is concerned with the social behaviour of the individual besides academic success. Therefore, he devised some test of social sensibility and considers Interpersonal skills. He refers to the dynamic cluster of skills which can always be improved.

1.6.5 Hirarchial Theory of Burt & Vernon

Cyril Burt and Bernon compared human intelligence to a growing tree. When it is a small plant, its thick trunk appears to be the primary part. As the plant grows into tree, many branches set off from different points of the trunk which in turn generate their own off shoots and thus the tree continues its expands. Similarly, during childhood upto 10/12 years, intelligence operates as a single factor. In the early adolescence between 12 and 14 years, this single basic factor, branches off into two major factors as verbal educational (V.Ed) and Spatial mechanical (KM) and start maturing. During adolescence, between 14 and 18 years, group factors get generated from these two major factors and they inturn produce more specific factors.
Thus the General factor grows into two elements such as Verbal education and Spatial mechanical as major factors. They further produce minor factors as verbal fluency, comprehension, rote memory from verbal education and spatial perception and perceptual speed from Spatial mechanical.

### 1.6.6 Multiple Intelligence Theory

One of the more recent ideas to emerge is Howard Gardner's theory of multiple intelligences. Instead of focusing on the analysis of test scores, Gardner proposed that numerical expressions of human intelligence are not a full and accurate depiction of people's abilities. Gardner has synthesized his theory into a list of seven intelligences that are based on skills and abilities that are valued within different cultures: linguistic, logical-mathematical, bodily-kinesthetic (sometimes referred to as physical-kinesthetic), spatial (sometimes referred to as visual-spatial), musical, interpersonal, and intrapersonal

- **Linguistic Intelligence**: Linguistic intelligence is the ability to put words together to form grammatical sentences. The ability to think in words is what allows human beings to remember, analyze,
problem-solve, plan ahead and create, and it is our linguistic intelligence that sets us apart from other animals.

- **Logical-mathematical Intelligence:** Logical-mathematical intelligence encompasses mathematical calculations, logical thinking, problem-solving, deductive and inductive reasoning, and the discernment of patterns and relationships.

- **Bodily-kinesthetic Intelligence:** Many people need to experience the world physically through touching and manipulating objects. They learn by "doing," involving all of their senses, and prefer concrete, real-life experiences over abstract concepts. This intelligence personifies harmony between mind and body, and examples of this harmony can be seen in the work of athletes, dancers, sculptors, and actors who possess the marvelous ability to transform the intentions of the mind into action.

- **Spatial Intelligence:** Gardner defines spatial intelligence as the "ability to form a mental model of a spatial world and the ability to operate using that model" (1993:9). Engineers, surgeons, sculptors, painters, and those sailors in the South Seas who navigate without instruments demonstrate highly developed spatial intelligence.

- **Musical Intelligence:** We are born with a musical capacity, having listened to the rhythm of our mother’s heartbeat while still in the
womb and then living with rhythm of our own heartbeat, respiration, metabolic rhythm and brain waves (Campbell, et al., 1996:133). Most of us, however, do not develop that capacity as great composers, vocalists, or instrumentalists do. Gardner’s research provides empirical evidence that certain parts of the brain play an important role in musical ability, and it is legitimate to consider this ability as a specific form of intelligence. Child prodigies and studies of autistic children who cannot speak but who can play a musical instrument beautifully underscore the independence of musical intelligence (Gardner, 1993:17).

- **Interpersonal Intelligence**: Group members, political and religious leaders, politicians, teachers, counselors, and skilled parents typically have highly developed interpersonal intelligence; for it is this intelligence that allows us to form relationships, helps us get along with others, discern moods, temperaments, motivations, and skills.

- **Intrapersonal Intelligence**: Interpersonal intelligence examines our inner resources—our motivation, determination, ethics, integrity, empathy, altruism, imagination, thoughts, and feelings—as we try to understand ourselves and other people and solve our problems. Intrapersonal and interpersonal intelligence are interdependent since
both are formed by heredity, environment, and experience—particularly experiences with caregivers and, later, teachers.

1.7 Intelligence Related to Social Intelligence

Among the theories of intelligence which had been discussed above, Multiple intelligence theory is one of the theories which is related to social intelligence, as it is based on the skills and abilities of a person. Interpersonal intelligence of Howard Gardner’s model of intelligence is the ability to understand and interact effectively with others. It is the ability to read social cues, interpret non-verbal and verbal communication, and adjust your communication style appropriately. A person with high interpersonal intelligence navigates relationships with skill and finesse because he or she understands the need for empathy, compassion, understanding, assertiveness, and expression of needs and wants. This kind of a person knows how to collaborate with others, lead when leading is needed, follow when following is required, and work together with people of varying communication skills.

Basically, a person with high interpersonal intelligence knows how to get along with others, bring out the best in a team, and work
through conflicts or misunderstandings with minimal damage. This intelligence is also known as social intelligence.

Interpersonal or Social Intelligence manifests as the ability to work well with other people, to understand and 'get' them, to be aware of their motivations, their goals, their stated and unstated intentions. It's about being a 'people person' able to empathize with others.

**Characteristics of Interpersonal or Social Intelligence**

- Good at communicating verbally
- Skilled nonverbal communicators
- See situations from different perspectives
- Create positive relationships with others
- Good at resolving conflict in groups

Thus interpersonal intelligence exhibits a person’s strong skills towards understanding and interacting with others. People who have this type of intelligence have the skills to evaluate the motivations, emotions, intentions and desires of people around them.
1.8 Meaning and Definition of Aptitude

Aptitude refers to a natural or acquired capacity or ability especially a tendency, capacity or inclination to learn or understand (Webster's Medical Dictionary, 2002)\textsuperscript{20}. It refers to part of a person's mental equipment which gives him a special fitness for any kind of endeavour. Warren's Dictionary says, "Aptitude is a condition or a set of characteristics regarded as symptomatic of an individual's ability to acquire with some training, some knowledge, skills or set of responses such as ability to speak a language". Aptitude, however, is a present condition having something to do with the future. According to Bingham, an aptitude involves: 1. Ability to acquire skills, knowledge, attitudes, etc. 2. Readiness to acquire 3. Satisfaction in the job. Bingham again explains, "Aptitude is a measure of the probability of success of an individual with training in a certain type of situation". He points out that aptitude is abstract in nature. It can be further explained:

– It is symptomatic or indicative of one's ability for particular work or job. – It has predictive value. – Training facilitates this capacity to become the actual ability. – This is not a single factor, but, a composite of several elements. Therefore Bingham defines aptitude as those qualities characterizing a person’s way of behaviour which serve to

\textsuperscript{20} Webster's Medical Dictionary, web Feb 2012
indicate how well he can learn to meet and solve a certain specified kinds of problem”. Aptitude means aptness, inclination, tendency, propensity, predisposition, fitness, or suitability for performance in some situation, usually involving formal or informal learning.

According to Thorndike, there are three types of aptitudes, viz., abstract or mechanical, concrete and social. Aptitude is further classified as verbal, numerical, spatial, motor, musical, social, intellectual, natural, mechanical, teaching, academic, learning, etc. Aptitudes stabilise in the early years of life, but there is no time of demarcation after which there is no effect on the formation of aptitudes. Generally it is considered that aptitudes are formed up to puberty. Aptitude is thus a present condition with a forward reference. It is a condition or set of characteristics regarded as indication of potentialities, but we can't be very sure that a person possessing a particular aptitude is going to succeed later in a job or occupation calling for the use of aptitude, because, aptitude as stated is a present condition and it may be influenced by other factors. Aptitude maybe also described as a special ability or specific capacity distinct from the general intellectual ability which helps an individual to acquire the required degree of proficiency or achievement in a specific field. Intellectual ability of an individual to learn material sufficiently so that
he can properly perform the business task required on the job. Some individuals have a natural talent and tendency for specific business areas.

The term aptitude is used in several ways. First, it is used to denote a combination of traits and abilities, which result in a person’s being qualified for some type of occupation or activities. Second, it is intended to convey the idea of a discrete unitary characteristic, which is important in varying degrees in a variety of occupations and activities.

Freeman (1971)\(^{21}\) defined aptitude as “A combination of characteristics indicative of an individual’s capacity to acquire (with training) some specific knowledge, skill, or set of organized responses, such as the ability to speak a language, to become a musician, to do mechanical work”. John Carroll (1973)\(^{22}\) stated that aptitude reflects not a predilection for proficiency but rather a potential rate of acquisition by older learners, under optimal conditions of motivation, opportunity, and quality of instruction. He stated that although aptitude

\(^{21}\) S.K.Mangal, “Essentials of Educational Psychology” (p-169) 
http://books.google.co.in/

remains constant, the role aptitude plays in achievement can vary as these other variables vary.

1.9 Meaning and Definition of Teaching

The word teaching has a number of meanings: “to guide to study,” “to cause to gain knowledge or skills,” “to cause to learn,” and “to cause to change.” Teaching helps to causes things. It is a dynamic activity that produces results. The accurate and practical teaching helps in changing the lives of people. One important element of teaching is “to impart knowledge, to inform.” To teach is to explain, interpret, and expound. To teach is to cause change, both in attitude and in actions.

According to Rabindra Nath Tagore,23 “A Teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame.”

H.C. Morrison24 “teaching is an intimate contact between a more mature personality and less mature one which is designed to further the education of the latter.

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John Dewey: “One might as well say he has sold when no one has bought, as to say he has taught when no one has learned.”

According to Gage, "Teaching is a form of interpersonal influence aimed at changing the behavior potential of another person”

Edmund Amidon defined teaching as “Teaching is an interactive process, primarily involving class room talk which takes place between teacher and pupil and occurs during certain definable activity”.

According to Brubacher," Teaching is an arrangement and manipulation of a situation in which an individual will seek to overcome and from which he will learn in the course of doing so”. Skinner defines teaching as “Teaching is the arrangement of contingencies of reinforcement.”

Teaching includes all the activities of providing education to other. The person who provides education is called teacher. The teacher uses different method for giving best knowledge to his student’s .He tries his best to make understand students. His duty is to encourage students to learn the subjects. Teaching means interaction of teacher and students. They participate for their mutual benefits. Both have their own objective and target is to achieve them.
Some of the characteristics of teaching are:

1. Teaching helps to provide guidance and training.
2. Teaching is interaction between teacher and students.
3. Teaching is an art to give knowledge to students with effective way.
4. Teaching is a science to educate fact and causes of different topics of different subjects.
5. Teaching is a continuous process.
6. Teacher can teach effectively, if he has full confidence on the subject.
7. Teaching encourages students to learn more and more.
8. Teaching is formal as well as informal.
9. Teaching is communication of information to students. In teaching, teacher imparts information in interesting way so that students can easily understand the information.
10. Teaching is tool to help student to adjust himself in society and its environment.

1.10 Concept of Teaching

Teaching is a process which usually takes place in the classroom situations. It is more of formal processes. A sincere and hard
working teacher always comes out all successful. He makes every effort to achieve the desired ends. He always goes well prepared in every way. In his class room teaching, there is always a very good class room interaction. He faces the class clearly and boldly. He is always facing to case with the students while speaking in the class. Naturally, that type of teacher will be able to impress the students fully. Such a teaching can be called effective teaching.\textsuperscript{25}

Teaching may also take place outside the class rooms. The students come in contact with their teacher in the corridors, in the staff room, in the canteen, in the playgrounds; in the school assemble grounds etc., the process of teaching surely goes on there also which is more of informal type. Learning by the students through informal contacts with the teacher is many a time more sound and lasts longer.

Teaching is an art of educating other people. In this age of science and technology when there is explosion of knowledge, the process of teaching has reached new dimensions. It is no longer a simple art of imparting information to the students. It is now tending

to become a technology by itself instructional television, computer assisted instruction, teaching machines, etc.

Teaching is an activity which goes on between the two parties i.e. the giver and the receiver. Here the giver is the teacher more matured person with more experiences of life. The receiver may be an individual, a small group or a big group.

Teaching is not a mechanical process. It is an intricate, exacting, challenging job. Teaching can’t be boiled down to a convenient formula of “telling and testing”. It is the complex art of guiding pupils through a variety of selected experiences towards the attainment of a widening field of learning.26

1.11 Meaning of Teaching Aptitude

Aptitude for teaching is a condition or set of characteristics including knowledge, understanding and attitude regarded as symptomatic or indicative of individual’s ability to acquire with training abilities for teaching work. In the process of education, teacher plays a twofold role. Firstly, he influences the personality of the learner through his own magnetic personality. Secondly as a builder of the

educational environment, he provides suitable experiences to the learner to develop and use fully his skills and capacities to achieve the good of his own self and the welfare of his society, of which he is an integral part. Teaching is a highly noble profession and teachers are always boon to the society. Good teachers can bring out the light of knowledge and dispelled the clouds of ignorance. A good teacher must possess significant aspect of teaching. A person will be considered possessing high teaching aptitude if he possesses good mental ability, positive attitude towards children, adaptability, professional information, interest in profession, teaching effectiveness, attitude towards teaching, personality of the teacher, Social Intelligence and many more factors. Teaching aptitude may be considered as a special ability or specific capacity besides the general intellectual ability which helps an individual to acquire a required degree of proficiency or achievement in a teaching field.

Teaching aptitude is also considered as the determinant factor of effective teaching. If the teachers are empowered with necessary skills and competencies, they can inculcate the skill in other persons and mainly in pupils. A teacher with teaching aptitude encourages students to use active techniques to create more knowledge and then to reflect
on and talk about what they are doing and how their understandings are changing.

Bingham defines teaching aptitude “As a condition symptomatic in his readiness to acquire proficiency his potential ability and another is his readiness to development an interest in exercising his ability.” So that it can be said that teaching aptitude is a specific ability, potentiality, interest, satisfaction and fitness in teaching profession.27

1.12 Need and Justification of the Study

Social Intelligence is used to achieve social goals, resulting from any behavioral system. It appears to be an important psychological ability that relate to success in life. According to Walker and Foley (1973)28, “Social Intelligence is the ability to deal with people, understand the feelings, thoughts and intentions of others, judge correctly the feelings, moods and motivation of individuals”. In Gardner’s (1983)29 theory of multiple intelligence, intelligence is not a unitary cognitive ability but that there are seven (and perhaps more) quite different kinds of intelligence. Two are

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explicitly personal and social in nature i.e., intrapersonal and interpersonal. Gardner defines interpersonal intelligence as the individual’s ability to notice and make distinctions among other individuals. However Social Intelligence is also explicitly represented in Sternberg’s triarchic view of intelligence (Sternberg, 1984\textsuperscript{30}, 1985)\textsuperscript{31}. According to the triarchic theory, intelligence is composed of analytical, creative and practical abilities. Practical intelligence is defined in terms of problem solving in everyday contexts and explicitly includes Social Intelligence. (Sternberg and Wagner, 1986)\textsuperscript{32}.

Teachers should have good Social Intelligence so that their students can communicate well with them. Social Intelligence is about dealing with people. It is the skill which people need to interact and communicate with others. There is verbal and non-verbal way. Small talk, discussion, sharing jokes and ideas as well as teaching and learning are included in verbal communication. For non verbal

communication, active listening is included. Listening empathetically is listed as good Social Intelligence. Teachers must listen actively and carefully to their students, putting themselves in their students' places and learning to read between cultural lines. Teachers might also listen to their students' conversations with their classmates. The things they talk about and ask teachers to discuss and explain are the areas that concern them the most. So, teachers should have good verbal and non-verbal Social Intelligences in order to communicate with their students, persuading them, solving conflicts and motivating them.

Teachers who are Socially Intelligence will always make themselves clear through their body language and words. He or she must have the ability to explain so that students will clearly understand about what the teacher are trying to deliver. Teachers who are socially intelligent are comfortable with students from different backgrounds, ages, cultures and social strata, and (more importantly) are able to make them feel relaxed and comfortable around them. They acquire attitudes that encourage them to grow, create, communicate and befriend. The teachers who are socially intelligent, organize the classroom through establishing supportive and encouraging relationships with their students, developing the lessons which are
based on the students’ strong points and abilities, creating and applying behavioral guidelines in the ways which enhance intrinsic motivation. (Marzano, Marzano, & Pickering, 2003)\(^3\).

Teachers who are Socially Intelligence tend to be confident people. If teachers are confident about themselves, their students too will feel confident and attracted to what teachers teach them. In this way, teachers will have a greater influence and they are able to persuade their students. They always have a good way in solving the conflict of their students and motivate them. They have social awareness and the ability to understand and predict people’s feeling and behaviour. Students like to talk or tell teachers their problems if they feel that their teachers understand them. Besides, teachers should motivate them in a proper way where this acquires good Social Intelligences. Teachers who possess these Social Intelligences can build a closer relationship with their students. Students will feel that they belong and are accepted. It is also very important to know the Teaching Aptitude of the student teachers. This will help them improve themselves in teaching after training.

Aptitude to be a teacher requires proper Social Intelligence. Teacher is the backbone of Education. Every institution has teachers to guide all along the right path. Without the training system, the institution cannot run successfully. Though student teachers get trained, some of them do not have the basic knowledge about their subjects and they are not able to get along well with their students and cooperate with them. So the aptitude of a student teacher requires proper Social Intelligence. A teacher makes a difference. A good teacher sparks a child’s desire to learn; a great teacher affects that spark to kindle a fire that burns forever. A teacher can affect a student’s well being to either scar or empower a child to be motivated to learn. Teachers must possess the vital skills, personality characteristics and behaviours that students perceive to impact their motivation to learn, since it is a teacher’s job to connect with each student to foster the passion and excitement to learn. If a student teacher acquires these factors he or she will be totally involved in the field of teaching. Today’s world is full of stress and tension. Everyone chooses the field which gives money and fame. No one is interested to see the aptitude or Social Intelligence of a teacher. Even though a student teacher’s aptitude and Social Intelligence may change from
time to time, if the student teacher is not clear with what he or she wants to do, then he may be a failure in his or her profession.

From the above discussion it is clear that there is a need to study the relationship of Social Intelligence with Teaching Aptitude in India specifically in the state of Meghalaya. Teachers who are socially intelligent will make the teaching and learning process more effective as the students can absorb the knowledge easily and they are able to transfer this knowledge into their long term memory. Thus this study aims to find out the Social Intelligence of Student Teachers in Meghalaya, examine the Teaching Aptitude of Student Teachers and study the relationship between Social Intelligence and Teaching Aptitude among Student Teachers.

1.13 Statement of the Problem

The study is entitled as follows: “A Study on Social Intelligence in Relation to Teaching Aptitude of Student Teachers in the State of Meghalaya”.
1.14 Operational Definition of the Terms Used

The present study involves the following terms which are operationally defined as follows:

1. **Social Intelligence:** In the present study, Social Intelligence is the ability of an individual to react to social situations of daily life. It is the ability to get along well with others.

2. **Teaching Aptitude:** Teaching Aptitude is a condition or set of characteristics including knowledge, understanding and attitude regarded as symptomatic or indicative of individual’s ability to acquire with training abilities for teaching work.

3. **Student Teachers:** Student Teachers in the present study will refer to trainees undergoing training for Secondary Level (B.Ed.) and Elementary Level (D.I.E.T).

1.15 Objectives of the Study

The proposed study intends to achieve the following objectives:

1. To study the Social Intelligence of Student Teachers in Meghalaya.
2. To examine the Teaching Aptitude of Student Teachers.

3. To study the difference in Social Intelligence between the following group of Student Teachers:
   i) B.Ed and Diet.
   ii) Male and Female Student Teachers
   iii) Tribal and Non-Tribal Student Teachers.
   iv) Student Teachers for the Arts, Science and Commerce Streams.

4. To study the difference in Teaching Aptitude between the following group of Student Teachers.
   i) B.Ed and DIET
   ii) Male and Female Student Teachers
   iii) Tribal and Non Tribal Student Teachers
   iv) Student Teachers for the Arts, Science and Commerce Streams.

5. To study the relationship between Social Intelligence and Teaching Aptitude of Student Teachers.

6. To study the difference in the relationship of Social Intelligence with Teaching Aptitude between the following group of Student Teachers.
   i) B.Ed and DIET
ii) Male and Female Student Teachers  

iii) Tribal and Non Tribal Student Teachers.  

iv) Student Teachers for the Arts, Science and Commerce Streams.  

7. To draw out the implication of the study and suggest recommendations.  

1.16 Null Hypotheses  

The following null hypotheses of the study are formulated as follows:  

1. There is no significant difference in the Social Intelligence between:  

i) B.Ed and DIET Student Teachers.  

ii) Male and Female Student Teachers (B.Ed and DIET)  

iii) Tribal and Non-tribal Student Teachers (B.Ed and DIET)  

iv) Arts and Science Student Teachers (B.Ed and DIET)  

v) Arts and Commerce Student Teachers (B.Ed and DIET)  

vi) Science and Commerce Student Teachers (B.Ed and DIET)
2. There is no significance difference in the Teaching Aptitude between

i) B.Ed and DIET Student Teachers.

ii) Male and Female Student Teachers. (B.Ed and DIET)

iii) Tribal and Non-tribal Student Teachers. (B.Ed and DIET)

iv) Arts and Science Student Teachers. (B.Ed and DIET)

v) Arts and Commerce Student Teachers (B.Ed and DIET)

vi) Science and Commerce Student Teachers (B.Ed and DIET)

3. There is no significance relationship between Social Intelligence and Teaching Aptitude of Student Teachers.

4. There is no significant difference in the relationship of Social Intelligence and Teaching Aptitude among

i) B.Ed and DIET Student Teachers.

ii) Male and Female Student Teachers. (B.Ed and DIET)

iii) Tribal and Non-tribal Student Teachers. (B.Ed and DIET)

iv) Arts and Science Student Teachers. (B.Ed and DIET)

v) Arts and Commerce Student Teachers (B.Ed and DIET)
vi) Science and Commerce Student Teachers (B.Ed and DIET)

1.17 Delimitation of the Study

The study was delimited to Student Teachers studying in Colleges of Teacher Education (B.Ed), and District Institute of Education and Training (D.I.E.Ts).

1.18 Conclusion

This chapter outlines the concept of Intelligence and some of the theories of intelligence, the concept and models of Social Intelligence and the theories of intelligence related to Social Intelligence. It also outlines the concept of Teaching and Teaching Aptitude. The tools used to quantitatively measure them are also mentioned. The objectives framed for the study are depicted along with the respective null hypotheses structured for empirical testing. Further the delimitations of the study are also stated.