CHAPTER I: INTRODUCTION TO THE PROBLEM

INTRODUCTION TO THE PROBLEM

1.1 INTRODUCTION

The main aim of education is the all round development of the student. The important elements of the educational process are the teachers, students and the curriculum. Now days we often stress on “Quality education” in the primary school level. To achieve quality education the teacher should be able to decipher the curriculum correctly and disseminate the content to pupils in the most effective manner. The Education commission has emphasized that education is the one and only instrument that can be used to bring about a change towards the social and economic betterment of India. As cited in Agarwal (1983, pg. 203), J. P. Naik, an eminent educationalist has described the importance of elementary education in the following words, “The progress of primary education is one important index of the social, general and economic development of the country as a whole.” Such progress of education certainly focuses on teaching learning process in the classroom.

At higher primary level, the students are taught three languages along with Science, Maths, History and Geography. The teaching process in the classroom can be broadly classified into teacher centered method and student centered method. NEP has laid great stress on developing a student centered and activity based process of learning (Vas, 1986, p12). As the researcher is teaching in a D.Ed College, she has to go to various schools for lesson observation. It is realized that while teaching, the teacher centered method, i.e. the lecture method, is used more often, thereby making the learning process boring for the students. History as a subject is very interesting due to its rich cultural and historical content, which forms the foundation of our beliefs and ideas. But the manner in which History is taught makes it monotonous and boring for the students, thereby making it an unpopular subject among
students. Our present beliefs are based on historical events which make it important that the students assimilate the concepts and values appropriately. So, teaching has to be made vitally more interesting when teachers use student-centered methods. For achieving this, the teacher has to use various techniques and methods of teaching. We all are aware that in a class, students show individual differences in terms of intelligence, likes and dislikes, hobbies, learning styles, etc., so it is very important for the teacher to teach in a way that each student in the class finds the content interesting and appealing.

The subject of History has a lot of importance in the school curriculum. The study of History plays a very important role in the achievement of aims and objectives of the educational policy of the government. Because of this, the learning of History should be impressive to be more effective. So, the researcher decided to conduct research in the area of innovative teaching-learning methods of History.

1.2 THE PLACE AND IMPORTANCE OF HISTORY IN THE CURRICULUM

History deals with the social, political and economic aspects of life. The word History has been derived from the Greek word ‘Historia’ which means what has actual happened in the past.

Some definitions of History:

History is the record of what one age finds worthy of note in another-Burckhardt

History is a continuous process of interaction between the historians and his facts, an unending dialogue between the present and the past-Carr (Vajreswari, 1966, pg17)

History means inquiry into interesting and memorable past events-Herodotus. (Puppalwar, 2007, pg2)
History is a veritable mine of life experiences and the youth of today studies that he may profit by their experiences of the race-Jones Opines. (Singh, 2007, pg2)

Keeping in view all these definitions of History, we may say that History is not a mere chronicle of events, as generally understood by common man. History is a significant record of events of the past. It is a meaningful story of mankind depicting the details of what happened to man and why it happened. There was a time when History was a mere collection of legendary stories, heroic ballads and folk talks, meant to be recited for their moral value and at the same time, to delight the audience. But today no phase of human activity falls outside the field and jurisdiction of History. The subject of History today includes not only a study of the political activities of man but also a study of his achievements in the physical, social, economic, religious, literary, cultural, industrial, technological and scientific field, right from the beginning of human life on this earth up to the present day. Thus its scope has become as wide as the world and as long as the existence of man on this earth.

The wide scope of History is shown in the figure below:
At the primary stage, History is closely related to the abilities and characteristics of the age of children. Children are made aware of the contribution of great men in different fields of life. We teach History of the new generation to apprise them of the sacrifices made by our leaders to achieve freedom and make them realize to maintain their tradition at any cost. Kothari commission recommended that the principles of democracy, national and international understanding and secularism should be taught through the subject of History. So the curriculum of History is designed accordingly. The students of History not only learn events and facts but they also learn values and develop the power of rational thinking.

1.3 NEED FOR HISTORY AS A SUBJECT IN THE CURRICULUM

India is a democratic country. Democracy needs a body of citizens who are prepared to shoulder the responsibility that goals with freedom. In order to
develop such citizen for the future, every child has to be carefully trained. The responsibility of inculcating a democratic spirit in the students mainly falls on the shoulders of the school. The school curriculum through the teaching of different subjects, viz. language, mathematics, science, social science aims at the fulfillment of national objectives of education. But the main responsibility of imparting citizenship training lies mainly upon the subject History.

The Mudaliar commission (1952-53) remarks: through social sciences, the students should acquire not only the knowledge but attitudes and values which are essential for successful group living and civic efficiency. They should endeavor to give the students not only a sense of national patriotism and an appreciation of national heritage, but also a keen lively sense of world unity and world citizenship.

The Indian Education Commission (1964-66) likewise emphasizes the same point: An effective programme of social studies is essential in India for the development of good citizenship and emotional integration.

The learning of History also helps the students to develop appropriate attitudes towards others and acquire the skills that enable to function effectively as individuals and as members of the group in the national and world society. Because of these special qualities, the subject History of all other school subjects contributes most towards cultivating those attitudes which are absolutely necessary for the development of good citizenship.

After Independence we committed ourselves to the adaptation of secularism, democracy, socialism and peace as guiding principles for our national development. These principles naturally had certain implications for the teaching of History. As a result of this, the objectives of teaching History are as follows-
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1.4 OBJECTIVES OF HISTORY TEACHING AT HIGHER PRIMARY LEVEL

1. To understand the process of society’s development from ancient to present times.
2. To appreciate the contribution of various people in times past and present towards human evolution, cultural development and social welfare.
3. To develop feeling of secularism, social harmony and equality.
4. To nurture curiosity aesthetic sense and innovations.
5. To enable to understand the process of interdependence of man, society and environment.
6. To create awareness regarding preservation of historical remains equipments, monument and architecture.
7. To create awareness about contribution done by various men and women from all levels of the society in India’s freedom struggle and social information.
8. To help them to understand different phases of Indian society’s development.
9. To enable them to correlate the past events with contemporary Indian social problems with respect to History.
10. To develop respect regarding India’s unity and integration.
11. To create awareness for empowerment of weaker sections of the society and women
12. To develop scientific attitude.
13. To develop attitude to overcome harmful rituals, traditions and superstitions.
14. To create awareness regarding India’s cultural diversity and unity in diversity.
15. To inculcate values like democracy, socialism and secularism mentioned in the Indian constitution.
16. To develop view of accepting the good and rejecting the bad from the culture.

17. To inculcate importance of international understanding and peace to develop awareness regarding the enrichment brought about by various cultures of the world.

18. To encourage to use modern information technologies to procure information of History.

(Primary school curriculum, 2006, p93)

The above objectives make us realize the importance of History in our life. Hence it is important to cultivate keen interest and sense of importance for the subject. The objectives of History teaching given above are not being fulfilled satisfactorily. Since Childhood, in spite of our national pledge being daily recited in the school; it has failed in its purpose of uniting the nation mentally and emotionally. We could neither maintain our democratic ideals nor achieve justice, fraternity and liberty. The root of all this probably lies in the faulty system of education used for teaching the subject History. In case the student assimilates the knowledge of History in the correct context, it would be of great help in building his life ahead. At the primary level the students being small, the teacher should teach History in a creative manner. To make the subject more interesting various teaching methods can be used.

1.5 IMPORTANCE OF USING DIFFERENT METHODS OF TEACHING

A famous proverb says, “Give me a fish and I eat for a day, teach me to fish and I eat for a long time.”

This proverb beautifully explains the concept of learning. It says that if you teach something, the utility will be less and for a shorter duration. But if you make them learn, the utility increases tenfold and lasts for the rest of their lives. It goes to show the importance of proper teaching methods.
Henderson (1963, pg1007) defines method as a pattern, that is, a set of common properties that a set of behavior manifests.

According to Bloudy (1963, pg 2), method refers to the formal structure of a sequence of acts, commonly denoted by instructions.

Method is a procedure which the teacher follows to make learning easy and effective. Methods include various steps. It is the process of planning, guiding, sharing and evaluating learning with a group of students. (Puppalwar, 2007, pg 56)

It is said that every teacher has his or her own method of teaching. But the method should always be in accordance with the requirements of the age of students, their psychological level of understanding and their physical environment. A method is not merely a device adopted for communicating certain items of information to students. In the words of Pestalozzi, “Education is a drawing out process and not a pouring out process, that the basis of all education in the nature of the child and that method of instruction must be sought and constructed to the end.”

Curriculum and methods are closely interconnected with each other. Even the best curriculum will remain ineffective unless it is activated by dynamic methods of teaching. A curriculum programme is brought into action only through appropriate method of instruction. With the impact of modern technology along with its hard and software and also with rapid strides of development in educational psychology, sociology and other related disciplines, there is a strong urge to refine and improve our teaching strategies and instructional techniques with a view to realizing the fullest potentialities of the individual learner. In a country like India, where the problem is to educate a large number of learners, methods and procedures suited to large classes with wide individual difference are also to be evolved by research. The use of audio visual aids or a particular instructional procedure may increase the effectiveness of teaching. But this is one aspect of development concerning research on methods. Another new development is that more and more
interactional approaches are incorporated into teaching methods to make them effective in different learning situations.

Various useful methods for History teaching are as follows:

- Story telling method
- Narration method
- Discussion method
- Project method
- Source method
- Dramatization method
- Self study method
- Play way method
- Problem solving method

Taking cognizance of the vital role of History in the school curriculum, it would be worthwhile to catch a glimpse of the present conditions of how History is taught in schools.

1.6 PRESENT CONDITION OF TEACHING HISTORY AT HIGHER PRIMARY LEVEL

The secondary education commission noted that the present practice of teaching mechanically and applying the same methods to dull, average and bright students is responsible for much of the ineffectiveness of instruction given in the school. It suggests the adaptation of methods of instruction to suit the needs of individual student as much as possible. In the educational system today, there is excessive competition for obtaining marks rather than knowledge. This forces the students to learn for the moment and then forget it, thereby not imparting knowledge in its true sense. Everyone agrees that the individuals in the classroom are different. Our present educational system tries to deny this by forcing each student to progress by using the same traditional method.
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In our schools there are teaches who believe in the transmission of unrelated historical facts to the child rather than teaching History. They do not care to base these facts on psychological principles. They emphasis the oral work, cramming of facts without understanding. (Arora, 1979, pg 21)

After reviewing the related researches on History the status of the current trends in the subject was studied.

The following tables describe the difficult subjects in accordance to the students and the preference shown by the students to the subjects in percent:

**TABLE NO.1.1 THE PREFERENCE SHOWN BY THE STUDENTS TO THE SUBJECTS IN PERCENT**

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Subject</th>
<th>Preference percentage</th>
<th>Sr.No</th>
<th>Subject</th>
<th>Preference percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Science</td>
<td>57.85</td>
<td>7</td>
<td>Sanskrit</td>
<td>21.05</td>
</tr>
<tr>
<td>2</td>
<td>Maths</td>
<td>55.26</td>
<td>8</td>
<td>History</td>
<td>17.11</td>
</tr>
<tr>
<td>3</td>
<td>Marathi</td>
<td>48.11</td>
<td>9</td>
<td>Drawing</td>
<td>2.63</td>
</tr>
<tr>
<td>4</td>
<td>Hindi</td>
<td>32.89</td>
<td>10</td>
<td>Economics</td>
<td>1.32</td>
</tr>
<tr>
<td>5</td>
<td>English</td>
<td>28.95</td>
<td>11</td>
<td>Civics</td>
<td>1.32</td>
</tr>
<tr>
<td>6</td>
<td>Geography</td>
<td>23.68</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

History occupies the 8th place in the preference list of the students which shows that it’s not favored.
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TABLE NO.1.2 THE DIFFICULT SUBJECTS IN ACCORDANCE TO THE STUDENTS

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Subject</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Sr. No</th>
<th>Subject</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>English</td>
<td>33</td>
<td>43.42</td>
<td>7</td>
<td>Economics</td>
<td>7</td>
<td>9.21</td>
</tr>
<tr>
<td>2</td>
<td>Maths</td>
<td>30</td>
<td>35.47</td>
<td>8</td>
<td>Civics</td>
<td>7</td>
<td>9.21</td>
</tr>
<tr>
<td>3</td>
<td>History</td>
<td>18</td>
<td>23.68</td>
<td>9</td>
<td>Hindi</td>
<td>4</td>
<td>5.26</td>
</tr>
<tr>
<td>4</td>
<td>Geography</td>
<td>12</td>
<td>15.79</td>
<td>10</td>
<td>Sanskrit</td>
<td>2</td>
<td>2.63</td>
</tr>
<tr>
<td>5</td>
<td>Science</td>
<td>10</td>
<td>13.16</td>
<td>11</td>
<td>Drawing</td>
<td>2</td>
<td>2.63</td>
</tr>
<tr>
<td>6</td>
<td>Marathi</td>
<td>8</td>
<td>10.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(ShikshanSamiksha, 2007, pg4)

Table no. 1.2 shows that History has been rated as the 3rd most difficult subject by the students.

Carswell (1981) outlined the following asking important questions concerning the condition of the Social Science education-

1. What is being taught? What is actually being taught in social science differs from classroom to classroom. Materials are often outdated and are not relevant.

2. What skills and skill sequences are specific to social science? Careful sequencing of maps, graphs, and picture skills has not been developed.

3. What is the function of evaluation? There is a need for an entire new review of cognitive, affective and skill test.

Gupta (1953), in his study on teaching of History, brought to light the apathy towards teaching and learning History in our schools. A rigid syllabus, traditional nature of questions, disproportionate importance given to examination over the teaching learning process, uninteresting and defective
way of teaching and a lack of good text books were some of the major factors responsible for the present day apathy towards History.

Chaudhary (1975) is of the opinion that History textbooks written without the proper perspective made History a dull and uninteresting as a subject for study. The use of wrong methods of teaching and the utilization of defective textbooks reduced the study of History to cramming.

Patel (1984) studied the present position of teaching History in the secondary school of Gujarat state. The findings of his study revealed that most of the teachers used teacher centered methods such as lecturing, questioning etc. Most of the schools were poorly equipped with teaching aids required to learn History.

Raina (1990) made a critical survey of History teaching. According to his study the most commonly available and used instructional media were the textbooks and the blackboard.

The main reasons owing to which the students feel an aversion towards studying are listed below:

1. The teacher uses the lecture method frequently in the class where the students are mere listeners
2. The teacher fall short of time to make audio visual aids this renders the teaching learning process ineffective.
3. The teacher is not aware of the various methods and techniques of teaching

Adding to this study, the day to day observation of History lessons being taken and discussions with the teachers revealed certain shortcomings in the current trends of teaching:

- Learning History becomes a boring and tedious task for students.
• Often the methodology used by the students is rote learning without comprehending the content of the chapter.
• Many a times, narration method of teaching History is used, wherein; the students are only passive listeners.
• Only a single textbook is used to teach a subject, so the ability of the students towards creative learning is hampered.
• The students normally use rote learning (learning by heart) for learning the dates and chronological events and no special techniques are used to help memorize the dates.
• As a result students develop a negative attitude towards the subject.

At the primary level, the students being small, the teacher should teach History in a creative manner which is not followed in practice. There exists a wide gap between the need and importance of teaching History at school level and the present condition of teaching this subject in schools. History should not be taught as a mere collection of information of the past nor as a story in prose to eulogize kings and rulers. We have to make History a living study. Its study should help the students to understand social, economic, political aspects of the community. The subject needs to be studied with living interest and enthusiasm. Considering all these factors it was felt that a new approach towards the method of teaching History is required. The researcher tried to find out various techniques of teaching History and found out that till now, various methods such as use of CAI presentations, self learning material, dramatization, Multiple Intelligences approach etc. had been used for teaching History effectively. The researcher felt that to enhance assimilation of the subject by every student in the class, Multiple Intelligences approach could be used more effectively so as to cater to individual intelligences.

In this context it becomes imperative first to understand the meaning and concept of Multiple Intelligences
1.7 MULTIPLE INTELLIGENCES

Before discussing the Multiple Intelligence, let’s have a look at the earlier views of intelligence.

1.7.1 Intelligence: Earlier views
In the later part of eighteenth century Franz Joseph Gall observed a relationship between certain mental characteristics and shapes of their heads. He placed this idea at the center of a discipline called ‘phrenology’. The key idea was human skulls differ from one another and their variations reflect differences in the size and the shape of the brain. By carefully examining the skull configuration of an individual, an expert should be able to determine the strengths and weaknesses and the idiosyncrasies of his or her mental profile.

Later it was modified by his colleague, Joseph Spurzheim. According to him mind has some thirty seven powers which included affective faculties, sentiments like hope, self-esteem, and reflective powers and perceptual capacities including language, tune(for music)as well as sensitivity to such visual properties as shape and color. The phrenology of Gall and Spurzheim achieved enormous popularity in Europe and the United states during early part of the nineteenth century.

Efforts to set up psychology as a science began in earnest in the latter half of the nineteenth century, with scholars like Wilhelm Wundt in Germany and William James in America. Rather than thinking (like Gall) in terms of particular mental contents (like language, music or various forms of perception), psychologists searched for the laws of broad, horizontal mental faculties-abilities like memory, perception, association and learning.

Gradually the scientific community concluded that one would have to look principally at more complex or ‘molar’ capacities, such as those involving language and abstraction, if one wished to gain a more accurate assessment of human intellectual powers. The chief worker in this area was the Alfred Binet. At the beginning of twentieth century; he devised the first tests of
intelligence in order to sift out retarded children and to place other children at
their appropriate grade level.
Later the British educational psychologist Charles Spearman believed in the
existence of ‘g’-a general overriding factor of intelligence which is measured
by every task in an intelligence test. On the other hand American psychologist
Thurston believed in the existence of a small set of primary mental faculties
that are relatively independent of one another and are measured by different
tasks. Thurstone nominated seven such factors-verbal comprehension, word
fluency, numerical fluency, spatial visualization, associative memory,
perceptual speed and reasoning.
The Swiss psychologist, Jean Piaget became particularly interested in the
errors children make when tackling items on an intelligent tests. According to
him, all study of human thought must begin by positing an individual who is
attempting to make sense of the world. The individual is continually
constructing hypotheses and thereby attempting to generate knowledge. In
terms of the Soviet psychologist Lev Vygotsky, intelligence tests fail to yield
any indication of an individual’s zone of potential development.

The IQ, The Piagetian and the information processing approaches all focus on
a certain kind of logical or linguistic problem solving, all ignore biology; all
fail to come to grips with the higher levels of creativity. In the twentieth
century, the focus has shifted to the actual symbolic vehicles of thought, thus
directing the work towards an understanding of language, mathematics, visual
arts, gestures and other human symbols. The theory of Multiple Intelligences
was proposed by Howard Gardner of Harvard University, to more accurately
define the concept of intelligence and address whether methods which claim to
measure intelligence are truly scientific.

1.7.2 Theoretical basis of Multiple Intelligences Theory

According to Gardner, intelligence is much more than IQ because a high IQ
in the absence of productivity does not equate to intelligence. He also
challenged the cognitive work of Piaget. Bringing forward evidence to show that at any one time a child may be at very different stages for example, in number development and spatial/visual maturation, Howard Gardner has successfully undermined the idea that knowledge at any particular developmental stage hands together in a structured whole. Gardner continues in the tradition of Turnstone’s proposal that there is no ‘g’ (general intelligence) but rather multiple, distinct intelligences.

According to traditional definition, intelligence is a uniform cognitive capacity people are born with. According to Howard Gardner, intelligence is,

- The ability to create an effective product or offer a service that is valued in a culture.
- A set of skills that make it possible for a person to solve problems in life.
- The potential for finding or creating solutions for problems, which involves gathering new knowledge (http://surfaquarium.com/mi/criteria.html)

In addition, Gardner claims that:

- All human beings possess all intelligences in varying amounts
- Each person has a different intellectual composition
- We can improve education by addressing the Multiple Intelligences of our students
- These intelligences are located in different areas of the brain and can either work independently or together
- These intelligences may define the human species
- Multiple Intelligences can be nurtured and strengthened, or ignored and weakened
- Each individual has nine intelligences (and maybe more to be discovered)

(http://www.thirteen.org/edonline/concept2class/index.html)
To qualify as ‘intelligence’ the particular capacity under study was considered from multiple perspectives consisting of eight specific criteria drawn from the biological sciences, logical analysis, developmental psychology, experimental psychology, and psychometrics. The criteria to consider ‘candidate intelligences’ are:

- The potential for brain isolation by brain damage
- Its place in evolutionary history
- The presence of core operations
- Susceptibility to encoding
- A distinct developmental progression
- The existence of idiot-savants, prodigies and other exceptional people
- Support from experimental psychology

(Gardner, 1999, p. 36)

To illustrate the specifics of these criteria, a brief description and example of each is provided.

**1. The potential for brain isolation by brain damage**

Gardner believes that each of his intelligences must have some demonstrable physical basis: therefore they can be spared or destroyed by a brain lesion. In other words, different forms of brain damage can well identify the breakdown of cognitive capacities. It is a well known fact that there are thousands of kinds of columns in the brain, each of which process different kinds of information. When someone has a stroke or an injury to the head area, not all skills break down equally. Instead, certain abilities can be significantly impaired while others are spared. For example, a lesion in the middle areas of the left hemisphere often impairs one's linguistic abilities, while leaving musical, spatial, and/or interpersonal skills largely undamaged. Conversely, a large lesion in the right hemisphere will compromise musical and spatial skills, leaving linguistic abilities relatively intact. In other words, the fact that
a particular lesion may selectively destroy some abilities while sparing others suggests that the two abilities perhaps are autonomous.

2. **Its place in evolutionary history**

According to Gardner all the eight intelligences are seen in early human beings and other species of animals. In this respect when the evolutionary History is seen, it was found that early humans also had all these types of intelligences.

E.g. man used his spatial abilities during sea voyages and to prepare maps.

E.g. there are evidences of musical instruments from Stone Ageperiod. Other species of animals showing musical intelligence is bird’s songs.

3. **The presence of core operations**

As computer program requires a set of operations to function, each intelligences has a set of core operations that helps to perform various activities specific to that intelligence.

E.g. the core components for linguistic intelligence are - syntax, phonology, semantics, pragmatics etc.

E.g. the core components for Bodily-kinesthetic intelligence - control of one's own body, control in handling objects etc.

4. **Susceptibility to encoding**

"Sign" of intelligence appears to be one of the key criteria in Gardner's MI model; he believes that each intelligence depends for its expression upon both "internal" and "external" factors. By "internal" factors, means "computational devises", or "organs of the mind." While the overt manifestations of these symbol systems are public and thus readily observable, of greater relevance is the inferences of inner mental processes needed to manipulate these visible or apparent symbols. Gardner views symbol systems as "one of the best indicators of intelligent behavior" with each intelligence operating on a
different symbol system. He believes that it is being able to encode symbols such as numerals, gestures, art forms (i.e., pictures, words or/and marks), musical patterns as well as a host of other symbolic forms which makes us human beings so 'human.' His concept of separate symbol systems seeks to broaden our notion of intelligence to include psychological constructs usually perceived as outside the range of the concept of intelligence.

5. A distinct developmental progression

Another source of evidence for intelligence is a characteristic developmental path leading from basic and universal manifestations to one or more expert end-states. According to Gardner, intelligences are activated when participated in some kind of culturally valued activity. Development of Individual in that particular activity follows its own pattern. For example, spoken language develops quickly and to great competence in normal people. In contrast, while all normal individuals can count small quantities, few progress to an understanding of higher mathematics even with formal schooling. Each intelligence based activity has its own time of arising in his early childhood (raw state) and his own time of peaking (expert state) in his lifetime. It may rapidly progress or decline as one gets older. Hence, the person who wants to be mathematician or surgeon has to spend years studying and sharpening their mathematical abilities and then reach to an expert state.

6. The existence of idiot-savants, prodigies and other exceptional people

Selective competence (such as idiot savants, prodigies), like selective deficits, suggests autonomy of that particular competence. Savants are the individuals who show or exhibit superior abilities in part of one intelligence and their other abilities operate at low levels. In other words, the presence of extraordinary intelligence in one area suggests a distinct form of intelligence. If a person could write music before he could even read, then the neural systems involved in musical intelligence must be separate from those involved
in language processing. In some people we see single intelligences operating at high levels e.g. Lata Mangeshkar show superior ability in singing. The existence of these savants, prodigies indicates that these abilities function neurologically independent from other kinds of intelligences.

7. **Support from experimental psychology**

From psychological point of view, one can witness intelligences working in isolation from one another. E.g. a person masters specific skill such as reading, but fail to transfer it to other areas such as mathematics.

In case of cognitive abilities such as memory, perception or attention, individuals can possess selective abilities. E.g. one may have superior ability for words but not for identification of face. Some may have acute perception of musical sounds but not verbal sounds.

This means that each of these cognitive abilities are intelligence specific i.e. people can demonstrate different levels of proficiency across the eight intelligences in cognitive area.

As said by Gilman (2001), each intelligence has capacity to express itself in particular settings. This should be able to measure with the help of experimental psychology. It could be possible to measure as to what extent the two acts are related or different from one another. Hence, a person cannot perform the two acts like solving crossword puzzle and conversation because both the acts require the same type of intelligence i.e. linguistic intelligence.

On the contrary, a person can do walking and conversation at the same time because two different i.e. Bodily Kinesthetic and Linguistic intelligences are involved.

8. **Support from psychometric findings:**

Logical-mathematical and linguistic intelligence can be measured with the help of IQ tests. The measurement of other intelligences cannot be denied.

(Armstrong, T. 2000)
1.7.3 Concept of Multiple Intelligences

Gardner's Multiple Intelligences theory challenged traditional beliefs in the fields of education and cognitive science.

Let’s see the difference between Traditional View of ‘Intelligence’ and ‘Multiple Intelligences’ Theory.

<table>
<thead>
<tr>
<th>Traditional View of ‘Intelligence’</th>
<th>‘Multiple Intelligences’ Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>People are born with a fixed amount of intelligence.</td>
<td>Human beings have all of the intelligences, but each person has a unique combination, or profile.</td>
</tr>
<tr>
<td>Intelligence level does not change over a lifetime.</td>
<td>We can all improve each of the intelligences, though some people will improve more readily in one intelligence area than in others.</td>
</tr>
<tr>
<td>Intelligence consists of ability in logic and language.</td>
<td>There are many more types of intelligence which reflect different ways of interacting with the world</td>
</tr>
<tr>
<td>In traditional practice, teachers teach the same material to everyone.</td>
<td>MI pedagogy implies that teachers teach and assess differently based on individual intellectual strengths and weaknesses.</td>
</tr>
<tr>
<td>Teachers teach a topic or &quot;subject.&quot;</td>
<td>Teachers structure learning activities around an issue or question and connect subjects. Teachers develop strategies that allow for students to demonstrate multiple ways of understanding and value their uniqueness.</td>
</tr>
</tbody>
</table>

Gardner’s theory argues that intelligence, particularly as it is traditionally defined, does not sufficiently encompass the wide variety of abilities human
display. In his conception, a child who masters multiplication easily is not necessarily more intelligent than a child who struggles to do so. The second child may be stronger in another kind of intelligence, and therefore may best learn the given material through a different approach, may excel in a field outside of mathematics, or may even be looking through the multiplication learning process at a fundamentally deeper level that hides a potentially higher mathematical intelligence than in the one who memorizes the concept easily.

The theory of Multiple Intelligences suggests that there are at least nine intelligences, two of which, verbal and mathematical, have dominated the traditional pedagogy of societies. Gardner defined the first seven intelligences in ‘Frames of mind’ in 1983. He added the last two in ‘Intelligence Reframed’ in 1999.

The nine intelligences are as follows:
Existential intelligence is one of Howard Gardner's 9th Multiple Intelligences. It involves an individual's ability to use collective values and intuition to understand others and the world around them. They have sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why do we die, and how did we get here. Philosophers, theologians, and life coaches are among those that Howard Gardner sees as having high existential intelligence. But this Intelligence is still in a proposed form and work on it is going on. So the researcher has not used this Intelligence in the present research.
These intelligences are classified into 3 categories:

1. **Object based**- It is related to the various skills. It includes spatial, bodily kinesthetic, and naturalistic

2. **Symbol based**- It is related to concepts, symbols, and principles. It includes Verbal, musical, mathematical.

3. **Human based**- These are personal intelligences. It includes intrapersonal and interpersonal.

According to Gardner, every learner has the capacity to exhibit all these intelligences, but some are more highly developed than others in certain individuals. For example, one person might be strong in the verbal-linguistic and interpersonal intelligences with secondary strengths in the intrapersonal, spatial, and musical intelligences and weaknesses in the logical-mathematical, bodily-kinesthetic, and naturalist intelligences. Another person could have an entirely different combination of intelligences.

Let’s discuss each intelligence

**Verbal/Linguistic intelligence**

**Definition: Linguistic Intelligence** is the capacity to use language, your native language, and perhaps other languages, to express what's on your mind and to understand other people.

These learners love words. They have an immense capacity to use language to express themselves, and to understand other people. They are good with both forms of language, written as well as oral. They enjoy reading, writing and learning languages. They think in language.

**Usually found in:** poets, copywriters, novelists, journalists, scriptwriters, orators, seminar presenters, politicians, editors, publicists, journalists, speech writers, lawyers
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Linguistic Intelligence traits:

- Enjoy Talking and Asking Questions
- Love to read, write and listen
- Enjoy rhymes and sounds
- Good memory for general knowledge, names, places
- Appreciate grammar and meaning
- Good with spellings
- Enjoy word games, jokes, puns, riddles
- Are self reflective, understand philosophy and abstract reasoning
- Like to acquire new words and new languages
- Enjoy possessing books

Exercises to strengthen linguistic intelligence:

- Reading, Writing, Narrating - Stories, Sequels, Poems, Drama, Jokes, Descriptions, News Reports
- Encouraging - Debates, Declamations, Impromptu Speech (on current affairs, life, practically everything)
- Starting - a Newsletter, Magazine, Journal
- Conducting - Mock Interviews, Chat Shows, Role Plays, Dramas, Story Telling
- Solve - Puzzles, Crosswords, Vocabulary Games
- Preparing and Giving Presentations
- Creating Slogans, Defense, Case Studies etc
- Initiating Vocabulary Banks
- Use of mnemonics (Acronyms, Acrostics) to help in retention of information
- Provide opportunities for reading aloud (Choral reading)
Logical-Mathematical Intelligence

Definition: Logical-Mathematical Intelligence is the capacity to reason, calculate, recognize patterns and handle logical thinking.

Usually found in: scientists, engineers, mathematicians, computer programmers, doctors, police investigators, researchers, accountants, economists, lawyers and animal trackers

Famous examples: Bertrand Russell, Bill Gates, Albert Einstein, Sir Isaac Newton, Jayant Narlikar, P. Chidambaram

Logical-Mathematical Intelligence traits:

- Likes to count
- Likes to be organized
- Is very precise
- Good at problem-solving
- Recognizes patterns
- Likes math games
- Likes to experiment in a logical way
- Orderly note-taking
- Ability for abstract thinking
- Likes computers

Exercises to strengthen logical-mathematical intelligence:

- Use deductive thinking like Sherlock Holmes
- Use computers for spreadsheets, graphs and calculations
- Practice sequential step-by-step thinking!
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- play mathematical computation games
- Use puzzles in teaching
- Use formulae or equation to represent content
- Use flow chart
- Use Inquiry Training Model, concept attainment model
- Provide scope for calculations
- Ask conclusions of experiments
- Encourage students to ask questions

Visual-Spatial Intelligence

**Definition:** Visual-Spatial intelligence refers to the ancient hunter-gatherer ability to represent the outer world internally in your mind. It's the ability to hold the world visually in your mind, the way a sailor or pilot navigates the large spatial world, or the way a chess player or sculptor represents a more circumscribed spatial world. It gives you the ability to know where you are in space. If you find it easy to visualize things as though you were an observer taking up different positions, like a fly-on-the-wall, then you are strong in this intelligence. Spatial intelligence predominates in the arts and in science.

**Usually found in:** chess players, painters, architects, sculptors, theoretical physicists, war strategists, navigators, illusionists, graphic artists, cartographers, filmmakers, artists, engineers, fashion designers, interior decorators

**Famous examples:** Pablo Picasso, Leonardo da Vinci, B.V.Doshi, M.F.Hussain

**Visual Spatial Intelligence traits:**

- Likes art, drawing, sculpture, painting
- Good at directions, reading maps
- Can visualize or imagine vividly
- Remembers in pictures (photographic memory)
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- Appreciates colors
- Uses metaphor
- Often found doodling thinks in pictures (worth a thousand words)
- Tends to look at the "big picture"
- Likes to watch the video when listening to songs
- Uses language like "it looks good to me" or "i see what you mean!"
- Good at solving visual puzzles
- Enjoyed geometry in school
- Enjoys photography
- Can remember places vividly
- Good at artistic composition
- Likes books with pictures

**Exercises to strengthen visual-spatial intelligence:**

- Do mind-mapping
- Use visual posters, flash cards and symbols
- Highlight info with color
- Use computer aided graphics
- Make diagrams and maps
- Liberal use of black board while teaching
- Use video tapes, films stripes, transparencies etc.
- Getting students to prepare scrap books on various topics
- Assign homework involving content related sketching/drawing/painting/collage
- Use microscopes, telescopes, binoculars etc.

**Musical/Rhythmic Intelligence**

**Definition:** The ability to compose songs and music, sing and play instruments and appreciate all kinds of music. Also having a strong sense of universal harmony and awareness of patterns in life.
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Usually found in: composers, recording engineers, performers, musical instrument makers, conductors, rap artists, piano-tuners, musiclovers, music director.


Musical Intelligence traits:

- They appreciate rhythm and composition.
- Able to recognize sounds, tones and rhythm, they have a "good ear" for music.
- They often use rhythm and music as a way to memorize things.
- Have good rhythm
- Can easily memorize songs
- Often singing, whistling or tapping a song
- Talented with an instrument or singing
- Can tell when a note is off-key

Exercises to strengthen musical intelligence:

- Subject related songs/rap/chants/poems sung in familiar tunes or newly composed by teacher/recorded or sung by students
- Use of subject appropriate background or mood music
- Use of music/narration in subject related slide shows
- Use of subject related recorded or live sounds (e.g. bullock cart,train,wind,birdsetc)

Bodily-Kinesthetic Intelligence

Definition: Bodily-Kinesthetic Intelligence is the capacity to use one's hands or body skillfully.
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**Usually found in:** athletes, sports stars, actors, dancers, inventors, surgeons, outdoor workers, craftsmen, builders, mechanics, race car drivers, mime artists, martial artists, Physical Therapist

**Famous Examples:** Tiger Woods (golf), David Beckham (soccer), Bruce Lee (martial arts), Michael Jordan (basketball), Sachin Tendulkar (cricket), Rohini Bhate (dance)

**Bodily-Kinesthetic Intelligence traits:**

- Likes to move about
- Like to take action
- Great control of body
- Learns best by moving and taking part
- Remembers what was done more than what was said or shown
- Plays with objects while listening
- Gets fidgety if made to sit still too long
- Good with hands, good at handicrafts
- Loves doing sports
- Learns by "doing"
- Well-coordinated with good motor skills
- Likes figuring out how things work

**Exercises to strengthen bodily-kinesthetic intelligence:**

- Incorporate dancing to learn
- Include movement in lessons
- Explanation of content through actions
- Subject related physical games (e.g. Dumb charades, passing the parcel, relay quizzes, ball games etc.)
- Learning through actual experimentation/hands on activities
- Allow handling of educational materials, equipments
- Provide scope for preparing handicrafts
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- Arrange visits
- Provide work experience
- Organize street plays/role plays/dramas

**Interpersonal intelligence**

**Definition:** Interpersonal-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, and their stated and unstated intentions. It's about being a 'people person' able to empathize with others.

**Usually found in:** counselors, politicians, sales people, teachers, managers, religious leaders, public relations, team leaders, social worker, sales representative

**Famous examples:** Larry King, Oprah Winfrey, Princess Diana, Rajat Sharma, Sudhir Gadgil, Atal Bihari Vajpayee

**Interpersonal-Social Intelligence traits:**

- Good at negotiating win-win
- Gets on with others well, mixes easily
- Enjoys company
- Has lots of friends
- Good at reading other people's intentions, moods etc
- Communicates well and sometimes uses insights into others to manipulate them
- Enjoys group activities
- Likes team work
- Has strong need to be liked
- Seeks and enjoys attention
- Willing to mediate arguments
- Extravert
• Enjoy social events
• Enjoy team sports
• Love meeting new people
• Cooperative in groups

Exercises to strengthen Interpersonal-Social intelligence:

• Include learning sessions where you pair off and share
• Use interviews where you have to elicit information by talking with others
• Teach what you know - be a tutor/mentor
• Assign group work through use of project method
• Use of co-operative learning methods
• Conduct group discussions/brainstorming
• Get students to organize role plays/street plays in group
• Get students to organize quizzes, games etc. By dividing the class into groups

Intrapersonal intelligence

Definition: **Intrapersonal Intelligence** is defined as the ability to access, understand and communicate one's own inner feelings.

Usually found in: philosophers, gurus, mystics, sages, wise elders, novelists, counselors, poets, song writers and people with a deep sense of self.

Famous examples: Lao Tzu, Plato, Socrates, ShriShriRavishankar.

Intrapersonal-Intuitive Intelligence traits:

• Self-knowledge
• Deeply aware of one's own feelings
Well-developed sense of self
• Aware of and honors own values
• Strong awareness of one's purpose in life
• Intuitive abilities
• Self motivated
• Individualistic and unique
• Very private person
• Goes against the grain, wants to be different from the masses
• Willing to mediate arguments
• Prefers working alone
• Philosophical

Exercises to strengthen Intrapersonal or Intuitive Intelligence:

• Ask thought –provoking questions
• Provide opportunities of reflection for awareness and identification of students’ own opinions, roles, memories, attitudes, interests, values, decisions etc.
• Ask students to record their experiences/thoughts/opinions regarding the subject in the diary.
• Provide opportunities for individual (seat) work in class.
• Provide material for self-learning of content.
• Connect content to students’ personal experiences.
• Provide options regarding what to learn, home work projects, etc.

Naturalistic Intelligence

Definition: Naturalistic Intelligence is defined as the ability to see patterns in nature and work in natural environment with livestock, wildlife, plants etc

Usually found in: farmers, gardeners, ecologists, zoologists, biologists, explorers, anthropologists, animal trainers.
**Famous examples:** Jacques Cousteau Benedict Allen, Lewis and Clark, Charles Darwin, Rabindranath Tagore

**Naturalistic Intelligence traits:**

- Nature knowledge
- Negotiates well
- Sensitive to ecology
- Sees patterns in nature
- Keen sense of balance with nature and the body
- Often chooses to be vegetarian
- Sensitive to environmental and animal abuse
- Prefers nature to cities
- Feels at their best in nature
- Feels responsible for nature in custodial role

**Exercises to strengthen Naturalistic Intelligence:**

- Provide scope for careful observations
- Provide scope for classification (based on a variety of criteria)
- Encourage environmental awareness/Provide opportunities to students for making others aware
- Take classes outdoors (under a tree, in a garden)
- Organize field trips for observing nature

**1.7.4 Biological and cultural basis for MI**

Gardner argues that there is both a biological and cultural basis for the Multiple Intelligences. Neurobiological research indicates that learning is an outcome of the modifications in the synaptic connections between cells. Primary elements of different types of learning are found in particular areas of the brain where corresponding transformations have occurred. Thus, various types of learning results in synaptic connections in different areas of the
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brain. For example, injury to the Broca's area of the brain will result in the loss of one's ability to verbally communicate using proper syntax. Nevertheless, this injury will not remove the patient's understanding of correct grammar and word usage. Gardner's criteria for selecting these particular abilities as intelligences include: independence from other intelligences (within the brain); having a central set of information-processing operations; having a distinct developmental History; having roots in evolutionary History; and having a cultural basis. When Gardner says that intelligences are independent, he is referring to separate sections of the brain that control each intelligence and have distinct methods of processing information.

Gardner's research with brain-injured adults and with autistic children has indicated that the human brain has separate areas that control separate functions. For example, Gardner described a woman who suffered a brain injury and lost the ability to speak, yet she maintained her ability to sing. This example shows that the verbal-linguistic intelligence functions separately from the musical intelligence.

In addition to biology, Gardner argues that culture also plays a large role in the development of the intelligences. All societies value different types of intelligences. The cultural value placed upon the ability to perform certain tasks provides the motivation to become skilled in those areas. Thus, while particular intelligences might be highly evolved in many people of one culture, those same intelligences might not be as developed in the individuals of another.

1.7.5 Relation of MI and other theories

MI and Brain based learning:

Brain-based learning is a comprehensive approach to instruction using current research from neuroscience. Brain-based education emphasizes how the brain learns naturally and is based on what we currently know about the actual
structure and function of the human brain at varying developmental stages. Using the latest neural research, educational techniques that are brain friendly provide a biologically driven framework for creating effective instruction. This theory also helps explain recurring learning behaviors, and is a meta-concept that includes an eclectic mix of techniques. Currently, related techniques stress allowing teachers to connect learning to students' real lives and emotional experiences, as well as their personal histories and experiences. This form of learning also encompasses such newer educational concepts like:

- mastery learning,
- experiential learning,
- learning styles,
- Multiple Intelligences,
- cooperative learning,
- practical simulations,
- experiential learning,
- problem-based learning

One of the key tenets of brain-based education is that attention follows emotion, and both music and art often tap into the emotional areas and thus are natural conduits for remembering and connecting information. According to brain based learning, music can lower stress, boost learning

Art is an important part of brain-based education in that it provides many learners with avenues of expression and emotional connection and release. It is important at many levels. For instance, it is important in technology in order to create aesthetically pleasing PowerPoint presentations and multimedia displays that showcase work and make the information and facts presented memorable. Art can be metaphoric creating simple icons or images that ground larger more complex ideas. Multicultural awareness is improved through the study of art as it instantly connects viewers to different cultures

(Spears, Wilson, 2011)
Brain based learning establishes and confirms that multiple, complex and concrete experiences are essential for meaningful teaching and learning. It uses whatever information has been acquired about memory to channel instruction towards meaningful learning instead of towards memorization.

The evolution of Multiple Intelligences theory has been based on brain based learning and is the extension of the same.

**MI and Constructivism:**

Constructivism is basically a theory based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. When we encounter something new, we have to reconcile it with our previous ideas and experience, maybe changing what we believe, or maybe discarding the new information as irrelevant. In any case, we are active creators of our own knowledge. In the classroom, the constructivist view of learning can point towards a number of different teaching practices. In the most general sense, it usually means encouraging students to use active techniques to create more knowledge. A constructivist views learning as the result of mental construction. Learning takes place when new information is built into and added onto an individual’s current structure of knowledge, understanding and skills. We learn best when we actively take part in constructing our own understanding.

The important features of constructivist learning theory can be summarized as follows:

- The construction of knowledge and not the reproduction of knowledge is paramount
- Learning can lead to multiple representations of reality
- Authentic tasks in a meaningful context are encouraged
- Reflection on prior experience is encouraged
- Collaborative work for learning is encouraged
• Autonomy in learning is encouraged

Mental activities lead to deeper engagement with ideas and increase the possibility of effective, lasting learning. The discussion between groups, pairs, and teacher and pupil is essential for the effective development of understanding.

Relation of Cooperative Learning and Multiple Intelligences:
Cooperative Learning was founded in order to help teachers and students reap the proven benefits of cooperative learning. When working cooperatively, students of all grades and content areas achieve more academically, acquire social skills, improve social relations including cross-race relations, feel better about themselves, and like school more. There are important connections between cooperative learning and Multiple Intelligences. On a broad, philosophical level, Multiple Intelligences and cooperative learning share the goals of helping students succeed in school and beyond. Let's examine three additional links: Instructional Strategies, Celebrating Diversity, and the Connection between Interpersonal Intelligence and Cooperative Skills.

Instructional Strategies

In cooperative learning there are distinct strategies for mastery (practice and review), higher-level thinking, sharing information, building communication skills, teambuilding, and class building. For Multiple Intelligences, there are many strategies which engage and develop each of the eight intelligences. Many, but not all strategies overlap in function. For example, a Team Interview is great cooperative learning and also engages the interpersonal and the verbal/linguistic intelligences. Some strategies are unique to Multiple Intelligences: a simple Visualization, for example, has no cooperative learning component. When teachers are provided simple, effective, easy-to-learn, easy-
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to-use, instructional strategies, instruction and learning are dramatically improved.

Celebrating Diversity

In the traditional classroom the teacher hopes for homogeneity. The greater the difference in ability levels of the students, the more difficult the job of the teacher. In a very heterogeneous classroom the traditional teacher is faced with an impossible dilemma. In contrast, cooperative learning is based on the assumption of heterogeneity. If everyone on the team had exactly the same ability level and information base, no one would have anything to learn from each other. Heterogeneity in interaction produces learning: "Four heads are better than one" and "None of us are as smart as all of us.” Cooperative learning is successful to the extent teammates come to celebrate their diversity, to the extent they understand that in their diversity lays their strength.

Successful Multiple Intelligences classrooms are based on the same premise: We come to understand, appreciate, and celebrate our individual differences. By recognizing there are many ways to be smart, in the Multiple Intelligences classroom we come to realize each person is gifted in unique ways. Because individuals have different strengths, our collective strength resides in our diversity.

At the heart of both Multiple Intelligences and cooperative learning is an appreciation of each individual for his or her uniqueness.

The Interpersonal Intelligence and Cooperative Skills

There is an obvious connection between the interpersonal intelligence and cooperative learning. The interpersonal intelligence involves an understanding of the feelings, motives, values, and points of view of others. These same skills are by-products of successful cooperative learning. Many cooperative
learning methods explicitly teach the very social skills which define the interpersonal intelligence. Cooperative learning and Multiple Intelligences have a different emphasis, yet the philosophical goals of each are closely aligned, as are the practical strategies which ensure success with both of these transformative educational innovations. Independently, they make a powerful contribution to education; together they're dynamite!

(Kagan, S. 1998)

1.7.6 Benefits of using Multiple Intelligences

1. students become more active in learning
2. Students will be able to demonstrate and share their strengths. Building strength gives a student the motivation to be a specialist. This can in turn lead to increased self esteem
3. Students capability for creating solution to problems in life increases
4. Students become self confident
5. It reinforces the same material in variety of way which leads to deeper understanding of subject matter
6. It makes learning exciting and interesting
7. Students learn to manage their own learning.
8. Students learn to value their individual strength.
9. It helps to increase memory
10. It is beneficial for students when evaluation is planned and done keeping in mind students dominant intelligence
11. Students are able to express themselves

(Based on review of related literature)

In short, Gardner theory of MI proposes a means to understanding the many ways in which human beings are intelligent that is how we process, learn and remember information, in contrast to the prevailing notion of intelligence testing which poise a general, all encompassing general intelligence. Gardner states that while individuals are capable of processing information in at least
eight different ways, each individual varies in the degree of skill possesses in each of these intelligences. Gardner’s theory of MI is not based upon binary attributes – either linguistic or logical mathematical as expressed in IQ test formula prescribed by Binet and Simon. However Gardner believes that individual may rely more heavily on one intelligence over other. Gardner continues in the tradition of Turnstone’s proposal that there is no g (general intelligence) but rather multiple, distinct intelligences. The view of multifaceted nature of creativity is echoed in Gardner’s MI theory. Its underlying principle is people are intelligent in many different ways. This theory has given broad vision to education. All eight intelligences are needed to live well. Teachers therefore need to attend to all intelligences, not just the first two that have been their traditional concern.

1.8 RESEARCH PROBLEM

1.8.1 Title:

A Comparative study of the Effectiveness of the Multiple Intelligences- based Teaching and Non Multiple Intelligences- based Teaching of some units of History for Std .V1

1.8.2 Operational Definitions of the terms used in the title:

I. Effectiveness-

Effectiveness will be studied in terms of achievement in the units and reactions of students to Multiple Intelligences based teaching.

II. Multiple Intelligences–based teaching-

Application of MI. theory to teaching learning, through stimulation of maximum possible intelligences in the teaching of every selected unit of History.
III. Non Multiple Intelligences-based teaching-

A widely used teacher dominated method with minimal involvements of the student.

1.8.3 Objectives:

1. To prepare MI. based instructional materials (lessons plans, teaching aids and computer assisted instructional material) on selected units of History.

2. To study the effectiveness of the use of MI. - based teaching
   (a) In terms of academic achievement.
   (b) In terms of reactions of students.
   (c) In terms of observations made during MI.- based teaching*
   (d) In terms of retention of the content

*In addition to general observations students will also be observed in terms of Participation in various activities in relation to their predominant intelligence.

3. To compare the effectiveness of MI -based teaching and non MI-based teaching in terms of achievement in the units.

1.8.4 Hypothesis:

For objective 2a directional hypothesis has been put forth as follows;

There will be a significant increase in the post-test mean achievement scores on the selected units as compared to the pre-test mean achievements scores at .01 level of significance as a result of MI - based teaching.
For objective 2d null hypothesis has been put forth as follows:

There will be no significant difference between retention (posttest-retention test scores) of students taught through MI based teaching and students taught through non MI based teaching.

For objective 3 as well, directional hypothesis has been put forth:

The mean gain achievement scores of students exposed to MI- based teaching will be significantly higher at 0.1 level of significance that the mean gain achievement scores of students studying History through non MI-based teaching method.

Rationale for directional hypothesis (objective3)

Results of many researchers on MI.- based teaching show a significant increase in achievement. Many of the activities which will be used for MI.- based teaching in the present research have been individually proven to be effective in bringing about significantly higher achievements. Eg- CAI (Ranade, 2006), Music (huang, 2004), Cooperative learning (Baldes, D., 2000)

1.8.5 Research design:

The Quasi- Experimental Design namely the pretest-posttest non equivalent-groups design has been used. Diagrammatic representation is as follows:
1.8.6 Variables:

Independent variable- MI based teaching

Dependent variable-Achievement of the students

Confounding variable-Extraneous variables such as teachers’ competence or enthusiasm is controlled by the researcher by the researcher by herself teaching in both the classes

Threats to internal validity-Experimenter bias, treatment diffusion these threats exists however every effort will be made to minimize these threats
1.8.7 Sample:

Incidental sample comprising of two intact classes of approximately 50 students each.

1.8.8 Tools:

1. MI inventory for identifying predominant intelligence of student.
2. Achievement test prepared by the researcher on each unit taught through MI based teaching and non MI based teaching.
3. Opinionnaire prepared by the researchers for obtaining reactions of the students to MI based teaching.
4. Rating Scale prepared by the researcher to know the activities that are liked or not liked by the students. Rating scale had three points viz. liked most, liked less and not liked.
5. Observation of the students in the voluntary participation in various MI based activities

1.8.9 Analysis of the data:

a. Analysis of quantitative data using ‘t’ test and ANCOVA
b. Analysis of qualitative data.

1.8.10 Scope and Limitations:

Scope

- Content in the textbook prepared by Maharashtra state Bureau of textbook production has formed the basis for preparation of MI.-based instructional material.
- The lesson plans, teaching learning material and CAI presentations prepared by the researcher on selected units are useful for VI std. students following state board syllabus.
Limitations:

- The medium of instruction was English only.
- The researcher tried to include activities based on intelligences but the extent of activities varied from unit to unit.