Synopsis

Study of the Relationship Between
Multiple Intelligence and Teacher
Effectiveness of School Teacher

By
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Guided by
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Synopsis of the Thesis to be submitted to the University of
Mumbai for the Degree of Ph.D in Education

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Study of the Relationship Between Multiple Intelligence and Teacher Effectiveness of School Teacher

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Signature of the Candidate

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CHAPTER ONE
INTRODUCTION

1.1: The Educational Process
A good educational system must develop citizens and workers who can govern themselves, who are flexible, resourceful and able to deal with situational complexity, information explosion and new technologies, while still maintaining a set of values, individual stability and integrity. Students must be able to internalize content, use it spontaneously and appropriately in changing contexts and thus be responsible for their own learning. Teaching is a profession, where teachers are continuously discovering, incorporating and applying effective skills and knowledge about student learning for development of self and students. An effective teacher focuses on providing for a student’s long-term development into a self-responsible, independent learner. The ultimate student outcome is a positive, confident, competent, caring learner who is able to take the initiative, problem-solve, set goals and make decisions that help to continuously adapt in a rapidly changing society.

1.2: Role of the teacher:
Effective Teaching is more than knowing subject matter and clearly presenting it. Effective teaching involves knowing how students think and feel, understanding their preconceptions and misconceptions, realizing what genuinely gets their attention and being aware of how to build their desire to learn from within themselves. The commitment and dedication of the professional teacher, therefore, must be to persevere in finding ways to build independence in the learner and nurture the natural curiosity of the student.

The teacher should identify interests and points of personal relevance, provide appropriate experiences and adjust instruction to engage learners and to encourage them to want to learn more, no matter how challenging
the task may be. Basic to the role of the teacher is creating a community of learners within the classroom and school where students may trust, experience a sense of success, develop integrity, empathy, responsibility to self and others and a love of learning.

Teacher Effectiveness is dependent on several factors some of which are within the teacher and others are factors inherent in the teaching environment. One claim constantly made by psychologists is that skillful utilization of the opportunities made available by the situation is a part of one’s intellectual abilities. The widely acclaimed Theory of Multiple Intelligences is used as a base to predict learning styles, success in a task and efficiency in a chosen career. The theory of Multiple Intelligences (MI) gives adults a whole new way to look at their lives; examining potentials that they might have left underdeveloped in their childhood but now have the opportunity to develop through courses, hobbies or other programs of self-development thus becoming an asset to their professions. For this every professional should be aware of his/her present status of Multiple Intelligences and try to match it to the Multiple Intelligence Profile of an effective worker of that profession. Building such a MI based profile for an Effective Secondary School teacher is hence the thrust of this study.

1.3 Conceptual framework For Teacher Effectiveness:
Teacher Effectiveness is viewed not only as the efficiency in teaching but as the total impact that a teacher has on the student and in turn on the society. Effective teaching is the basis of successful learning. Effective teaching identifies and builds on prior knowledge, makes real-life connections, develops deep understanding and monitors and reflects on learning. Teacher effectiveness is the effective linkage of teacher competence and teacher performance with the accomplishment of teacher goals. It mainly depends on the teacher characteristics such as knowledge base, sense of responsibility, and inquisitiveness and
student characteristics such as opportunity to learn, and academic work.

**Dunkin and Biddle Classroom Learning Model:**

The Dunkin and Biddle Model for Classroom Learning (1974) suggested that the study of classroom teaching and learning involves four categories of variables: presage, context, process and product.

**Presage variables** are those variables associated with the teacher. These variables affect the behaviour of the teacher in the classroom. Examples of these variables are personality traits, teaching skills and teaching styles.

**Contextual variables** are those variables not influenced by the teacher. These variables are attributed to the students, the school and the community and are often referred to as learner variables. Examples of these variables are prior experiences, prior knowledge and skills, and personality traits of the learner.

**Process variables** refer to what takes place in the classroom. These variables are outcomes and interactions of behaviours. Examples of process variables are student-student interaction, student-teacher interaction, teacher behaviour, and student behaviour.

**Product variables** are those variables that describe the outcomes of the learning process. Examples of the product variables are achievement and degree completion.

Dunkin and Biddle's classroom teaching model builds a foundation for this research. It provides prescribed classroom variables and a framework to describe traits of the variables and interactions between the variables. This model describes interactions between variables in a classroom environment. Components of Teacher Effectiveness used in the study based on the Dunkin and Biddle Model are represented diagrammatically in Figure 1.1.
Effective teaching empowers significant student learning about oneself, others, and the world in high-quality learning environments that embody a genuine sense of community. The National Council for Teacher Education (NCTE) has identified ten competency areas, five commitment areas and five performance areas. The competency areas are contextual, conceptual, content, transactional, other educational activities, developing teaching learning material, evaluation, management, working with parents, working with community and other agencies. The commitments to be internalized and put to practice are commitment to the learner, to community/society, to the profession, to knowledge/excellence and to values. The performance areas are classroom, school level, outside school, parent related and community related. These three areas taken together could very well be the guiding factors in assessing teacher effectiveness. How one deals with these factors and makes the best of given circumstances is determined by one's ability to process information and solve situation specific problems. The Multiple Intelligence Theory propounded by Dr Howard Gardner supports this view.
1.4 Theory of Multiple Intelligences:
In his landmark book, Frames of Mind: The Theory of Multiple Intelligences, Prof. Howard Gardner of Harvard University provided extensive research to support his contention that human intelligence is multifaceted rather than singular. Gardner later redefined intelligence as, “a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture”. He propounds that “Each person is a unique blend of dynamic intelligences which grow, expand and develop throughout life. Rarely do they work alone; rather intelligences are combined in our activities. One can enhance another.” Teaching students about their intelligence strengths helps them be self-advocates in their learning.

The areas of Multiple Intelligence identified by Gardner and others are:

1. **Verbal or Linguistic intelligence** includes processing and using oral / written information
2. **Logical or Mathematical intelligence** encompasses understanding mathematical concepts as well as logic and rationality
3. **Visual or Spatial intelligence** allows the processing of visual representations
4. **Musical or Rhythmic intelligence** includes sensitivity to pitch, melody, rhythm and tone.
5. **Kinesthetic or Bodily intelligence** uses information through touch, muscles, skin and balance to learn about the world.
6. **Intrapersonal intelligence** provides one with an understanding of one’s own needs and the capacity to satisfy those needs.
7. **Interpersonal intelligence** helps to understand and respond appropriately to others.
8. **Naturalistic intelligence** helps to relate to the environment.
9. **Existential or Spiritual intelligence** prompts one to ask why some alternatives are better than others and then to search for and weigh the evidence.

Referring to Effective Teachers, The National Policy on Education (1986) clearly highlights the need for the government and the communities to create conditions 'which will help motivate and inspire teachers on constructive and creative lines'. The policy further elaborates that 'teachers should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs and capabilities of and the concerns of the community'. (India, Ministry of Human Resource and Development, 1992). Therefore this study was decided upon to develop a profile of an effective teacher so as to help teachers build constructively and creatively those areas of Multiple Intelligences that have the most bearing on teaching effectiveness.

1.5 **Need for the Study:**

The need for the study is strongly felt to study the effect of Multiple Intelligence on Teacher Effectiveness so as to individualize the Training Programme for teachers according to their strong areas of Multiple Intelligence, help teachers to enhance effectiveness of teaching their special subjects by optimizing their strong areas of Multiple Intelligence, be of assistance to educational managers to choose the right candidate according to his strong areas of Multiple Intelligence, prepare a profile of effective teachers and help find methods of teaching employed by effective teachers.

1.6 **Statement of problem:**

The statement of problem is a declarative statement that gives direction to the research process. In this case the statement of the
problem is "STUDY OF THE RELATIONSHIP BETWEEN MULTIPLE INTELLIGENCE AND TEACHER EFFECTIVENESS OF SCHOOL TEACHER"

1.7 Definitions of terms used:
It is necessary to define terms used in the study to ensure that there is no ambiguity regarding the interpretation of terms. Terms used in the study are defined below:

Operational definitions

Multiple Intelligences:
Multiple Intelligences refers to the ability in following areas: verbal or linguistic intelligence, logical or mathematical intelligence, visual or spatial intelligence, rhythmic or musical intelligence, bodily or kinesthetic intelligence, intrapersonal intelligence, interpersonal intelligence, naturalistic intelligence and existential intelligence. The rating of the teachers on the multiple intelligence scale prepared by the researcher confining to the above definition is considered to represent their multiple intelligences

Teacher Effectiveness:
Teacher Effectiveness, in the study, refers to efficacy displayed by a teacher with relation to process variables, product variables and contextual variables of teaching. The rating of the students on the scale prepared by the researcher confining to the above definition is considered to represent their teacher effectiveness. This comprises process variables, product variables and contextual variables of teaching as given in the Figure No1.1. As only student perceived Teacher Effectiveness is considered, presage effectiveness has not been considered while defining Teacher Effectiveness.

Teacher:
Teacher in this study refers to a person who is at least a graduate in Arts or Science, professionally trained and teaching Classes VIII to X in schools attached to the Maharashtra S.S.C Board.
1.8 Objectives of the Study:
The study is undertaken with the aim to find whether the Multiple Intelligences of a Secondary School Teacher have any relationship with Teacher Effectiveness, and if so, then to find the extent to which such a relationship exists.
The objectives of the study are as follows:

1. To study the relationship between nine areas of Multiple Intelligence and Teacher Effectiveness of Secondary School teachers
2. To study the relationship between nine areas of Multiple Intelligence and Teacher Effectiveness of teachers from the Humanities faculty
3. To study the relationship between nine areas of Multiple Intelligence and Teacher Effectiveness of teachers from the Science faculty
4. To study the impact of the nine areas of Multiple Intelligence on presage variables of effective teaching
5. To study the impact of the nine areas of Multiple Intelligence on process variables of effective teaching
6. To study the impact of the nine areas of Multiple Intelligence on product variables of effective teaching
7. To study the impact of the nine areas of Multiple Intelligence on contextual variables of effective teaching
8. To compare teachers with high effectiveness and teachers with low effectiveness with respect to preference for using a particular teaching technique
9. To compare teachers with High Intelligence and Low Intelligence in a given area of Multiple Intelligence with respect to preference for using a particular teaching technique
10. To determine an equation to predict Teacher Effectiveness from the Multiple Intelligence scores
11. To develop a profile for an effective teacher against the background of their Multiple Intelligence

1.9 Hypotheses of the study:
Following were the null hypotheses formulated for the study:
1. There is no significant relationship between each area of Multiple Intelligence and Teacher Effectiveness.
2. There is no significant relationship between each area of Multiple Intelligence and the presage variables of effective teaching.
3. There is no significant relationship between each area of Multiple Intelligence and the process variables of effective teaching.
4. There is no significant relationship between each area of Multiple Intelligence and the product variables of effective teaching.
5. There is no significant relationship between each area of Multiple Intelligence and the contextual variables of effective teaching.
6. There is no significant relationship between each area of Multiple Intelligence and Teacher Effectiveness of teachers from the Humanities faculty.
7. There is no significant relationship between each area of Multiple Intelligence and Teacher Effectiveness of teachers from the Science faculty.
8. There is no significant difference in each area of Multiple Intelligence of teachers with respect to Teacher Effectiveness.
9. There is no significant difference in each area of Multiple Intelligence of teachers from Humanities faculty with respect to Teacher Effectiveness.
10. There is no significant difference in each area of Multiple Intelligence of teachers from Science faculty with respect to teacher effectiveness.
11. There is no significant difference between Multiple Intelligence of highly effective teachers and less effective teachers.
12. There is no significant difference between Multiple Intelligence of highly effective teachers and less effective teachers from Humanities faculty.

13. There is no significant difference between Multiple Intelligence of highly effective teachers and less effective teachers from Science faculty.

14. There is no significant difference between Multiple Intelligence of highly effective teachers and less effective teachers with respect to presage effectiveness.

15. There is no significant difference between Multiple Intelligence of highly effective teachers and less effective teachers with respect to process effectiveness.

16. There is no significant difference between Multiple Intelligence of highly effective teachers and less effective teachers with respect to product effectiveness.

17. There is no significant difference between Multiple Intelligence of highly effective teachers and less effective teachers with respect to contextual effectiveness.

18. There is no significant difference in the Classroom teaching techniques used by Teachers with High Effectiveness and Teachers with Low Effectiveness.

19. There is no significant difference in Classroom teaching techniques used by teachers with High Intelligence and teachers with Low Intelligence for different areas of Multiple Intelligence.

1.10 Variables involved in the study:
There are two major variables involved in this study viz. Teacher Effectiveness and Multiple Intelligence

Independent Variables:
The independent variables in the study are the nine areas of Multiple Intelligence of the teachers. viz. verbal intelligence, logical intelligence, visual intelligence, musical intelligence, kinesthetic intelligence,
intrapersonal intelligence, interpersonal intelligence, naturalistic intelligence and existential intelligence.

**Dependent Variables:**
The dependent variable is the Teacher Effectiveness. This variable is divided in four areas viz.

1. presage effectiveness
2. process effectiveness
3. product effectiveness and
4. contextual effectiveness

**Moderator Variables:**
The following moderator variables are taken into consideration in this study.

1. The type of school,
2. Level at which the teacher teaches,
3. Subjects taught,
4. Gender of the teacher
5. Medium of instruction

The job satisfaction of the teacher, working conditions, physical and mental health, motivational levels and aspirations of the teacher are important extraneous factors. It is not possible to eliminate such variables, but choice of sample was done cautiously to underplay the effect of such extraneous variables.

**1.11 Significance of the study:**

The results of the study will help prepare an effective teacher profile. This will be important to teachers to determine which areas of Multiple Intelligence influence effectiveness. The results of the study could be of use to Principals and Heads of schools to choose candidates bearing in mind their areas of strength. It will also help Heads of Institutions to formulate professional development programmes for the Staff on an individual basis so that they reach optimum levels in various areas of
Multiple Intelligences. The results offer another perspective of determining teacher effectiveness. So far factors as job satisfaction, school climate, gender, locality of school, work load have been extensively researched into to find their bearing on teacher effectiveness. Subjective factors as motivation, intelligence and self concept are more in the control of the teacher. If these affect their teaching effectiveness, something can be done to improve the same. Hence an effective teacher profile based on Multiple Intelligences will be a base for self improvisation. The study will reveal techniques used by effective teachers to serve as a guideline to teachers.

1.12 Scope and Limitations of the study:

1. This study covers teacher effectiveness and its component variables viz. presage, process, product and contextual effectiveness.

2. The study covers only Secondary School teachers teaching in schools following the S.S.C pattern of Maharashtra State Board of Education.

3. Teachers teaching P.T, Drawing, Computers or Craft only have not been included in the study.

4. Privately managed schools, both aided and unaided, have been included. No teachers from Government run schools are included in the study.

Self growth occurs when one has a clear perception of one’s strengths, weaknesses, assets and liabilities. Having this perception, working towards building up of potentials and minimizing of lacunae, will go a long way in becoming effective. This can be achieved through an understanding of one’s abilities and hence the Theory of Multiple Intelligences holds much value in Career Development.
CHAPTER TWO

REVIEW OF RELATED LITERATURE

Review of studies done in the area of Teacher Effectiveness primarily dealt with the relationship between Teacher Effectiveness and factors as job satisfaction, gender, work motivation, self concept, personality, intelligence and the like. Studies done in the area of Multiple Intelligence pertained to relationship between Multiple Intelligence and Career Development. Findings of only a few are quoted below.

Studies on Teacher Effectiveness and its correlates:

In the study entitled “A Study of Teacher Effectiveness and its Correlates at Higher Secondary stage in Eastern Uttar Pradesh”, Singh R.S (1987) reported that male and female teachers do not differ in their teaching effectiveness nor do they differ in their intelligence. Rural female teachers secured better teacher effectiveness scores as compared to their male counterparts while urban male and female teachers showed no such difference.

More R.T (1988) in study on “Relationship between Teacher Effectiveness, Teaching Aptitude and Personality traits” reported that six out of the sixteen factors of personality given by Cattell were found to be positively correlated with teacher effectiveness of which intelligence was the most important. Teacher Effectiveness and teaching ability have positive correlation. The total personality of the teacher had a bearing on effective or ineffective teaching.

In their study on “Rorschach Vignette of Effective and Ineffective Teachers’ Personality” Vasistha K. C and Verma Jagdish (1990) reported effective and ineffective teachers had sharp distinction in relation to the following personality traits namely emotional construction, dependency and difficulty in establishing close personal
relationship. Effective teachers were superior in emotional construction. Ineffective teachers had a comparatively poor type of introspection of their inner characteristics and potential.

Shah Beena’s (1991) study “Determinants of Teacher Effectiveness” showed Teacher Effectiveness was significantly affected by aptitude, intelligence, values, self concept, attitude, personality, job motivation, job satisfaction and school climate. Variables like locality, type of school, educational qualifications and experience also affected Teacher Effectiveness. Teacher Satisfaction with the nature of the work, working conditions, attitude towards work and students, adaptability, mental ability, intelligence and self concept were paramount determinants of Teacher Effectiveness.

Trevor Keny and Mandy Wilding (2000) listed some characteristics of effective teachers in their research based article “Effective Classroom Teacher – Defining Classroom Skills for the 21st Century”. These included the presence of professional values and practices, knowledge, understanding and professionalism, presence of school ethos and class management, ability to review teaching skills, innovative capacity, planning and target setting skills, mentoring and assessing ability, ability to maintain professional relationships and the ability to foster children’s meta-cognition.

Charles Clotfelter, Helen Ladd, and Jacob Vigdor (2002) estimated the effect of teacher qualifications on student achievement for fifth graders and found that if gifted students end up being taught by more qualified teachers, then estimates of the effect of teacher qualifications on student achievement are likely to be higher than if teachers and students were randomly assigned.
Studies on Multiple Intelligence (MI) and Careers:

Sandra Kekra (1991) in her study on Multiple Intelligences and Career development found that the use of MI theory can assist the career development and counseling. Awareness of one's MI strengths and weaknesses adds to the self-knowledge that is a prerequisite for successful career choice. Learners found that the self-discovery inspired by MI added multiple dimensions to the process of career choice.

Branton Shearer (1991), developer of MIDAS (Multiple Intelligences Developmental Assessment Scales) reported four very practical implications for applying MI to career planning, selection and development. (1) By providing a good match between the job tasks and an individual's MI strengths (2) Enhancing the strength and development of Intrapersonal intelligence (3) Career development will be enhanced when the parents, teachers, counselors, supervisors, peers and co-workers are aware and supportive of the growth of and individual’s particular strengths (4) The negative impact of the person's weaknesses on career success will be minimized when strengths are emphasized and employed to bridge over any significant deficits.

Gary A Gunst of Wayne State University (1996) conducted a study of multiple intelligences among teachers in Catholic elementary schools in Detroit. A non-experimental, descriptive research design used to determine teachers' use of multiple intelligences showed that teachers in this study tended to exhibit logical, interpersonal, intrapersonal and naturalistic intelligences. Teachers generally were not using verbal-linguistic intelligence. Teachers were aware of their strongest intelligence and provided instruction using that type of intelligence. However, teachers need to be able to move beyond their strongest intelligence and incorporate several approaches in classrooms where students have varying abilities, interests, and aptitudes.
An experiment was conducted in 2003 by Zydus School for Excellence, Ahmedabad. A Multiple Intelligence based learning environment was created by the teachers and the librarian and it helped the target group of 360 primary students in stimulation of various faculties of the brain and also boosted the child’s confidence level. This resulted in increase in the student achievement level due to gain of knowledge and application.

Thus a number of studies that were referred to help the researcher to frame the statement of problem, formulate hypotheses and devise suitable tools. The review of related literature gave an insight to embark on the study.
CHAPTER THREE

RESEARCH METHODOLOGY

Research involves several steps as formulation of problem, formation of hypotheses, selection of variables, development of tools, selection of sample, administration of tool, analysis of data, interpretation and drawing of conclusions. The objectives of the study, the hypotheses and the variables, as well as, the scope and limitations of the study are given in the first chapter. This chapter discusses in detail the methodology adopted for this study.

3.1 Methodology of the study:
This research is a cross sectional descriptive survey research. Surveys are often used to learn about people’s attitude, beliefs, values, demographics, behaviour, opinions, habits, desires, ideas and other types of information. Most surveys describe the incidence frequency and distribution of the characteristics of an identified population. A survey aims to gather data without any manipulation of the research context. It is non-intrusive and deals with naturally occurring phenomena. Since the researcher is interested in studying if the multiple intelligences of a teacher have any bearing on the teacher effectiveness, this study is also a correlational research. A correlational research attempts to determine whether and to what degree, a relationship exists between two or more quantifiable (numerical) variables. When two variables are correlated the relationship is used to predict the value on one variable for a subject if the subject's value on the other variable is known. This helps the researcher to develop the effective teacher's profile.

3.2 Sample for the study:
A sample is a small part of the population selected for observation and analysis. It must be selected systematically so that operation of
probability or chance can be utilized. In order to obtain an adequate sample of teachers the researcher collected a list of privately managed S.S.C schools from Mumbai suburbs, both for Marathi and English media. 35 schools, situated from Dadar to Palghar, were selected randomly from this list of schools. From each of these schools 10 teachers were selected randomly, teaching Languages, Social Sciences, Science and Mathematics to Classes VIII and/or IX. Teachers teaching Drawing, Craft or Physical Education only were not included in the selection. The final sample consisted of 300 Secondary School teachers, all minimum graduates, with a degree in Humanities or in Science and professionally trained. For each of the teachers, 10 students were selected again randomly from that school from either Class VIII or IX taught by the teacher bringing the student sample to 3000. These students rated their teacher with respect to teacher effectiveness.

Table 3.1  
Distribution of the sample

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<tr>
<th>STREAM</th>
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<td>Science</td>
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<tr>
<td>Humanities</td>
<td>159</td>
</tr>
<tr>
<td>TOTAL</td>
<td>300</td>
</tr>
</tbody>
</table>

3.2 Tools used in the study:
Tools were required to test Teacher Effectiveness and Multiple Intelligence. To prepare comprehensive and objective tools, the researcher studied a number of different types of tools. Taking into account the type of data required a rating scale was considered appropriate as rating scales give qualitative description of traits. The Teacher Effectiveness Scale was largely based on James’ Stronge’s Teacher Skills Rating Scale taken from his book ‘Qualities of Effective
Teachers'. The components for Teacher Effectiveness were adapted from the Dunkin and Biddle Model for Classroom Learning.

3.2.1 Rating Scale I for Teacher Effectiveness
This rating scale was designed to determine the process, product and contextual effectiveness of the teachers. It was to be responded by the students. To prepare this tool, statements to describe various components of process, product and contextual effectiveness were prepared. Seven experts, with teaching and administrative experience, validated the tool. Their suggestions were incorporated to prepare the final tool, a five point rating scale. The statements sought the degree to which the teacher exhibited a given trait. Students had to respond by selecting the most appropriate option; the five options being rarely, sometimes, often, almost always and always. The final comprised of total 45 statements- fifteen statements each for determining process, product and contextual effectiveness. At the end, an open ended question invited students to write the qualities in the teacher as perceived by the students. The reliability of the scale by Test – Retest Method was found to be 0.82.

3.2.2 Rating Scale II for Teacher Effectiveness
This rating scale was prepared to determine the presage effectiveness of the teachers. It was to be responded to by the teachers to rate themselves. For this scale statements describing presage effectiveness were formulated and validated by experts mentioned above. This too was a five point rating scale with 15 statements and was responded to as in case of Rating Scale for Teacher Effectiveness I described in 3.2.1 above. The reliability of the scale determined through Test-Retest Method was 0.837.

3.2.3 Rating Scale III for Multiple Intelligences:
A number of tools to ascertain Multiple Intelligence were referred to. A thorough study of components of each area of Multiple Intelligence was made. Statements were formulated to find Multiple Intelligence for the nine areas. Experts' opinion was sought for validating the tool. The final
tool consisted of 108 statements, 12 for each area of Multiple Intelligence. Test-Retest Method was employed to find the reliability. The respondent teacher had to rate each statement by selecting SD if the statement applied to a very small extent, D if the statement applied to a small extent, U if the statement applied to a moderate extent, A if the statement applied to a large extent, SA if the statement applied to a very large extent. The reliability of the scale determined by Test Retest Method was 0.705.

3.2.4 Rating scale IV for Methods of Teaching
The tool for teachers also sought information on their methods of teaching. Nine methods of teaching were listed. The respondent teacher had to select from the options never, rarely, sometimes, often and very often, according to how frequently he/she used the method. The teachers were free to add any other methods they used but were not contained in the list. Reliability of the tool was 0.97.

Thus, in all, four rating scales, one for students and three for the teachers were prepared. All the tools were translated into Marathi and experts were consulted to ensure that the translation did not change the meaning of the statements.

3.3 Pilot Testing:
Pilot Testing was carried out for a sample of a total of 35 teachers and 350 students from three schools. The experience of the Pilot run was useful to find which statements were difficult to interpret. Accordingly changes were made in the tools. The Pilot study was analyzed and this was useful to finalize on statistical tools that would be used in the analysis of the data of actual study.

3.4: Data Collection:
After preparation of tools and pilot testing, the next step in the study was collecting the data. The researcher visited the school, explained the purpose and nature of the study to the Principal. Thereafter a list of
teachers teaching Classes VIII and/or IX was drawn up from the teacher's muster. Ten students from each of these classes were chosen. Students were chosen by calling out any roll number at random.

3.4.1: Data Collection from Students:
All the students from one school were placed into one classroom and the researcher explained to them the purpose of the study. They were assured of total confidentiality with respect to any information they would be giving. The students were administered Rating Scale I for Teacher Effectiveness mentioned in section 3.2.1 above. Students were told to give their own, sincere ratings without being biased. The Rating Scale was responded to by the students in about 40 to 50 minutes. Students were invited to write qualities of the teacher evaluated in the blank space at the end of the rating scale.

3.4.2: Data Collection from Teachers:
The teachers from the same school were assembled in one place in the school and the researcher explained to them the purpose of the study. They were also assured of total confidentiality. The tools Rating Scale II for Teacher Effectiveness, Rating Scale III for Multiple Intelligence and Rating Scale IV for Methods of Teaching were given to each of the teachers. Each of the tools was generally completed in 30 minutes. In some cases teachers were given the tool and the responses were collected a day or two later. The responses of the students and teachers were scrutinized. Incomplete data was discarded. Scoring was followed by analysis.

Thus purposeful planning, detailed execution and careful analysis went into the whole survey trying to be as unbiased, objective and vigilant as possible so as to have a meaningful and useful survey. Visualization, critical thinking and discussion with experts who have worked on similar lines helped the process.
CHAPTER FOUR
ANALYSIS OF THE DATA

4.1 Introduction:
The tools for collecting data were utilized to collect data regarding Teacher Effectiveness and Multiple Intelligences of 300 Secondary School teachers. The collected data was scored, analyzed and subjected to appropriate statistical tests to test the hypotheses formulated. Analysis was basically done in two parts viz Descriptive Analysis and Inferential Analysis.

4.2 Statistical Methods Used:
The data was tabulated and the following statistical tools were used

1. Pearson’s Product-Moment correlation was used to find correlation between Teacher Effectiveness and different areas of Multiple Intelligences. The correlation between component areas of Teacher Effectiveness and different areas of Multiple Intelligence was also found.

2. ANOVA was used to test inter group significance of means

3. t value was used to find if the difference of means for each area of Multiple Intelligence of teachers with High Effectiveness and those with Low Effectiveness was significant. t test was applied to each component of Teacher effectiveness (presage, process, product and contextual) as well as to overall Teacher Effectiveness

4. t value was used to find which teaching techniques were used by teachers with High Effectiveness as compared to those with Low Effectiveness. t test was also used to find which methods were used to a greater extent by teachers high in a given area of Multiple Intelligence.

5. Multiple Regressions was used to find the best fit equation to predict Teacher Effectiveness from a given set of Multiple Intelligence scores.
Data analysis was done for separately for teachers from Science faculty and those from Humanities Faculty.

### 4.3 Abbreviations used in the study

The following abbreviations for frequently recurring terms have been used in the study

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**Teacher Effectiveness levels**

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**Multiple Intelligence levels**

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<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very High Multiple Intelligence</td>
<td>VHI</td>
</tr>
<tr>
<td>2</td>
<td>High Multiple Intelligence</td>
<td>HI</td>
</tr>
<tr>
<td>3</td>
<td>Low Multiple Intelligence</td>
<td>LI</td>
</tr>
<tr>
<td>4</td>
<td>Very Low Multiple Intelligence</td>
<td>VLI</td>
</tr>
</tbody>
</table>

**Scores in**

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Intelligence</td>
<td>a</td>
</tr>
<tr>
<td>2</td>
<td>Logical Intelligence</td>
<td>b</td>
</tr>
<tr>
<td>3</td>
<td>Visual Intelligence</td>
<td>c</td>
</tr>
<tr>
<td>4</td>
<td>Musical Intelligence</td>
<td>d</td>
</tr>
<tr>
<td>5</td>
<td>Kinesthetic Intelligence</td>
<td>e</td>
</tr>
<tr>
<td>6</td>
<td>Intrapersonal Intelligence</td>
<td>f</td>
</tr>
<tr>
<td>7</td>
<td>Interpersonal Intelligence</td>
<td>g</td>
</tr>
<tr>
<td>8</td>
<td>Naturalistic Intelligence</td>
<td>h</td>
</tr>
<tr>
<td>9</td>
<td>Existential Intelligence</td>
<td>i</td>
</tr>
</tbody>
</table>
4.4 Scoring of the responses
Before analysis of data, the responses to the rating scales were scored as follows:

<table>
<thead>
<tr>
<th>Teacher Effectiveness</th>
<th>Score</th>
<th>Multiple Intelligence</th>
<th>Score</th>
<th>Use of methods</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarely</td>
<td>1</td>
<td>SD</td>
<td>1</td>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>Sometimes</td>
<td>2</td>
<td>D</td>
<td>2</td>
<td>Rarely</td>
<td>1</td>
</tr>
<tr>
<td>Often</td>
<td>3</td>
<td>U</td>
<td>3</td>
<td>Sometimes</td>
<td>2</td>
</tr>
<tr>
<td>Almost always</td>
<td>4</td>
<td>A</td>
<td>4</td>
<td>Often</td>
<td>3</td>
</tr>
<tr>
<td>Always</td>
<td>5</td>
<td>SA</td>
<td>5</td>
<td>Very Often</td>
<td>4</td>
</tr>
</tbody>
</table>

4.5 Descriptive Statistics
Descriptive Statistics involved finding the mean, median, range and Standard Deviation of the data.

Table 4.1

<table>
<thead>
<tr>
<th></th>
<th>Presage Effectiveness</th>
<th>Process Effectiveness</th>
<th>Product Effectiveness</th>
<th>Contextual Effectiveness</th>
<th>TE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>54.04</td>
<td>57.02</td>
<td>56.1</td>
<td>58.1</td>
<td>171.52</td>
</tr>
<tr>
<td>Median</td>
<td>55</td>
<td>58.9</td>
<td>57.7</td>
<td>59.25</td>
<td>176.05</td>
</tr>
<tr>
<td>SD</td>
<td>9.97</td>
<td>8.79</td>
<td>8.66</td>
<td>8.43</td>
<td>25.2</td>
</tr>
<tr>
<td>SEM</td>
<td>0.58</td>
<td>0.509</td>
<td>0.50</td>
<td>0.487</td>
<td>1.455</td>
</tr>
<tr>
<td>N</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Range</td>
<td>24 to 73</td>
<td>22.2 to 72.3</td>
<td>22.4 to 69.7</td>
<td>25.2 to 72.4</td>
<td>72.3to213</td>
</tr>
</tbody>
</table>

In case of TE 72% cases fall between Mean-1SD and Mean+1SD. Hence the distribution was considered near normal.
Table 4.2
Classification of teachers on basis of scores of TE and component areas

<table>
<thead>
<tr>
<th></th>
<th>VHE</th>
<th>HE</th>
<th>LE</th>
<th>VLE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Presage Effectiveness</strong></td>
<td><strong>More than 64.3 (N=56)</strong></td>
<td>54.4 to 64.3 (N=96)</td>
<td>44.5 to 54.4 (N=90)</td>
<td>Less than 44.5 (N= 58)</td>
<td>N=300</td>
</tr>
<tr>
<td><strong>Process Effectiveness</strong></td>
<td><strong>More than 65.9 (N=41)</strong></td>
<td>57.2 to 65.9 (N=136)</td>
<td>48.5 to 57.2 (N= 84)</td>
<td>Less than 48.5 (N= 39)</td>
<td>N=300</td>
</tr>
<tr>
<td><strong>Product Effectiveness</strong></td>
<td><strong>More than 64.7 (N=45)</strong></td>
<td>56.1 to 64.7 (N=129)</td>
<td>47.5 to 56.1 (N= 83)</td>
<td>Less than 47.5 (N= 43)</td>
<td>N=300</td>
</tr>
<tr>
<td><strong>Contextual Effectiveness</strong></td>
<td><strong>More than 66.5 (N=41)</strong></td>
<td>58.1 to 66.5 (N=127)</td>
<td>49.7 to 58.1 (N= 91)</td>
<td>Less than 49.7 (N=41)</td>
<td>N=300</td>
</tr>
<tr>
<td><strong>TE</strong></td>
<td><strong>More than 196.7 (N= 40)</strong></td>
<td>171.5 to 196.7 (N=129)</td>
<td>146.3 to 171.5 (N= 88)</td>
<td>Less than 146.3 (N=43)</td>
<td>N=300</td>
</tr>
</tbody>
</table>

Table No 4.3
Basic statistics for TE of Teachers from Humanities faculty and Science faculty

<table>
<thead>
<tr>
<th></th>
<th>Humanities faculty</th>
<th>Science faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>169.9</td>
<td>173.2</td>
</tr>
<tr>
<td>Median</td>
<td>174.8</td>
<td>177.1</td>
</tr>
<tr>
<td>SD</td>
<td>25.4</td>
<td>24.8</td>
</tr>
<tr>
<td>SEM</td>
<td>2.02</td>
<td>2.09</td>
</tr>
<tr>
<td>N</td>
<td>159</td>
<td>141</td>
</tr>
<tr>
<td>Range</td>
<td>78.1 to 213</td>
<td>72.3 to 212.9</td>
</tr>
</tbody>
</table>

Table 4.4
Faculty wise Classification of teachers on basis of scores of TE

<table>
<thead>
<tr>
<th></th>
<th>VHE</th>
<th>HE</th>
<th>LE</th>
<th>VLE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Humanities Faculty</strong></td>
<td><strong>More than 195.5 (N=23)</strong></td>
<td>170 to 195.5 (N=72)</td>
<td>144.5 to 170 (N= 38)</td>
<td>Less than 144.5 (N= 26)</td>
<td>159</td>
</tr>
<tr>
<td><strong>Science Faculty</strong></td>
<td><strong>More than 198.1 (N= 22)</strong></td>
<td>173.3 to 198.1 (N=56)</td>
<td>148.5 to 173.3 (N= 47)</td>
<td>Less than 148.5 (N=16)</td>
<td>141</td>
</tr>
</tbody>
</table>
Table 4.5
Basic statistics for different areas of MI

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>35.70</td>
<td>38.76</td>
<td>35.50</td>
<td>35.43</td>
<td>37.35</td>
<td>37.39</td>
<td>39.49</td>
<td>45.77</td>
<td>43.16</td>
</tr>
<tr>
<td>Median</td>
<td>36</td>
<td>39</td>
<td>35.5</td>
<td>35</td>
<td>38</td>
<td>37</td>
<td>40</td>
<td>47</td>
<td>43</td>
</tr>
<tr>
<td>SD</td>
<td>7.58</td>
<td>6.85</td>
<td>7.31</td>
<td>9.69</td>
<td>7.46</td>
<td>7.15</td>
<td>7.38</td>
<td>7.40</td>
<td>7.58</td>
</tr>
<tr>
<td>SEM</td>
<td>0.44</td>
<td>0.4</td>
<td>0.42</td>
<td>0.56</td>
<td>0.43</td>
<td>0.41</td>
<td>0.43</td>
<td>0.43</td>
<td>0.44</td>
</tr>
<tr>
<td>N</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Range</td>
<td>19 to 55</td>
<td>20 to 60</td>
<td>14 to 53</td>
<td>12 to 59</td>
<td>15 to 57</td>
<td>21 to 55</td>
<td>17 to 55</td>
<td>23 to 60</td>
<td>20 to 59</td>
</tr>
</tbody>
</table>

Table 4.6
Classification of teachers on basis of scores of MI

<table>
<thead>
<tr>
<th></th>
<th>VHI</th>
<th>HI</th>
<th>LI</th>
<th>VLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>More than 43.2 (N=49)</td>
<td>35.7 to 43.2 (N=115)</td>
<td>28.2 to 35.7 (N=80)</td>
<td>Less than 28.2 (N=56)</td>
</tr>
<tr>
<td>b</td>
<td>More than 45.5 (N=44)</td>
<td>38.7 to 45.5 (N=112)</td>
<td>31.9 to 38.7 (N=101)</td>
<td>Less than 31.9 (N=43)</td>
</tr>
<tr>
<td>c</td>
<td>More than 42.8 (N=53)</td>
<td>35.5 to 42.8 (N=97)</td>
<td>28.2 to 35.5 (N=95)</td>
<td>Less than 28.2 (N=55)</td>
</tr>
<tr>
<td>d</td>
<td>More than 45 (N=44)</td>
<td>35.4 to 45 (N=103)</td>
<td>25.8 to 35.4 (N=101)</td>
<td>Less than 25.8 (N=52)</td>
</tr>
<tr>
<td>e</td>
<td>More than 44.7 (N=55)</td>
<td>37.3 to 44.7 (N=104)</td>
<td>29.9 to 37.3 (N=101)</td>
<td>Less than 29.9 (N=40)</td>
</tr>
<tr>
<td>f</td>
<td>More than 44.4 (N=50)</td>
<td>37.3 to 44.1 (N=96)</td>
<td>30.2 to 37.3 (N=104)</td>
<td>Less than 30.2 (N=50)</td>
</tr>
<tr>
<td>g</td>
<td>More than 46.7 (N=60)</td>
<td>39.4 to 46.7 (N=101)</td>
<td>32.1 to 39.4 (N=91)</td>
<td>Less than 32.1 (N=48)</td>
</tr>
<tr>
<td>h</td>
<td>More than 53.1 (N=50)</td>
<td>45.7 to 53.1 (N=118)</td>
<td>38.2 to 45.7 (N=79)</td>
<td>Less than 38.2 (N=53)</td>
</tr>
<tr>
<td>i</td>
<td>More than 50.6 (N=52)</td>
<td>43.1 to 50.6 (N=94)</td>
<td>35.6 to 43.1 (N=106)</td>
<td>Less than 35.6 (N=48)</td>
</tr>
</tbody>
</table>

These norms were used for all further analysis.
Table 4.7
Multiple Intelligences for Teachers with VLE, LE, HE, VHE

<table>
<thead>
<tr>
<th>Area of Multiple Intelligence</th>
<th>Mean for VLE (N= 43)</th>
<th>Mean for LE (N= 88)</th>
<th>Mean for HE (N= 129)</th>
<th>Mean for VHE (N= 40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal</td>
<td>34.7</td>
<td>34.9</td>
<td>36.4</td>
<td>37</td>
</tr>
<tr>
<td>Logical</td>
<td>37.1</td>
<td>38.9</td>
<td>38.8</td>
<td>40.1</td>
</tr>
<tr>
<td>Visual</td>
<td>34.5</td>
<td>35.4</td>
<td>35.5</td>
<td>37.2</td>
</tr>
<tr>
<td>Musical</td>
<td>34.5</td>
<td>34.5</td>
<td>36.2</td>
<td>36</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>35.4</td>
<td>37.6</td>
<td>38.7</td>
<td>38.1</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>36.7</td>
<td>36.2</td>
<td>38.1</td>
<td>38.3</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>37.47</td>
<td>38.61</td>
<td>40.16</td>
<td>41.48</td>
</tr>
<tr>
<td>Naturalistic</td>
<td>44.4</td>
<td>46.1</td>
<td>45.7</td>
<td>46.8</td>
</tr>
<tr>
<td>Existential</td>
<td>39.6</td>
<td>42.6</td>
<td>44.4</td>
<td>44.2</td>
</tr>
</tbody>
</table>

Graph 4.1
Comparison of Means of Multiple Intelligences of teachers having different levels of Teacher Effectiveness
VHE and HE teachers display higher means than VLE and LE teachers in all areas of Multiple Intelligences. This is most profound for Existential, Interpersonal and Logical Intelligences.

Pearson's Product-Moment of Correlation was calculated for finding the correlation between Teacher Effectiveness and each area of Multiple Intelligence. The formula used was

\[ r = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{N \sum X^2 - (\sum X)^2} \times \sqrt{N \sum Y^2 - (\sum Y)^2}} \]

\(\Sigma X = \) sum of mean Teacher Effectiveness scores of the four groups

\(\Sigma Y = \) sum of mean scores of Multiple Intelligence of the four groups

\(\Sigma X^2 = \) sum of the squared X scores

\(\Sigma Y^2 = \) sum of the squared Y scores

\(\Sigma XY = \) sum of the product of paired X and Y scores

\(N = \) number of paired scores

Table No 4.8

**Pearson’s Product Moment Correlation**

<table>
<thead>
<tr>
<th>Area of MI</th>
<th>TE</th>
<th>Presage Effectiveness</th>
<th>Process Effectiveness</th>
<th>Product Effectiveness</th>
<th>Contextual Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal</td>
<td>0.93</td>
<td>0.96*</td>
<td>0.97*</td>
<td>0.96*</td>
<td>0.88</td>
</tr>
<tr>
<td>Logical</td>
<td>0.93</td>
<td>0.99**</td>
<td>0.98*</td>
<td>0.89</td>
<td>0.92</td>
</tr>
<tr>
<td>Visual</td>
<td>0.96*</td>
<td>0.97*</td>
<td>0.94</td>
<td>0.81</td>
<td>0.8</td>
</tr>
<tr>
<td>Musical</td>
<td>0.8</td>
<td>0.97*</td>
<td>0.98*</td>
<td>0.85</td>
<td>0.44</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>0.9</td>
<td>0.98*</td>
<td>0.96*</td>
<td>0.95*</td>
<td>0.97*</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>0.7</td>
<td>0.99**</td>
<td>0.67</td>
<td>0.84</td>
<td>0.78</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>0.98**</td>
<td>0.986**</td>
<td>0.98*</td>
<td>0.94</td>
<td>0.97*</td>
</tr>
<tr>
<td>Naturalistic</td>
<td>0.91</td>
<td>0.97*</td>
<td>0.96*</td>
<td>0.89</td>
<td>0.76</td>
</tr>
<tr>
<td>Existential</td>
<td>0.96*</td>
<td>0.95*</td>
<td>0.98*</td>
<td>0.985**</td>
<td>0.983**</td>
</tr>
</tbody>
</table>

* \(p < 0.05\)  ** \(p < 0.01\)
In case of Teacher Effectiveness correlation is extremely significant for Existential, Interpersonal and Visual Intelligences. For presage effectiveness correlation is high in case of all areas of intelligence. In case of Process effectiveness high correlation is seen for Verbal, Logical, Musical, Kinesthetic, Interpersonal, Naturalistic and Existential Intelligence. Verbal, Kinesthetic and Existential Intelligence show high correlation with Product Effectiveness. Contextual Effectiveness is highly correlated with Kinesthetic, Interpersonal and Existential Intelligence.

The same procedure was repeated for Teachers from the Humanities group and from the Science Groups separately. It was seen that for teachers from the Humanities group there is high correlation between Teacher Effectiveness and all areas of Multiple Intelligence except in case of Visual, Naturalistic and Intrapersonal Intelligences. It was seen that for teachers from the Science group there is high correlation between Teacher Effectiveness and Logical, Intrapersonal and Interpersonal Intelligences.

4.6 Inferential Statistics:
Inferential Data Analysis involves the testing of hypotheses by employing various statistical tests. In this study t test and ANOVA were used. Analysis of Variance (ANOVA) makes it possible to determine with a single test whether the means of the four groups based on TE differ significantly. Another advantage in using ANOVA is that the Type I error (which results in rejecting a null hypothesis when it actually may be true) is reduced. ANOVA by comparing all four means simultaneously takes care of such an error. t test was used to find if means of two groups viz Teachers with VHE and teachers with VLE differed significantly in MI. Only a few hypotheses are mentioned below
Null hypotheses were formulated and tested using Student’s t –Test.

\[ t = \frac{X_1 - X_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} \]

Where \( X_1 \) = Mean Teacher Effectiveness Score of teachers with VHE
\( X_2 \) = Mean Teacher Effectiveness Score of teachers with VLE
\( S_1 \) = S.D of Teacher Effectiveness for teachers with VHE
\( S_2 \) = S.D of Teacher Effectiveness for teachers with VLE
\( N_1 \) = No of teachers with VHE, \( N_2 \) = no of teachers with VLE

**Hypothesis 1**: There is no significant difference in Multiple Intelligence of teachers with respect to Teacher Effectiveness.

This hypothesis was tested using ANOVA. The difference between means was significant at the 0.05 level for Logical and Interpersonal Intelligences and at 0.01 level for Existential Intelligence. Hence the null hypothesis was retained in case of all Intelligences except Logical, Interpersonal and Existential Intelligences. When ANOVA was repeated for teachers from the Humanities faculty it was seen that F value was significant only in case of Existential Intelligence at the 0.05 level. In case of teachers from the Science faculty it was seen that F value for Existential Intelligence was significant at the 0.01 level.

This means that there is significant difference in the Multiple Intelligence of teachers with respect to their Teacher Effectiveness in case of Logical, Interpersonal and Existential Intelligence.

**Hypothesis 2**: There is no significant difference in the Multiple Intelligences of teachers with Very High TE and teachers with Very Low TE.
Table No 4.9
Multiple Intelligences of Teachers with VHE and Teachers with VLE

<table>
<thead>
<tr>
<th>No</th>
<th>Type of Multiple Intelligence</th>
<th>Teachers with VHE $N_1$= 40</th>
<th>Teachers with VLE $N_2$= 43</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal</td>
<td>Mean: 36.97, SD: 7.02</td>
<td>Mean: 34.5, SD: 7.8</td>
<td>1.53</td>
</tr>
<tr>
<td>2</td>
<td>Logical</td>
<td>Mean: 40.12, SD: 6.76</td>
<td>Mean: 36.88, SD: 6.8</td>
<td>2.18*</td>
</tr>
<tr>
<td>3</td>
<td>Visual</td>
<td>Mean: 37.17, SD: 6.47</td>
<td>Mean: 34.5, SD: 7.47</td>
<td>1.76</td>
</tr>
<tr>
<td>4</td>
<td>Musical</td>
<td>Mean: 36.02, SD: 8.43</td>
<td>Mean: 34.45, SD: 10.09</td>
<td>0.75</td>
</tr>
<tr>
<td>5</td>
<td>Kinesthetic</td>
<td>Mean: 38.12, SD: 6.93</td>
<td>Mean: 35.61, SD: 7.66</td>
<td>1.57</td>
</tr>
<tr>
<td>6</td>
<td>Intrapersonal</td>
<td>Mean: 38.32, SD: 5.95</td>
<td>Mean: 36.88, SD: 6.8</td>
<td>1.03</td>
</tr>
<tr>
<td>7</td>
<td>Interpersonal</td>
<td>Mean: 41.47, SD: 5.27</td>
<td>Mean: 37.54, SD: 6.67</td>
<td>3.02**</td>
</tr>
<tr>
<td>8</td>
<td>Naturalistic</td>
<td>Mean: 46.75, SD: 7.7</td>
<td>Mean: 44.68, SD: 7.7</td>
<td>1.60</td>
</tr>
<tr>
<td>9</td>
<td>Existential</td>
<td>Mean: 44.17, SD: 5.9</td>
<td>Mean: 39.79, SD: 7.87</td>
<td>2.92**</td>
</tr>
</tbody>
</table>

* p < 0.05             ** p< 0.01

The difference in means of Teachers with High Effectiveness and those with Low Effectiveness is significant at 0.05 level in case of Logical Intelligence and at 0.01 level in case of Existential and Interpersonal Intelligence. Thus the null hypothesis is rejected for Logical, Existential and Interpersonal Intelligence. For all other areas of MI the null hypothesis is retained. Conclusively, teachers with VHE show higher Logical, Interpersonal and Existential Intelligence than those with VLE.

t values were calculated for presage, process, product effectiveness and contextual effectiveness. It was seen that:

- There is significant difference in the means for Teachers with High Process Effectiveness and teachers with Low Process Effectiveness in case of Verbal, Logical, Visual and Kinesthetic Intelligence at the 0.05 level and Interpersonal and Existential Intelligence at the 0.01 level.
Intelligence at 0.01 level. Therefore the null hypothesis is rejected for Verbal, Logical, Visual, Kinesthetic, Interpersonal and Existential Intelligence and accepted for the other areas of MI.

- In case of Product Effectiveness, significant difference in the means for Teachers with High Product Effectiveness and Teachers with Low Product Effectiveness was seen at the 0.05 level in case of Logical, Visual and Kinesthetic Intelligence and at the 0.01 level in case of Interpersonal and Existential Intelligence. The null hypothesis is hence rejected for Logical, Visual, Kinesthetic, Interpersonal and Existential Intelligence and accepted for the other areas of MI.

- The difference in means for Teachers with High Contextual Effectiveness and Teachers with Low Contextual Effectiveness was significant at the 0.05 level in case of Logical, Visual and Interpersonal Intelligence and at 0.01 level for Existential Intelligence. The null hypothesis is rejected for Logical, Visual, Interpersonal and Existential Intelligence and accepted for the other areas of MI.

- In case of Presage Effectiveness, the difference in means for Teachers with High Presage Effectiveness and Teachers with Low Presage Effectiveness was seen at the 0.05 level in case of Musical Intelligence and at 0.01 level in case of all other areas of MI. Hence the null hypothesis is rejected in case of all areas of MI.

Hypothesis 3:
There is no significant difference in the Multiple Intelligences of teachers with VHE and teachers with VLE from Humanities Faculty
### Table No 4.10
Multiple Intelligences of Teachers (Humanities) with VHE and Teachers (Humanities) with VLE

<table>
<thead>
<tr>
<th>No</th>
<th>Type of Multiple Intelligence</th>
<th>Teachers with VHE $N_1= 23$</th>
<th>Teachers with VLE $N_2= 26$</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Verbal</td>
<td>39.34</td>
<td>4.85</td>
<td>36.26</td>
</tr>
<tr>
<td>2</td>
<td>Logical</td>
<td>37.65</td>
<td>5.80</td>
<td>35.92</td>
</tr>
<tr>
<td>3</td>
<td>Visual</td>
<td>38.04</td>
<td>6.54</td>
<td>34</td>
</tr>
<tr>
<td>4</td>
<td>Musical</td>
<td>37.82</td>
<td>8.72</td>
<td>34.56</td>
</tr>
<tr>
<td>5</td>
<td>Kinesthetic</td>
<td>39.47</td>
<td>7.01</td>
<td>35.84</td>
</tr>
<tr>
<td>6</td>
<td>Intrapersonal</td>
<td>39.30</td>
<td>6.46</td>
<td>38.32</td>
</tr>
<tr>
<td>7</td>
<td>Interpersonal</td>
<td>41.69</td>
<td>6.96</td>
<td>38.08</td>
</tr>
<tr>
<td>8</td>
<td>Naturalistic</td>
<td>46.86</td>
<td>7.37</td>
<td>44.4</td>
</tr>
<tr>
<td>9</td>
<td>Existential</td>
<td>47.21</td>
<td>5.86</td>
<td>41.2</td>
</tr>
</tbody>
</table>

* p < 0.05   ** p< 0.01

For teachers from Humanities Faculty, the difference of means between Multiple Intelligences of Teachers with High Teacher Effectiveness and Teachers with Low Teacher Effectiveness is seen to be significant at 0.05 level in case of Visual Intelligence and at 0.01 level in case of Existential Intelligence. Hence the null hypothesis is rejected in case of Existential and Visual Intelligences at the 0.01 and 0.05 levels respectively. In case of all other types of Multiple Intelligences the null hypothesis is accepted. Therefore it can be concluded that Visual and Existential Intelligences of teachers with VHE are significantly higher than Visual and Existential Intelligences of teachers with VLE.
Hypothesis 4:
There is no significant difference in the Multiple Intelligences of teachers from the Science Faculty with Very High Teacher Effectiveness and teachers from the Science Faculty with Very Low Teacher Effectiveness.

**Table No 4.11**

Multiple Intelligences of Teachers (Science) with VHE and teachers (Science) with VLE

<table>
<thead>
<tr>
<th>No</th>
<th>Type of Multiple Intelligence</th>
<th>Teachers with VHE $N_1 = 21$</th>
<th>Teachers with VLE $N_2 = 16$</th>
<th>$t$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>1</td>
<td>Verbal</td>
<td>35.81</td>
<td>7.21</td>
<td>31.06</td>
</tr>
<tr>
<td>2</td>
<td>Logical</td>
<td>42</td>
<td>6.74</td>
<td>38.43</td>
</tr>
<tr>
<td>3</td>
<td>Visual</td>
<td>37.63</td>
<td>5.94</td>
<td>36.31</td>
</tr>
<tr>
<td>4</td>
<td>Musical</td>
<td>35.5</td>
<td>7.78</td>
<td>34.5</td>
</tr>
<tr>
<td>5</td>
<td>Kinesthetic</td>
<td>37.95</td>
<td>6.74</td>
<td>35.25</td>
</tr>
<tr>
<td>6</td>
<td>Intrapersonal</td>
<td>38.09</td>
<td>6.53</td>
<td>34.81</td>
</tr>
<tr>
<td>7</td>
<td>Interpersonal</td>
<td>41.8</td>
<td>5.49</td>
<td>36.93</td>
</tr>
<tr>
<td>8</td>
<td>Naturalistic</td>
<td>46.72</td>
<td>7.27</td>
<td>45.68</td>
</tr>
<tr>
<td>9</td>
<td>Existential</td>
<td>42.68</td>
<td>4.41</td>
<td>37</td>
</tr>
</tbody>
</table>

* $p < 0.05$  ** $p < 0.01$

For teachers from Science Faculty the difference of means between Multiple Intelligences of Teachers with High Teacher Effectiveness and Teachers with Low Teacher Effectiveness is seen to be significant at 0.05 level in case of Verbal and Interpersonal Intelligences and at 0.01 levels in case of Existential Intelligence. Hence the null hypothesis is rejected in case of Verbal and Interpersonal Intelligences at the 0.05 level and in case of Existential Intelligence at the 0.01 level. In case of all other types of Multiple Intelligences the null hypothesis is accepted.
From this it can be concluded that in Science Faculty, teachers with VHE show significantly higher Verbal, Interpersonal and Existential Intelligences as compared to teachers with VLE.

**Hypothesis 5:**
There is no significant difference in the extent to which Teachers with High Teacher Effectiveness and Teachers with Low Teacher Effectiveness use different techniques of teaching.

**Table No 4.12**

<table>
<thead>
<tr>
<th>Techniques of teaching used by Teachers with VHE and Teachers with VLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method / technique used</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Lecture</td>
</tr>
<tr>
<td>Games &amp; Activities</td>
</tr>
<tr>
<td>Demonstrations</td>
</tr>
<tr>
<td>Project work</td>
</tr>
<tr>
<td>Dramatization</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>Small Group Activities</td>
</tr>
<tr>
<td>Computer Aided Learning</td>
</tr>
<tr>
<td>Jingles and Songs</td>
</tr>
</tbody>
</table>

* p < 0.05  ** p < 0.01

Teachers with Very Low Effectiveness tend to use lecture method to a significantly greater extent than Teachers with Very High Effectiveness. In case of Computer Aided Instruction it is seen that extent to which Teachers with High Effectiveness use Computer Aided Instruction is significantly higher at the 0.05 level as compared to teachers with Low Effectiveness. Hence the null hypothesis is rejected in case of Lecture
Method and Computer Aided Instruction and retained in case of all other methods of teaching.

**Hypothesis 6:**
There is no relationship between the Multiple Intelligences of a teacher and the teaching techniques used by that teacher.
The t values for the difference in means regarding the extent to which teachers use a particular teaching method was found out. The findings are as follows:

1. Teachers high in Verbal Intelligence tend to use Jingles and songs to a significantly greater extent than those who are low in Verbal Intelligence.
2. In case of Logical Intelligence, teachers high in the area use Demonstrations, Project work, Small Group Learning activities and Computer Aided Learning to a greater extent. Teachers low in Logical Intelligence use Lecture method to a far greater extent than teachers who are high in Logical Intelligence.
3. Those high in Visual Intelligence tend to use Computer Aided Learning, Project Method, Small Group Learning activities and Demonstrations to a greater extent.
4. Teachers with higher Musical Intelligence use Games and Jingles / songs to a greater extent than those low in Musical Intelligence.
5. Kinesthetically gifted teachers tend to use Demonstrations and Small Group Learning activities to a greater extent than their less gifted counterparts.
6. In case of Intrapersonal Intelligence it was seen that teachers with higher Intrapersonal Intelligence tend to use Computer Aided Learning and Jingles/ songs to a larger extent.
7. Teachers with high Interpersonal Intelligence use Games, Dramatisation, Small Group Learning activities and Jingles/ songs to greater extent. However teachers with low
Interpersonal Intelligence tend to use more of Lecture method in their teaching.

8. Teachers high in Naturalistic Intelligence tend to use Demonstrations, Project Work, Dramatisation, Discussion and Computer Aided Learning to a greater extent than those low in Naturalistic Intelligence

9. Teachers having higher Existential Intelligence show more use of Games, Demonstration, Discussion, Small Group Learning activities, Computer Aided learning and Jingles/ songs. In fact those with high Existential Intelligence included a variety of interactive methods in their teaching.

**Multiple Regression Analysis** was used to find the equation that would best fit the data so that it would be possible to predict Teacher Effectiveness from Multiple Intelligence. Teacher Effectiveness was considered as the dependent variable. Scores for different areas of Multiple Intelligence were the predictor variables. It was verified that multi collinearity is not a problem. i.e all areas of Multiple Intelligence were independent of each other. An online statistical calculator was used for the purpose. The findings were as follows:

R squared = 8.1%. This value of R squared is was found to be very significant the level of significance being 0.0032

Adjusted R squared was 0.052  Multiple Regression = 0.2846

F = 2.8390  This is significant at 0.01 level.

The equation that would best fit the data:

Teacher Effectiveness (Predicted Score) = 135.87 - 0.08a + 0.116b - 0.095c - 0.136d + 0.348e - 0.159f + 0.327 g - 0.332 h + 0.864i

For teachers from Humanities section the equation of best fit is

Teacher Effectiveness (Predicted Score) =146.76 - 0.0104a - 0.2007b + 0.244c + 0.035d + 0.254e - 0.239f + 0.184g - 0.351h + 0.754i
For teachers from Science Faculty the equation of best fit is

Teacher Effectiveness (Predicted Score) = 121.44 + 0.358a + 0.1625b - 0.746c - 0.265d + 0.460e + 0.035f + 0.542g - 0.466h + 1.201i

All the above results from Multiple Regression helped to prepare a profile for an effective teacher.

Effective Teacher Profile based on MI: From the coefficients of the equations of Multiple Regression, MI profiles of effective teachers were drawn. Of all areas Existential, Kinesthetic, Interpersonal and Logical Intelligences appear to be most profound for effective teachers. In case of teachers from Humanities faculty Existential, Kinesthetic, Interpersonal and Visual Intelligences have a prominent share whereas in case of teachers from Science faculty Verbal, Kinesthetic, Interpersonal, Logical and Existential Intelligences have a prominent share.
CHAPTER FIVE
SUMMARY OF THE FINDINGS, CONCLUSIONS AND
EDUCATIONAL IMPLICATIONS

Findings of the Study:

Relationship between Teacher Effectiveness and Different areas of MI:

• Amongst the nine areas of Multiple Intelligence, the ones that have
  the most bearing on Teacher Effectiveness are Interpersonal
  Intelligence, Logical Intelligence and Existential Intelligence.

• Teachers with High Interpersonal, Existential and Logical
  Intelligences are more effective than those who are Low in the above
  mentioned Intelligences. The other areas of Multiple Intelligence do
  not show significant effect on Teacher Effectiveness.

Relationship between Process Effectiveness and Different areas of MI:

• Process Effectiveness as it may be recalled is the effectiveness of
  components that are a part of actual class room teaching and are
  directly involved with the interaction in a classroom. From the
  statistical operations done on the data, it is seen that Interpersonal,
  Existential, Verbal, Logical, Visual and Kinesthetic Intelligences show
  a high bearing on Process Effectiveness.

Relationship between Product Effectiveness and Different areas of MI:

• Product Effectiveness refers to Effectiveness of those components
  that are the effect of class room interaction on pupil’s learning. For
  example if the student is satisfied with the classroom interaction he/
  she may develop an interest in the subject or may study the subject
  readily. Product Effectiveness to an extent complements Process
Effectiveness. Analysis showed that for teachers who score high on Product Effectiveness, Logical, Visual, Kinesthetic, Interpersonal and Existential Intelligences are significantly higher than those teachers who score less on Product Effectiveness.

**Relationship between Contextual Effectiveness and Different areas of MI:**

- Contextual Effectiveness refers to those components that are not a part of actual classroom teaching and yet are an integral part of the teacher's role. This includes interaction with students and their parents outside class as the rapport shared by the teacher with students and parents contributes towards the achievement of the teacher's objectives of all round development of the students.

- It was seen that teachers with Very High Contextual Effectiveness were significantly higher than those with Very Low Contextual Effectiveness in Logical, Visual, Interpersonal and Existential Intelligences.

**Relationship between Presage Effectiveness and Different areas of MI:**

- Presage Effectiveness is that effectiveness with which a teacher enters a class. It includes the extent to which a teacher prepares before teaching, the planning that goes into choice of support material, the involvement of the teacher in planning evaluation, planning for correlation, involving oneself in professional growth. It is seen that teachers with High Presage Effectiveness have higher Multiple Intelligences in all areas as compared to those with Low Presage Effectiveness.
Methods of Teaching and Teacher Effectiveness:

- Analysis and statistical treatment of data shows that in most cases, there is no significant difference in the extent to which Teachers with High Effectiveness use a particular method as compared to the extent to which Teachers with Low Effectiveness use that method.

- One remarkable exception was the use of Lecture Method. It is seen that Teachers displaying Low Effectiveness use Lecture Method to a significantly greater extent as compared to teachers with High Effectiveness. It may be recalled that Verbal Intelligence of Teachers with High Effectiveness is higher than Teachers with Lower Verbal Intelligence. This means that despite having High Verbal Intelligence, teachers with High Effectiveness use Lecture method (a method linked with Verbal Intelligence) judiciously.

- It was also seen that Teachers with High Effectiveness show significantly greater use of Computer Aided Instruction when compared to their counterparts with Low Effectiveness.

Methods of Teaching and Multiple Intelligences:

- The relationship between use of different techniques of teaching and areas of Multiple Intelligence was studied. It was seen that for almost all areas of Multiple Intelligence Teachers who were Low in a given area of Multiple Intelligence tended to use lecture method to a significantly greater extent than their counterparts who were high in that Multiple Intelligence. There is some bearing between teachers' areas of high Multiple Intelligence and the use of teaching techniques.

- Those showing high scores in Verbal Intelligence used Jingles and Songs to a significantly greater extent than those who were low in Verbal Intelligence. Logically inclined teachers used Demonstrations, Project work, Small Group Learning and Computer Aided Techniques more than the others. High Visual Intelligence is linked to use of Demonstrations, Project work, Small Group Learning strategies and
Computer Aided Techniques. Musically inclined teachers reported
greater use of Games and Jingles and Songs in their teaching.
Kinesthetically gifted teachers used Demonstrations and Small Group
Learning to a greater extent than those not high on Kinesthetic
Intelligence. Teachers with high Interpersonal Intelligence showed
significantly greater use of Games, Demonstrations, Small Group
Learning and Jingles in teaching. Teachers with high Existential
Intelligence used Games, Demonstrations, Discussions, Small Group
Learning Strategies and Jingles to a significantly greater extent.

The tool to ascertain Teacher Effectiveness contained an open ended
section where students were invited to write some qualities of the teacher
being evaluated. A careful study of the same has revealed that teachers
who were found to be high on Effectiveness were those with motherly
qualities, ones who were impartial, ones who empathised with the
students. Students do not prefer teachers with double standards.
Generally students appreciate being corrected by their teachers. Teachers
who are normally accepted are ones who teach well, are reasonable in
their behaviour and treat all students equally. Acceptance of students by
teachers, the readiness to solve doubts and the amount of approachability
they exhibit is also important. On the other hand, biased teachers, those
who are rude in speech, those who criticize without respecting the
students' dignity are unpopular.

**Multiple Intelligence Profile of an Effective Teacher:**

Based on Multiple Regression coefficients, a profile for an Effective
teacher requires the teacher to be strong in Existential Intelligence,
Kinesthetic Intelligence, Interpersonal Intelligence and Logical Intelligence.
This would mean that the teacher displays moral integrity, has a sense of
commitment, is reflective by nature, bears an animated presence in the
class, is a good counselor, shares a healthy rapport with the students and
parents, plans teaching activities in detail, visualizes difficulties in learning
and prepares for the same, equips students with learning skills, is impartial and has concern for the student’s progress.

Conclusions:

- Existential, Interpersonal and Logical Intelligences are profound in teachers with High Effectiveness.

- Having High degree of Interpersonal Intelligence is conducive to Teacher Effectiveness. But the fact that even those with Low Teacher Effectiveness show high Interpersonal Intelligence could mean that they are probably not putting this trait to good use for teaching. This is supported by the fact that Intelligences should not be viewed per se, but rather as what these intelligences can achieve when used in the right perspective. With Higher Interpersonal Intelligence a person is able to understand others and communicate better. This seems to play a vital role in Teacher Effectiveness. The presence of High Existential Intelligence means the ability to ponder over life’s realities and pose reflective questions to oneself. Such people have a higher value system. This probably translates into concern over one’s actions and their implications. A person with High Existential Intelligence behaves responsibly and with commitment. They are generally God fearing and take their actions seriously. This may be a contributing factor to Teacher Effectiveness. Logical Intelligence which has significant effect on Teacher Effectiveness is the ability to understand cause-effect relationships. It also denotes a certain amount of orderliness and systematicness in one’s life. Logical Intelligence helps to work with hindsight, insight and foresight. These may be looked as vital contributory factors to Teacher Effectiveness. C. Branton Shearer’s study (1997) shares this view partly by identifying Logical, Interpersonal, Intrapersonal and Verbal Intelligence as areas will
indicate a full range of abilities required by many leadership situations.

- In a classroom there has to healthy interpersonal communication between the teacher and the taught. Mere verbal skills are not adequate. Concern for the taught, strong presence of teacher’s value system, planning that is brought about by Logical Intelligence are all the products of the presence of strong Multiple Intelligences.

- High Kinesthetic Intelligence results in appropriate use of bodily movements. An animated presence of a teacher adds to Process Effectiveness. This view has been supported by Pathak K.H (1998) where he found training in Dramatics enhances Teacher Effectiveness. The presence of strong Visual Intelligence could perhaps means that the teacher is well groomed. One also cannot overlook the influence of personal bearing on the mind of the child as they are in the adolescent stage.

- Product Effectiveness is most influenced by Interpersonal, Existential, Logical, Visual and Kinesthetic Intelligences. There is need for a teacher to think logically and anticipate what problems the student may encounter during learning. Hence such teachers help to build a problem solving attitude or they help students in setting goals. Presence of strong Existential Intelligence crystallizes into a deep sense of commitment which results in going beyond the call of duty to help students with respect to academic guidance. These teachers have shown a high score for Interpersonal Intelligence and take keen interest in the students’ welfare.

- Contextual Effectiveness is dependent upon Interpersonal, Existential, Logical, Visual and Kinesthetic Intelligences. Teachers with High Interpersonal Intelligence are able to relate well to parents and communicate relevant information regarding the students’ progress. With their High degree of Logical Intelligence perhaps they are able to help the students look at studies from a logical perspective. Also such
teachers automatically make better counselors. They create a warm and supportive classroom climate, advice in case of personal problems and interact with students even when out of class. They themselves are value oriented as is seen from their high Existential Intelligence scores. Such teachers nurture values in teaching. Such traits are valuable traits as they help the teacher in actualizing a more vital role namely that of a developer of Human Resources. Their enthusiasm due to High Interpersonal Intelligence is also a reason why students find them effective. Referring to the Theory of Conditioning, when students like a teacher they like the subject the teacher teaches and vice versa.

• All areas of Multiple Intelligence have an impact on Presage Effectiveness. Those with High Presage Effectiveness are good planners planning for details about correlation, evaluation activities. They update themselves regarding changes in their respective subjects, take the help of co teachers to enhance their effectiveness and are ready to attend sessions for upgrading their skills and knowledge.

• It is generally seen that Existential and Interpersonal Intelligences have a marked effect on Teacher Effectiveness. Kinesthetic, Verbal, Visual and Logical Intelligences seem to be the next group that have an effect on Teacher Effectiveness. Areas as Intrapersonal, Naturalisitic, Musical Intelligences seem to have the least impact on Teacher Effectiveness.

• Effective teachers make more use of Computer Aided Instruction. Less Effective teachers show a tendency to use Lecture Method to a greater extent.

• Teachers high in Multiple Intelligences took more efforts to plan their interaction techniques rather than just depending upon Lecture method. Teachers who reported lesser scores in different areas of Multiple Intelligence were found to be complacent in the use of one or
two techniques. More child centred methods were used by teachers who were high in Interpersonal, Existential and Kinesthetic intelligences.

**Implications:**
Significance of the study lies in the fact that the areas of Multiple Intelligence with a strong bearing on Teacher Effectiveness are evident. Methods used by effective teachers are also explicit. Effective teacher profiles drawn up help to know what Multiple Intelligences need to be strong. The equation to predict Teacher Effectiveness from Multiple Intelligence can also be used.

**Researcher's note:** The teacher needs to be positive and proactive, be a catalyst to help learners learn, to recognize when action needs to be taken and take it. They must also be patient and persistent. The teacher needs intuition, initiative and assertiveness and the ability to assess student needs. A well-balanced world and well-balanced organizations and teams, are necessarily comprised of people who possess different mixtures of intelligences. This gives the group a fuller collective capability than a group of identically able specialists. Multiple Intelligences have to be contextualized so as to be of optimum value. Reflection over the results of the study has given the researcher an insight that needs to be studied further. Effective teachers seemed to have a unique talent to make the right move at the right time. The researcher sees this as a kind of intelligence which she chooses to term as 'pragmatic intelligence'. The study has left her with a question: Could successful people in all walks of life possibly have such a pragmatic intelligence that facilitates the use of the right intelligence at the right time for right effect?
Suggestions For Further Study

The present study provides certain evidence regarding the critical role multiple intelligences play with respect to teacher effectiveness. Much more work is needed in this area. Some suggestions for further research are offered here in the context of the findings of the present study.

1. A study can be carried out to find if Multiple Intelligences can be enhanced through planned programmes.

2. Areas of Multiple Intelligences might support one another in enhancing Teacher Effectiveness. A study can be carried out to find the extent to which this is possible.

3. Job satisfaction, work attitude and job adjustment are dependent on several factors. A study can be undertaken to find whether Multiple Intelligences affect job satisfaction, work attitude and job adjustment.

4. A study can be carried out to find if developing comparatively weaker areas of Multiple Intelligence will effect a change in Teaching Methods followed by teachers.

5. Contextualization of Multiple Intelligences for optimum benefit can be probed into.

6. This study has developed an equation to predict Teacher Effectiveness from Multiple Intelligence. Similar studies can be undertaken to find an equation to predict Teacher Effectiveness taking Multiple Intelligences as well as other factors as job morale, job satisfaction.
The thesis will have the following chapters:

**Chapter 1: Study of the Problem:**
It will contain the conceptual bases for Teacher Effectiveness and Multiple Intelligence. It will detail the need for the study, the statement of the problem, definitions of various terms, aims and objectives, hypotheses of the study, significance of the study and the scope and limitations.

**Chapter 2: Review of Related Literature:**
This chapter will give the summary of research conducted in the area of Teacher Effectiveness. It will also contain studies pertaining to Multiple Intelligence in Career development. Some studies related to school settings are also included.

**Chapter 3: Design of the Study:**
This chapter will discuss the methodology, the sample, tools of research and process of data collection

**Chapter 4: Descriptive Data Analysis:**
In this chapter descriptive statistics will be used to treat the data. Graphs for comparison will also be included.

**Chapter 5: Inferential Data Analysis:**
Hypotheses will be tested using ANOVA, t test and Multiple Regression.

**Chapter 6: Summary:**
The findings and conclusions of the study will comprise this chapter. Profile of effective teacher will be drawn. Suggestions for further study will be included.

Relevant appendices in form of List of experts, List of Schools, Blank tools used for data collection, the data collected and the Bibliography will be included.