THE EFFECTIVENESS OF GARDNER’S MULTIPLE INTELLIGENCE THEORY ON TEACHING STRATEGIES OF SECONDARY SCHOOL TEACHERS PESHAWAR, PAKISTAN

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INSTITUTE OF EDUCATION AND RESEARCH
UNIVERSITY OF PESHAWAR – PAKISTAN
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Ph.D.

A thesis submitted to the Institute of Education and Research, University of Peshawar in partial fulfillment for the degree of

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UNIVERSITY OF PESHAWAR – PAKISTAN
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RANI GUL
DEDICATION

This Thesis Is Dedicated To
My family specially to my adored husband, who drives me through the valley of obscurity with light of trust, encouragement and support.

Rani Gul
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<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>Arts PROPEL</td>
<td>Production Perceptions and Reflection in Arts Education</td>
</tr>
<tr>
<td>B.Ed.</td>
<td>Bachelor of Education</td>
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<tr>
<td>CT</td>
<td>Certificate of Teaching</td>
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<tr>
<td>ESL</td>
<td>English as a Second Language</td>
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<td>F. Sc.</td>
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<td>FA</td>
<td>Faculty of Arts</td>
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<td>GPA</td>
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<td>IB</td>
<td>International Baccalaureate Association</td>
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<tr>
<td>INCFSE</td>
<td>India's National Curriculum Framework for School Education</td>
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<td>MA</td>
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<tr>
<td>MANCOVA</td>
<td>Multivariate Analysis of Covariance</td>
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<tr>
<td>METU</td>
<td>Middle East Technical University</td>
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<tr>
<td>MI</td>
<td>Multiple Intelligence</td>
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<td>MIT</td>
<td>Multiple Intelligence Theory</td>
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<td>MITA</td>
<td>Multiple Intelligence Teaching Approach</td>
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<tr>
<td>PBL</td>
<td>Problem-Based Learning</td>
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<td>Ph.D.</td>
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<tr>
<td>SAPI</td>
<td>Student Adjustment Problems Inventory</td>
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<td>UCLA</td>
<td>University of California at Los Angeles</td>
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<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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<td>UNICEF</td>
<td>United Nations International Children's Emergency Fund</td>
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<td>UNO</td>
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<td>United States Agency for International Development</td>
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<td>USDOE</td>
<td>U.S. Department of Education</td>
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ABSTRACT

The study was designed to investigate the levels of multiple intelligences of the secondary school teachers and its relation with the related teaching strategies. A comparative study of male and female secondary school teachers was conducted to explore the issue at hand. The objectives of the study were to investigate: levels of different multiple intelligences (MI) of secondary school male and female teachers: the teaching strategies related to different kinds of multiple intelligences used by secondary school teachers in rural and urban area and the correlation between the teachers’ levels of multiple intelligence and the teaching strategies related different Multiple Intelligence. Descriptive research design was used in the study. Through proportionate sampling technique, a sample of 253 male and female secondary school teachers was taken from rural and urban areas of district Peshawar. Two questionnaires were used in the study: the multiple intelligence questionnaire and teaching strategies questionnaire. T-test and correlation analysis was used for data analysis. No significant difference was found between male and female levels of Linguistic intelligence, Logical intelligence, Musical intelligence, Interpersonal intelligence, Intrapersonal intelligence, Naturalistic intelligence and Existentialistic intelligence except for Visual intelligence and kinesthetic intelligence. Similarly, no significant difference was found in urban and rural area secondary school teachers teaching strategies related with these nine multiple intelligences. Additionally, a significant positive correlation was found between linguistic intelligence, Logical Intelligence, Visual intelligence, Musical intelligence, Kinesthetic Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and the teaching strategies associated with these intelligences. This study suggested to consider multiple intelligence dimensions in the course curriculum at elementary and secondary level and provide suitable environment and facilities for the approach of scientific method, indoor and outdoor physical activities, independent projects, video presentations, teachers feedback on curricular and co-curricular activities and to train professionals how to plan, adopt various teaching strategies according to different dimensions of the students.
CHAPTER I

INTRODUCTION

In 21st Century, with a prompt development in technology, a rapid change has been seen in traditional teaching and learning process. Today, teachers are persistently challenged to build up their own thinking and teaching strategies to enhance students’ skills, attitudes and prepare them for the fast moving world (Skilbeck & Connell, 2004). Intelligence is considered a key element in the academic outcome of the students.

‘Intelligence’ being a psychological process is closely linked to learning, therefore, most educators take their decisions keeping in view this very notion (Khamis & Sammons, 2004). It has been a matter of hot debate among experts and academics to trace back the real meaning and tools with which ‘intelligence’ could be measured. According to H. Gardner, Kornhaber, and Wake (1996), the meaning of ‘intelligence’ could be attributed to the ancient Greek philosophers Aristotle, Socrates, and Plato, but some answers to basic questions about the nature of ‘intelligence’ and its measurement are still to be given.

The scientific study to define and measure ‘intelligence’ began, however, in the late 19th Century. Fancher (1985) indicated that all over the history, researchers and experts have seen intelligence as “a single element” which one possesses and which is unchangeable. This perspective brought about dependence on Intelligence Quotient (IQ) testing and pining for the most elevated positioning results. Weinberg (1989) stated that most psychologists and experts have focused their research studies on propounding theories or models of intelligence and devising psychometric tools that could be employed in the best possible manner to measure up intellectual capacity of an individual.

For quite a long time Thorndike and Spearman contended and mulled over whether knowledge was a general component or it is a combination of different elements. These specialists were trailed by other educationists and psychologists, for example, David Wechsler, J. P. Guilford, Jean Piaget, Robert Sternberg, and L. S. Vygotsky. Each endeavored to shed light on human knowledge and its development (Flanagan, Andrews, & Genshaft, 1997; Fogarty, 1998; Wechsler, 1975; Weinberg, 1989).
In (1983) in a book “Frames of Mind” Gardner proposed the Multiple Intelligence Theory, the more plural knowledge theory which was entirely not the same as the ordinary perspective. Gardner’s theory presented a different meaning to the term “intelligence” that constituted separate capacities. In contemplating intelligence, two notable issues have remained consistent: Teaching students according to their potential or assist them with their growing learning styles and focusing on teachers' capacity to watch divergences among students' learning styles or utilizing legitimate and concrete tests, and inventories in estimating results.

Gardner's Multiple Intelligence Theory (MI) presented intelligence as a set of different entities that works in collaboration with each other in order to carry a function. On one side, the theory studies and evaluates a person’s mental abilities, and on the other side, it assesses the processes and methods involved in the acquisition of knowledge and learning. It also paved the way to employ different teaching strategies, as each type of multiple intelligence has a variety of appropriate teaching strategies. By employing these strategies, teachers may enhance students’ performance in the class (Armstrong, 1999). The key element of this theory is that teachers can present knowledge in a way that is compatible with their type of intelligence.

Initially, Gardner proposed the presence of seven multiple intelligences but later on he added two more intelligences. The proposed intelligence incorporate Verbal-Linguistics Intelligence, Logical-Mathematical Intelligence, Spatial-Visual Intelligence, Bodily-Kinesthetic Intelligence, Musical intelligence, Interpersonal Intelligence, Intrapersonal Intelligence, Naturalistic Intelligence and Existentialistic Intelligence (Checkley, 1997; Gardner & Hatch, 1989).

Linguistic intelligence comprises the use of a language and words in understanding and expressing knowledge. This ability is used in speaking, reading and writing. Individual with a high level of linguistics intelligence might be a writer, a Lawyer, a poet or a speaker etc. The individuals who have high linguistics intelligence are interested in reading and writing. They learn well when they read or listen the content, they are good speakers and are best in spellings and vocabularies (Denig, 2004).
Logical-mathematical intelligence includes the utilization of coherent thinking and critical thinking. Logical-mathematical intelligence helps students to build up a comprehension of the learning content and apply this learning to practical circumstances. The individuals with high Logical-mathematical intelligence have the strong reasoning skill, they are good at analyzing issues and problems coherently and they are best in mathematical operations. E.g. accountants, mathematicians, scientists, programmers etc (Isaacs & Carroll, 1999).

Spatial/ Visual intelligence incorporates capacity of identifying a procedure that described the visual world. Puzzle solving, map reading, visualizing, imagining, and drawing all pull skills from this intelligence. Visual artists, interior designers, architect, mechanics, and engineers employ spatial intelligence in their creative or professional accomplishments (Denig, 2004).

Skills developed within musical intelligence include detection of pitch and tone, the establishment of rhythm, and recognition and remembrance of patterns within sounds. Convergent thinking, thinking that brings together information, in musical intelligence involves the identification of sounds and remembering melodies and rhythms. Divergent thinking, thinking which leads to novel idea and creativity, is exemplified in the creative composition of musical pieces. The individuals with high musical intelligence are mostly composers, band boards, and musicians etc (Shearer, 2004).

Denig (2004) stated that kinesthetic intelligence is the ability to utilize someone physically to accomplish tasks or communicate ideas. Kinesthetic intelligence directly relates to participant’s physical activities Expressive forms of kinesthetic intelligence include acting while task-oriented forms include athletics and tool use in crafting. Individuals with a high level of kinesthetic intelligence learn best by acting out on the learning content. Individuals with high kinesthetic intelligence are athletics, dancers, sculptures, surgeons, and carpenters etc.

Interpersonal intelligence is guided by the development of two essential attitudes: the capacity to see and recognize among different people and the capacity to intuit the feelings, points of view, and inspirations of others. This intelligence is described as understanding people, working with others, leading, communicating, selling, and
resolving conflicts - essentially the managing of relationships with other people. Teachers, mentors, leaders, social workers and counselors are among those who possess interpersonal intelligence with high level (Shearer, 2004).

The capacity to understand one’s inner-self lies in intrapersonal intelligence. The individual with high intrapersonal intelligence constitutes the ability of identification of own strengths and weaknesses, objective setting, self-checking and remedy, and accurate self-evaluation. Such type of individual is of introspective nature and they are good in solving their problems by their own. Individuals with high intrapersonal intelligence are a psychologist, writers, therapists, poets and counselors etc (Gardner, 1999).

Discriminating and understanding the natural world and living things within the natural world are described as naturalistic intelligence. Skills involved in this intelligence include identifying and distinguishing differences among plants, animals, rocks, and other natural things. Classification and taxonomy of organisms, recognition of ecological systems, and decipherment of organism behaviors are a few of the many processes requiring naturalistic intelligence. The people with high naturalistic intelligence are good in plants and animal care. They are sensitive towards nature. For example, gardeners, zookeepers, biologists, farmers etc (Shearer, 2004).

The existentialistic intelligence includes the skill of finding one’s own self as for the utmost scope of the universe. The individuals with high existentialistic intelligence constitute the ability to use their six senses and values in understanding the people and the world around him. Individuals who have a high level of existentialistic intelligence, mostly show interest in the realities of life, they think about the people and society around them, they try to get access to the actual truth behind an issue. Philosophers, life coaches, theologians are considered to have existentialistic intelligence (Gardner, 1999).

As a result of many years’ experiments, Howard Gardner, and his team designed a project to investigate the application of multiple intelligence theory. The project was named as project zero. The Project Zero's aim was to develop understanding and enhance learning through thinking, and creativity. Initially, the project zero team applied the theory of multiple intelligence on school students. According to Gardner (2000), instant outcomes showed that students learning and their academic performance can be boosted by
applying the theory of multiple intelligence into the teachers’ training programs and course curriculum. It is imperative for the teachers to devise and improvise different ways and means during teaching–learning process which should make their teaching more effective, facilitating their students at every step.

In developed countries the theory has become a source of inspiration for many educators in organizing their schools and a number of books have been written on the same theory (Armstrong, 2000; Dickinson, Campbell, & Campbell, 1996) and a huge number of articles have been published on the application of the theory (L. Campbell, 1997; Checkley, 1997; Goodnough, 2001; Hatch, 1997; Hickey, 2004; Shearer, 2004). Most of this research focused on the elementary school level (Armstrong, 1993, 1994; B. Campbell, 1992, 1994; J. P. Campbell, 1996; Grow, 1995; M. Kornhaber & Fierros, 2000; Lazear, 2000). A few research studies (Armstrong, 1998; Brooks, 1995; Evans, 1995; Grow, 1995; McClaskey, 1995; Teele, 1996; Tucker & Warr, 1996) have focused on the secondary school level and ESL learners and teachers, but no sufficient work has been done on applications of the theory in the field of education, particularly in teaching line, in developing countries so far.

Gardner’s work (1983) encouraged the use of multiple intelligence teaching strategies that are student-centered rather than teacher-centered. The use of teaching strategies based on multiple intelligences can lead students towards creative learning and conceptual understanding, also it can help students to recognize and use their own cognitive strengths. Several research studies (Denig, 2004; Ozdener & Ozcoban, 2004; Thompson & Thornton, 2002) have been conducted in social science courses and their findings indicated that the use of MI teaching strategies improved student performance.

According to Jordan, Lindsay, and Stanovich (1997), MI application revealed that a single individual can use at least four intelligences among all nine bits of intelligences in his daily routine. In a single class, some students face difficulty in the subject of Mathematics, others in literature reading; some remain quite when called upon for an answer or to talk before the class; others perform awfully in the class of physical education and the rest want to work in a group. In order to deal the students effectively, the majority of the teachers are more inclined to comprehend the significance of using the
approach of multiple intelligences. As per Al-Balhan (2006), there is not a single and outright way in teaching that could ensure comprehensive development of an individual learner. In the process of teaching, the teachers need to identify and determine ‘what’ and ‘how’ to teach to their students.

Armstrong (1999) contended that the theory of Multiple Intelligences offers instructors some relevant methods to distinguish diverse abilities of the students and empower them in attaining success in each phase of their learning. It also paved a direction for engaging various teaching plans, as each type of intelligence constituted an apt array of different teaching strategies. Similarly, Saban (2002) stated that the Multiple Intelligence (MI) is the most important theory which provides school teachers a multidisciplinary approach for transmitting different concepts to their students. The basic essence of this theory lies in its application for sustainable skills, for learning and teacher’s capacity building. Individuals should be encouraged to develop skills in those intelligences in which they have strengths. A study conducted by Ozdermir, Guneysu, and Tekkaya (2006), suggested that the correlation of multiple intelligences with their associated strategies of teaching strongly matter in the students’ academic performance, the success of learner and long-term learning.

The MI theory enables the teachers to help each other in developing lesson plans, subject contents, and chapters’ exercises. Tytler, Waldrip, and Griffiths (2004) argued that the best way to explain the cogency of the lesson of a subject can be achieved by a well-described set of techniques and skills that teachers possess best, directing to the scope of teaching modes and techniques chosen in the classrooms by teachers. Some of the research studies (Bilgin, 2006; Budge, 2006; Koh, Khoo, Wong, & Koh, 2008; Lin, Sundaram, Chi, Tatemura, & Tseng, 2006) have focused on MI teaching strategies alone in comparison to lecture.

The findings of a study reported the association between teaching styles and MI profile of instructors and inferred that variables, for example, the interpersonal, naturalistic and spatial/visual intelligences have an awesome effect on the teaching process of the teachers. The theory of multiple intelligences provided an opportunity and assistance to school teachers to utilize cohesive teaching strategies and instructional exercises that are
incorporated in order to learn the preferences and learning style, to approach the distinctive needs of students according to their levels of intelligences (Serin, Serin, Yavuz, & Muhammedzade, 2009).

It is observed from the studies mentioned above that a large number of research studies have been conducted in developed countries, in the researcher-subject area, but in Pakistan, no such particular study has been conducted so far to the best of researcher’s knowledge. Recently, Pakistani educators have been looking for new ways of improving their educational system to meet the needs of teachers and students of the 21st century (Fullan & Watson, 2000). The current research may introduce for discussion a new theory to be applied at all stages in the system of education in Pakistan. The Researcher realized that many countries in the world applied MI theory in their education systems, but no one has initiated research about Multiple Intelligences in Pakistan. The current study may assist policy makers and educators to consider Multiple Intelligence theory in promoting an effective teaching learning system.

1.2 Theoretical Framework

The study is grounded in the theoretical framework of Multiple Intelligence Theory presented by Gardner in 1983. All over the history, scholars and researchers have seen intelligence as a solitary unit that is inborn and which can't be changed. This perspective brought about dependence on Intelligence Quotient testing and craving for the most elevated ranking consequences. Since 20th Century, intelligence has been examined, interpreted and perceived by most of the researchers as being consisted of only two types of intelligence: linguistics intelligence and logical-mathematical intelligence. Gardner proposed a new approach, into the constricted center of IQ, as the particular way to measure intelligence. Gardner's (1983) Multiple Intelligences Theory was first proposed as a psychological concept used to explain differences seen in brain development and organization among individuals that result through different ways of observations, thinking and understanding. Educational implications of multiple intelligence soon followed (Gardner & Hatch, 1989).
The idea that Multiple Intelligence might provide a basic foundation in the process of learning was presented by Howard Gardner in 1983. He scrutinized the conventional measurement of intelligence and broadly utilized particular Intelligence Quotient scale. Originally, MI theory included seven intelligences, but later on, Gardner included two more intelligences: naturalistic and existentialistic intelligence. Gardner (1993) believed that an individual is born with a certain profile, but will likely, over time, develop a different profile. He states that each person possesses all nine intelligences, which works relatively independently of one another in a complex way.

Gardner (1993) stated that MI Theory supports the idea that intelligence can be taught. Armstrong (1999) believes that some people function at extremely high or low levels in all or the greater part of the eight intelligence (ninth intelligence was included later); be that as it may, the vast majority are very developed in few intelligence, less developed in others, and moderately immature in the rest. A majority of the people have the skill to enhance the level of all intelligence to a sufficient level of competency if they are given suitable support, boost, and guideline.

In the field of teaching, different approaches are implemented to mediate the difficulties involved in teaching and enhance student learning by addressing the various needs of students. The idea of incorporating multiple intelligence teaching methods into a course curriculum is a crucial element in the Theory of Multiple Intelligences. Several studies have suggested the use of multiple intelligence teaching strategies to improve student performance in science courses (Denig, 2004; Ozdener & Ozcoban, 2004; Thompson & Thornton, 2002). Several other studies also described increases in students’ achievement with the use of MIT. Koksal and Yel (2007) investigated the effect of multiple intelligence based instruction on student attitudes towards the course, student educational achievements and student retention of information in a biology course. previous studies on the theory of multiple intelligence reflecting variables of gender lead by (Abaci, 2007; Durmaz, 2005; Elibol, 2000; Katranci & Bozkuş, 2014; Ozdermir et al., 2006; Peduk & Baran, 2009). In which naturalistic, interpersonal variables and spatial/visual showed a momentous foretelling on teaching strategies and styles. However, the verbal/linguistic,
intrapersonal, bodily/kinesthetic, logical/mathematical, musical/rhythmic variables represented no expressive possessions on teaching strategies and styles.

Mujahid (2008) revealed in his study that the teaching strategies used in Logical-mathematical and Intrapersonal intelligence are varying. Similarly, in Highland, McNally, and Peart (1999) and Al-Khatib and Hamza (2009), studies also highlighted the necessity of taking into account the kinds of MI achieved by learners, choosing the most suitable strategy and involvement of learners in the selection of instructional strategy to fit their MI deliberately.

1.3 Significance of the Study

With the increasing popularity of theory of multiple intelligence, the current study was carried out to investigate teachers’ levels in different multiple intelligence and the teaching strategies they were using in their classrooms. In order to enable the teachers, to adopt the most appropriate teaching strategies according to their level of intelligence, the current study also aimed to determine the relation between teachers’ levels of multiple intelligences and their teaching strategies.

The idea of incorporating the teaching strategies associated with intelligence into a course curriculum is a key point in Howard Gardner's Multiple Intelligence Theory (MIT). According to Simon and Goes (2011), through education, facts and figures are transmitted into the mind of the learner and teaching is the way through which such awareness is made by molding and transmitting this information. In the process of teaching, there is not a single and fix technique to use. Keeping in mind the goal to give a proficient learning system, teachers ought to utilize the most suitable and dependable strategy by noticing and perceiving students' interest, strength, enthusiasm and learning capacity.

The theory of Multiple Intelligences (MI) furnishes teachers with some functional ways to deal with distinctive potential of every student and empower students to be more effective in each part of the learning. Rockwood (2003), stated that literature shows that in the majority of schools’ linguistics intelligence and logical intelligence are reflected as the foundation for learning and understanding. But in fact, all the students are not good in
these two dimensions. Students with other potentials may learn best by other means of intelligences rather than these two intelligences. The theory of Multiple intelligence enables the teachers to bring diversity in their teaching techniques according to the potentials, needs, and interests of their students’. Teachers might ensure students a high level of performance and achievement if they integrate the different teaching techniques that are associated with these multiple intelligences.

This study is significant because it will help teachers see that all students are not the same and that they could learn the same material by doing different assignments or learning through different instructional techniques rather than everyone doing the same thing or using the same instructional strategies in all classes. Teachers have always looked at student learning needs and styles. It is more how we think than how we learn. If teachers recognized their different intelligence and their levels then they might produce a number of instructional techniques, activities according to the necessities of their students. It is important to note that it would be near impossible to come up with a paper and pencil test for each of the intelligence, because by doing that you are limiting to that student who has strong linguistic skills. Therefore, the study was conducted to expand the understanding and utilization of Multiple Intelligence Theory in teacher’s population.

Main elements of multiple intelligence related teaching are: (1) infatuation and interest for the outer environment (2) logical thinking (3) initiative for new content of learning (4) vision and expertise (5) nobility and patience with the beliefs (6) intense inspections. The current study required investigating the levels of Multiple Intelligence of Secondary School Teachers in Pakistan. The most potential benefit of it was that it might affect their self-efficacy beliefs in general. Furthermore, knowing MI profiles provide insights into how a teacher might increase personal achievements and improve performance. As John Dewey claims, "There is a close and essential bond between a process of definite practice and education” (Gardner, 1983).

By identifying their strengths, teachers would not only work hard by utilizing their strong intellect but would also work with other subject teachers in developing the, subject materials, units and lessons. For example, a teacher with a strong visual and logical
intelligence may work with the Art and Math’s teachers in developing the art and mathematical activities.

The study might provide skills to the teachers to identify and better understand the individual differences which might enable them to adopt teaching strategies that are more appropriated with the students who are different in their levels of multiple intelligence. The Multiple Intelligence Theory also provide a platform to curriculum developers, instructors, and parents to assess and deal the students learning, teaching process, and assessment process in a different way.

This study has also focused on examining the correlation between the strategies of teaching teachers of secondary schools used in their classes and their level of Multiple Intelligence. It might enable the school teachers to make the main points and contents of the lesson more comprehensible, and to enhance the lessons and emphasize learning by making the students learn with realistic and fascinating ways.

MI theory has been integrated into a range of content exercises at primary, the elementary and secondary level of education, to enhance student’s results (Koksal & Yel, 2007; Ozdener & Ozcoban, 2004; Ozdermir et al., 2006). However, the literature failed to provide research data related to the distribution of MI and their impact on teaching strategies in Pakistan to the best of researcher knowledge, so the study might attempt to fill some of the gaps in the research on Multiple Intelligences in Khyber Pakhtunkhwa, Pakistan.

As stated by Seefchak (2008), “Before I finish, there is neither right nor wrong with the multiple intelligence theory itself; the solution is to realize and implement the most constructive method for students” (Seefchak, 2008, p. 18). In addition, this study might raise questions that other Pakistani researchers might consider by using MI for further research.

To conclude the overall introduction, it must be said that in order to form a connection between different types of intelligence and strategic instructional strategies and to determine a view of instructors with respect to teaching strategies, teachers must have the
understanding and some broad foundation information of the theory of multiple intelligence. The Multiple Intelligence Theory, presented by Howard Gardner (Deutch & Smith, 2002; Gardner, 1983, 1996; Hamilton & Brunaldi, 2007) built up a diverse method of teaching through intelligence, preceding the restricted school vision, which is highlighted on accomplishment in the linguistics intelligence and logical-mathematical intelligence (Abbott & Ryan, 1999). Integrating the multiple intelligence related teaching strategies at secondary school teaching level can ensure the addressing of all the intelligence of the students.

However, the verbal/linguistic, intrapersonal, bodily/kinesthetic, logical/mathematical, musical/rhythmic variables represented less expressive possessions on teaching strategies. The ranges of different intelligence, hypothesis, and teaching methods are explored in literature, yet there is restricted literature which provides data about distribution of multiple intelligences among secondary school teachers and its impact on the teachers’ instructional strategies in Pakistan, so the study was attempted to fill some of the research gap in the field of multiple intelligence in Khyber Pakhtunkhwa, Pakistan.

The current study has also focused on determining teaching strategies used by secondary school teachers in the rural and urban area. In literature no significant research studies have been conducted on the multiple intelligence teaching strategies in the rural and urban area so far, thus the study might be a great contribution for the researchers. The study would help secondary school teachers to understand their own profiles and could provide potentially new insight and awareness of their own unique capabilities. Armstrong (1999) argues that the Multiple Intelligences (MI) theory offers instructors some reasonable techniques to identify the differing abilities of each student and assist them to get achievement in each learning phase. It also paved a direction for engaging various teaching plans, as each type of multiple intelligence has an apt array of instructional strategies.

1.4 Statement of the Problem

It was observed that in Pakistan mostly secondary school students lack conceptual understanding. One of the reasons for lacking conceptual learning could be obsolete
teaching strategies used by the teachers. These strategies were not appealing for the students in attaining the desired level of learning. The literature showed that there are several theories (Krapp, Hidi, & Renninger, 1992; Schiefele, 1978) which were characterized by methods to incorporate student’s interest (Krapp & Prenzel, 2011). Howard Gardner presented one such theory named Multiple Intelligence (MI) Theory. In advanced countries, teaching strategies aligned with this theory are already gaining popularity and have been adopted. However, there was a need to determine how such teaching strategies attributing to MI might facilitate the learning process and make teaching more effective particularly in Pakistan. According to Multiple Intelligence Theory, every individual possesses different types of nine multiple intelligence and levels of these multiple intelligence vary from an individual to individual. It was essential to promote the understanding of Multiple Intelligence Theory in teacher’s population and then probe the MI relationship among different levels of MI and teaching strategies. Thus, the study was conducted to investigate the levels of different multiple intelligences of the secondary school teachers and its effectiveness with the related teaching strategies.

1.5 Objectives of the Study

The study has followed the following objectives:

i. to explore the effectiveness of Gardner’s multiple intelligence theory on teaching strategies of school teachers.

ii. To recognize levels of different Multiple Intelligences (MI) of secondary school male and female teachers in the sample area.

iii. To evaluate the teaching strategies related to different types of Multiple Intelligences used by secondary school teachers in the sample area.

iv. To investigate the correlation between the teachers’ levels of different Multiple Intelligence and teaching strategies related to different kinds of Multiple Intelligences of secondary school teachers.
1.6 Hypotheses Tested

Hypotheses of the study were the following:

H0: There is no significant difference between male and female levels of multiple intelligence;

H0: There is no significant difference between the teaching strategies used by secondary school teachers in rural and urban area;

H0: The correlation coefficients of the teacher’s levels of different multiple intelligence and the teaching strategies, are not significantly different.

1.7 Delimitation of the Study

Due to time, money and resources constraints the study was delimited to:

- District Peshawar
- Secondary level
- Session 2015-16.

1.8 Definition of the Terms

i. Intelligence: The mental capability to resolve problems and developed products that are esteemed inside one or more social backgrounds.

ii. Multiple Intelligence: An acknowledgment of strengths that every person possesses and affirms that intelligence has various forms. Howard Gardner is the pioneer of this theory, there have been 9 types of intelligences identified so far.

iii. Teaching Strategies: Techniques and applications used in the teaching learning process, i.e. teaching skills to impart knowledge.
iv. Conceptual Understanding: A measurement of how well students understands the material presented in a course.

v. Curriculum. The course content included in the subject matter that is being taught to the students.
CHAPTER II
LITERATURE REVIEW

In this section, a discussion of multiple intelligence theory, its historical perspective, the types of intelligence included, and a brief discussion about teaching strategies associated with each type of intelligence, trailed by research studies on multiple intelligence and its impact on teaching learning process.

Intelligence being a psychological notion contains the dynamic thought capacities, correspondence, understanding, thinking, arranging, learning, feeling and critical thinking. There are some intelligence notions have also detected in animals and plants. The notion of Intelligence has been studied by different researchers and scholars, and various definitions and theories have been offered amid the previous 300 years. It has been examined since late nineteenth and mid-twentieth century, and numerous assumptions have been made to characterize and to gauge human intellectual abilities.

The inquiry to comprehend the marvel of human intelligence and how to saddle it has been a noteworthy quest for psychologists and educationist for over a century. There is much in the literature concerning intelligence and IQ testing, however, the literature regarding research on multiple intelligence in the area of teaching, is still in its earliest stages.

2.1 Historical Perspective of Intelligence Theories and Their Measurement

Intelligence has the ability to learn and present. As intelligence aptitudes constitute a cognitive base, so at any stage and nearly at any capacity level, intellectual operations can be improved. In order to strengthen intelligence skills, a wide range of exercises can be performed.

Mostly, practice makes a person perfect. Through many ways, we can learn to be more intelligent and on further levels of our being. Intelligence being a multi-dimensional miracle develops at multiple levels of our mind system. Through many approaches we get knowledge, we perceive and process the information. To designate these multi-perceptive dimensions, Howard Gardner, devised the phrase "Multiple Intelligence". His research studies proposed that all humans have at least nine intelligence areas. Additionally, in
Frames of Mind (1985) Gardner have faith in some other areas which we may realize and test in future. In a book “Frames of Mind” Howard Gardner define intelligence as:
Intelligence involves the capacity to take care of issues or problems that have significant results in a specific social setting. The interest in the concept of intelligence and its measurement has engendered much contention. Perhaps the intelligence definition itself has been the real wellspring of the open deliberation. Different approaches regarding intelligence came up with the passage of time, differ in different cultures and social settings (Kornhaber, Krechevsky, & Gardner, 1990). Neisser (1979) studied individuals’ own perceptions of intelligence and found that three commonalities existed among their definitions.

The first commonality was concrete problem resolving and the ability of logical reasoning. The second commonality of being, a good conversationalist (verbal ability, and proficiency in reading), and the third commonality has affected the ability to expressive gestures and showing enthusiasm for the world (social knowledge). additionally, Sternberg (1988) was in solid concurrence with this view of intelligence. The trouble in concurring on a meaning of intelligence is that there are the same number of perceptions of intelligence as there are people requested, that, characterize the idea (Weinberg, 1989).

In the late nineteenth century, the first researcher who attempts to gauge intelligence specifically was Francis Galton. Galton saw the notion of intelligence as the fundamental ability, which is responsible for the human superiority of races of humankind. In spite of the fact that Galton had a theoretical enthusiasm for the idea of intelligence, he had additionally wanted to expand the overall intelligence of the populace through proper “breeding” (Gardner & Hatch, 1989).

At the beginning of the 20th century, the intelligence traditional viewpoint assumed that our ability to learn arose from a uniform cognitive capacity. In 1916, the first effort was made by Alfred Binet and Theodore Simon to technically define intelligence and to devise tests that could quantify it. Public Education Minister approached Binet and his colleagues in France, to make a way to identify low-performing students, and thus, Binet published his first version of his intelligence test (Weigler, Roberts, Hird, Lerche, &
Hilliard, 1990). Binet and Simon considered intelligence to be "crucial personnel" which incorporated practical sense, judgment, activity, and adjustment to circumstances (Weinberg, 1989). Binet built up an intelligence test that comprised of 30 distinct items, going from the capacity to touch one's nose and take after straightforward guidelines to the capacity to name commonplace items from pictures and to characterize conceptual ideas. This became the basis for Binet’s concept of mental age and a single score, which was the individual’s level of mental development relative to others.

Gould (1996) claimed that Binet demanded three standards for his tests. These principles include scores which did not define anything innate or permanent, the scale which was to be a guide to identify special needs of children requiring remediation’s and not to be used for ranking normal children, and low scores which should not be utilized to name children as intrinsically unable, but that the emphasis should be on improvement through special attention and techniques. Not only did Binet disagree with the notion of intelligence as a unitary trait, “but when the American hereditarians made an interpretation of his scale into the composed structure, as a routine for testing all children, all of his admonitions were slighted, and his goals upturned” (Gould, 1996, p. 155).

When Binet published his intelligence test, Louis Terman designed the Army Alpha Examination, to use in testing army recruits in the course of world war I. The test, which was later named the Stanford-Binet scale, measured intelligence as a unitary trait. Whereas Binet designed his test for the modifiability of intelligence, Terman argued for the opposite, using his test as a predictive instrument (Weigler et al., 1990). Within thirty months after the 1916, publication of Terman’s group test, four million children had been tried as a premise for students’ categorization, college admission and guidance (Cronbach, 1975). Test technology had become an accepted feature of American life and was best reflected in Terman’s comment “Teachers must figure out how to utilize tests, generally, the widespread evaluating of kids as indicated by mental capacity must remain a Utopian dream” (Terman, 1925, p. 291).

Spearman studied the structure of intelligence test score and presented that all individuals possess a factor “g” (general intelligence). Spearman (1924) claimed that the general factor “g” exists in every large collection of diverse intellectual tasks. Although
Spearman felt that intellectual endeavors depended upon $g$, he also admitted that understanding capabilities and talents constitute an exclusive, specific factor, $s$. (Weinberg, 1989). Spearman believed that these two factors could account for the performance of an individual on an intelligence test.

Whereas there was a conviction in general, intelligence is the primary justification, for using the intelligence quotient as a single index of intelligence, there were other psychologists who believed that intelligence was comprised of separate entities that operated independently. Thurstone (1938) proposed the concept of primary mental abilities. He recommended that individual testing feature constituted seven primary factors of verbal capacity, word recognition, memory, deductive thinking, logical skills, spatial capacity, and perceptual skill. Thurston trusted that these capacities were essential and mandatory, and were related to each other (Sternberg, Conway, Ketron, & Bernstein, 1981).

Not just did Thurston’s work challenge Spearman's perspective of unitary intelligence, but it additionally opened the conduits for others to create more theories of multifaceted ways to deal with intelligence. Guilford (1967) found, through factor analysis, that each individual should be described by a profile rather than a single score.

He felt that factor analysis was essential in leading him to the opinion, that, there were five types of operations regarding performance: cognition, divergent generation, memory, convergent production, and evaluation (Deese, 1993). These operations combine to produce 120 separate kinds of abilities in a model he called the Structure of Intellect, which detailed a more contextual, comprehensive viewpoint of intelligence. In Guilford’s theory, intelligence was viewed primarily as a series of overlapping mental abilities (Sternberg et al., 1981).

The theories of intelligence created by Binet, Spearman, Terman, and Thurstone have originated from the psychometric convention of measuring intellectual development and recognizing individual differences. As opposed to psychometric theories, Piaget's hypothesis of intellectual development concentrated on subjective modalities of children understanding and perception of their environs (Weinberg, 1989).
Piaget’s (1951) concept of intelligence and brain functioning studied how individuals acquire and apply learned knowledge. He viewed intelligence through biological adaption as “a firm stability exists” among intelligence and the morphogenesis biological process (Piaget, 1951, p. 11). His cognitive theory of psychology recognized two ways of adapting to the environment: assimilation and accommodation. The developmental stages of the sensorimotor, pre-operational, concrete operational and formal operational give rise to the intellectual development.

Although psychometric systems evaluate what we know, and Piagetian viewpoints tested how we think, there were some, who have contended that both of these methodologies didn’t represent particular procedures included in an intelligent conduct (Siegler & Richards, 1982). Information processing methodology is a regulated examination of intellectual procedures, that have considered how individuals get and utilize data to resolve issues. Campione and Brown (1978) and Carroll (1981) proposed that there is the universality of information processing mechanisms, regardless of the tasks or the performer. Sternberg (1985) intelligence theory of patriarchic, acknowledged the environmental context for all intelligence and emphasized cognitive component analysis to measure information processing skills and strategies. His anarchic theory of intelligence was based on three aspects:

i. Analytical (capacity to examine, assess, and equate),

ii. Innovative (the ability to produce, design, imagine, formulate), and

iii. Practical (the capability to use, apply, utilize, and implement).

The basic units of intelligence were components, which were used to store information, make decisions, solve problems, and carry out problem-solving strategies. According to Sternberg (1994), individuals have different levels of patriarchic abilities, yet in order to function successfully in the world, everyone needed at least some compliance in all three areas.

In spite of the Controversies Beyond the various theories of intelligence, there was a common denominator, that intelligence can be quantifiably and reliably measured using a standard intelligence (IQ) test. Edwin Boring, a prominent psychologist in the 1920's,
captured the essence of the testing movement with the statement, “intelligence is what tests measure” (H. Gardner, Krechevsky, Sternberg, & Okagaki, 1994).

2.2 Theory of Multiple Intelligence

Howard Gardner presented multiple intelligence theory in one of his book “Frames of Mind” (H. Gardner, 1983). As opposed to describing intelligence as intelligence quotient (IQ) scores, Howard Gardner presented somewhat different view. He proposed, that intelligence constituted a number of mental and natural qualities, which, empower people to take care of issues or create objects which are of worth, in more than one society (Gardner, 1999). The theory was first proposed as a psychological concept, used to explain differences seen in brain development and organization among individuals that resulted in different ways of viewing, thinking and understanding (Gardner & Hatch, 1989). As such, imagine a scenario, in which intelligence was considered as a limit, which is produced and communicated inside of particular social and cultural settings.

Gardner in his theory claimed a person has a range of intelligence with different degrees (Verbal-Linguistics intelligence, Logical-Mathematical Intelligence, Bodily/Kinesthetic, Visual/Spatial, Interpersonal, Intrapersonal, Musical/Rhythmic) and this resulted in a number of intelligence theories which depicts the learning styles, premiums, abilities, and tendencies of people (Liarakou, Gavrilakis, & Flouri, 2009).

Howard Gardner at first stage presented seven kinds of intelligence. The initial two of these are verbal-linguistics and logical-mathematical which are valuable for schools, the following three, kinesthetic, musical- rhythmic, visual-spatial were identified with the creative aptitudes and the remaining two, interpersonal and intrapersonal have been termed as individual intelligence, by Gardner (Gardner, 1999). At last, Gardner included the existential intelligence and naturalistic intelligence. Gardner's theory offered "a luxuriously differentiated way for understanding and classifying human psychological capacities, and a group of abilities, elevating our awareness of what are the things which enable the students to learn” (Haggarty, 1995, p. 49). Gardner proposed his theory that there are a few unmistakable types of intelligence that can be controlled by every person. His theory pluralizes the customary idea of intelligence reclassified intelligence as the
"capacity of solving issues or designing items which are vital within a specific social background or group" (H. Gardner, 1983, p. 15)

Shearer (2004), reflecting on the impact of Multiple Intelligence Theory (MIT) after 20 years, noted that three points are significant in the definition of intelligence, first point is, 

i. Intelligence is characterized by the capacity to tackle issues. Second, 

ii. Intelligence is not restricted to concurrent speculation and legitimate critical thinking; instead, intelligence includes a student's ability to provide valuable services and to create products. This inclusion broadens the understanding of intelligence beyond convergent thinking and incorporates interpersonal experience and divergent thinking. 

iii. Intelligence involves contextual thinking, encompassing the value systems and materials provided in the circumstances in which thinking occurs, means, “intelligence is more than "something that only happens in your head”. The extent to which the development of specific abilities can be encouraged or discouraged, evolved or regressed, depends on upon the accessibility of appropriate materials and principles for the specific context or culture in which the problem is studied.

Eisner (2004) observed similar aspects of Gardner's theory, noting that, intelligence is varietal not singular in form and the varieties of intelligence develop from contextual thinking. Types of intelligence evolved, are based on the contexts in which different approaches to thinking have different assessment values. The types of intelligence a culture leads, determine which intelligence flourish and which intelligence either. In 2006, Gardner and Moran further defined the meaning of intelligence as. 

“Intelligence is described as a spectrum. On one end, each intelligence uses psychological subcomponents, specific neural systems, controlling aspects such as reasoning of a numerical, linguistic, and causal-comparative natures, understanding of self and others, and recognition of patterns. On the other side of the spectrum, opportunities and supports provided by social groups, such as the organization of information into bodies of knowledge based on vocations, social interactions, and cultural values. Between these two ends, the intelligence resides. Nine specific bits of intelligence exist within Gardner's
theory; however, potentially more intelligence might be analyzed and described in future studies.

2.3 Types of Intelligences

General intelligence, also called traditional intelligence, has been measured in the past using pencil-and-paper tests, asking mathematical or linguistic questions. Such tests do not assess the ability of a professional athlete, master musician, or exceptional salesman. This traditional approach does not recognize that multiple intelligence exists and affect the unique thought processes and learning styles of each individual person. Each of the nine basic types of intelligence is thought to have its own cerebral structures and higher-order brain functions, dedicated to processing and remembering (H. Gardner, 1983).

2.3.i. Linguistic Intelligence

Linguistic intelligence comprises the use of a language and words in understanding and expressing information. This ability is used in speaking, reading and writing. Linguistic intelligence is used in unique intuition in narration, influential speech, and artistic writing. It is also employed in convergent thinking, in assessments of vocabulary and reading comprehension. Fluency in linguistic intelligence is needed for skills such as explaining or describing concepts and ideas. Individual with a high level of linguistics intelligence might be a writer, a Lawyer, a poet or a speaker etc. The individuals who have high linguistics intelligence are interested in reading and writing. They learn well when they read or listen the content, they are good speakers and are best in spellings and vocabularies (Denig, 2004).

Linguistic intelligence included a wide variety of language abilities, ranging from compassion to the meanings of particular concepts in order to utilize language in a wide range of context. The majority of the instructors oblige children for listening and reading the arithmetic instructions; as presently, a number of teachers have initiated more chances for students to talk and expound on their experiences.

All students ought to be presented with a wide-ranging assortment of beneficial oral responsibilities, as, they experience multiplication notion and understand the exact figures. According to Armstrong (2009), the teachers might offer a convincing verbal
prolog, in order to utilize the interesting procedure of multiplication in the learning process. Students may likewise come up with own creative of multiplication. Students might get benefit from oral presentations. Students can utilize language to impart the consequences of multiplications activities, to clarify the thinking behind their critical thinking, to appreciate other students' thinking approaches, to survey their improvement by an explanation to their teacher, guardian, or other fellows.

2.3. ii. Logical- Mathematical Intelligence

According to Gardner (1983), Logical-mathematical intelligence includes the utilization of coherent thinking and critical thinking. Five basics elements are constituted within this intelligence, that includes:

(i) categorization of elements (ii) assessment (iii) basic arithmetical systems (iv) inductive-deductive reasoning (v) improvement of a hypothesis and surveying basic devices of science.

Isaacs and Carroll (1999) stated that Logical Intelligence helps students to build up a comprehension of the learning content and apply this learning to practical circumstances. Influential utilization of logical intelligence can empower students to conceptualize the relationship of multiplication to different other operations. This intelligence likewise brings improvement in students’ cognitive skills. Such techniques support critical thinking aptitudes and help students learn truths in connection to different realities, not as confined bits of data. The part of sensible numerical knowledge in procuring scientific attitudes and ideas is self-evident, yet, the nine different intelligence additionally make huge commitments as students select the strategy with which they feel comfort, to move from initial examinations, through progressively complex levels of comprehension. The individuals with high Logical-mathematical intelligence have the strong reasoning skill, they are good at analyzing issues and problems coherently and they are best in mathematical operations. E.g. accountants, mathematicians, scientists, programmers etc.

Denig (2004) further stated that, although current classroom practices for Abilities utilized in this intelligence incorporate counting and interpretation of numbers, the sequence of steps inside of a procedure/ operation, the distinguishing proof of novel
issues, the acknowledgment of examples, and they involve the use of logical reasoning and problem-solving. Skills employed in this intelligence include calculation and manipulation of numbers, the sequencing of within a process or operation, the identification of original problems, the recognition of patterns, and the generation of new, significant questions. Persons ranked highly within this intelligence are those traditionally described as being smart such as philosophers, mathematicians, and scientists (Gardner, 2004).

Gardner (2004) further revealed that the two intelligence linguistic and logical are most often linked to accomplishments within academics. College entrance exams and placement tests such as the ACT, SAT, MAT, and GRE depend on upon performances and skills found within logical-mathematical and linguistic intelligence. The emphasis in these two intelligence is also seen in the types of courses available within education such as applied and natural sciences, mathematics, history, psychology, sociology, and literature.

2.3.iii. Visual Intelligence

Spatial/ Visual intelligence incorporates capacity of identifying a procedure that describes the visual world. Puzzle solving, map reading, visualizing, imagining, and drawing all pull skills from this intelligence. Visual artists, interior designers, architect, mechanics, and engineers employ spatial intelligence in their creative or professional accomplishments (Gardner, 1999; H. Gardner, 1983).

Gardner (2004) mentioned that students with high spatial skills can see the visual world precisely, make pictures in their brains without physical boosts, and create a viable representation of two and three dimensions. For interpretation and presentation of findings, mostly mathematicians depend vigorously on logical intelligence.

Books contain pictures which are a great source for teachers to utilize for improving spatial intelligence. flash cards can also be made through distinctive hues or by composing histories and events. Visual intelligence additionally cultivates further understanding as students tackle issues and speak to arrangements (Armstrong, 2009).
2.3.iv. Kinesthetic Intelligence

The ability to utilize someone physically, to accomplish tasks or communicate ideas comes under Kinesthetic intelligence. Expressive forms of kinesthetic intelligence included dancing and acting while task-oriented forms included athletics and tool use in crafting. Self-Control, exactness, and quickness are skills developed within this intelligence. This Intelligence utilized a human body in different tactics to create and present ideas. Kinesthetic intelligence directly relates to participant’s physical activities. Expressive forms of kinesthetic intelligence include acting while task-oriented forms include athletics and tool use in crafting. Individuals with a high level of kinesthetic intelligence learn best by acting out on the learning content. Individuals with high kinesthetic intelligence are athletics, dancers, sculptures, surgeons, and carpenters etc (Denig, 2004; Shearer, 2004).

Teaching methodologies that utilize an assortment of manipulatives, they take into account both visual and kinesthetic intelligence. Finger painting or composing facts in paintings are other conceivable real kinesthetic exercises.

2.3.v. Musical Intelligence

Skills developed within musical intelligence include detection of pitch and tone, the establishment of rhythm, and recognition and remembrance of patterns within sounds. Convergent thinking, thinking that brings together information, in musical intelligence involves the identification of sounds and remembering melodies and rhythms. Divergent thinking, thinking which leads to novel idea and creativity, is exemplified in the creative composition of musical pieces. The individuals with high musical intelligence are mostly composers, band boards, and musicians etc (Shearer, 2004).

The attributes of musical insight are rhythms, Pitch, nature of tone, and excited wordings. The concealed rhythmical illustrations examples of music are established in science, and the musical documentation framework depends on portions and numerical examples. Gardner (1983) takes note of that various writers have been delicate to scientific examples and that a number of mathematicians and researchers are pulled into music. In learning augmentation, children can utilize sounds to speak to issues and problems. such
exercises might come in the category of kinesthetic intelligence, including jumping or applauding or dancing on different tones.

2.3.vi. Naturalistic Intelligence

Discriminating and understanding the natural world and living things within the natural world are described as naturalistic intelligence. Skills involved in this intelligence include identifying and distinguishing differences among plants, animals, rocks, and other natural things. Classification and taxonomy of organisms, recognition of ecological systems, and decipherment of organism behaviors are a few of the many processes requiring naturalistic intelligence. The people with high naturalistic intelligence are good in plants and animal care. They are sensitive towards nature. For example, gardeners, zookeepers, biologists, farmers etc (Gardner, 1999; H. Gardner, 1983).

Armstrong (2000) stated that naturalistic intelligence incorporates the capacity to identify the outside nature through simplicity and sensitivity. Natural and ecological points of view are grounded in this intelligence. Students with a specific naturalistic quality demonstrate a solid enthusiasm for sciences and environment. All science educational modules associated with this intelligence are aligned with nature. These educational programs give novel chance to support a feeling of the miracle at the remarkable scientific examples of the natural world e.g. plants, bugs, pets, shells, flying creatures, zoo creatures, and the children themselves. Natural frameworks permit students to use unpretentious and complex association and numbering. By means of number patterns, instructors and students might develop their own examples using nature.

2.3.vii. Interpersonal Intelligence

Interpersonal intelligence is guided by the development of two essential attitudes: the capacity to see and recognize among different people and the capacity to intuit the feelings, points of view, and inspirations of others. This intelligence is described as understanding people, working with others, leading, communicating, selling, and resolving conflicts - essentially the managing of relationships with other people (Shearer, 2004). People with high level of interpersonal intelligence included teachers, mentors, leaders, and counselors.
Interpersonal intelligence incorporates comprehension and a delicate discussion with other individuals. It comprises of the capacity to notice and make refinements about individuals' mindsets, personalities, inspirations, and goals—and to settle on significant choices. Students who are adroit in interpersonal intelligence may blossom with communitarian critical thinking.

Armstrong (2009) The strategies which are intended to improve interpersonal intelligence constituted participation and cooperation among students. When students work independently on issues and assignments, they might be requested to legitimize the strategies and results with each other, shared augmentation, or evaluate each other's work. Group mentoring permits students to help those who not much competent. Students can work together in short-or-long term projects. Students and instructors may create augmentation illustrations that mirror their interpersonal advantages.

### 2.3. viii. Intrapersonal Intelligence

The skill of understanding of self is the key principle of Intrapersonal intelligence. Skills involved in this intelligence included identification of one's expertise and weaknesses, objective setting, and accurate self-evaluation. Intrapersonal intelligence prompts a singular's feeling of accomplishment and satisfaction in life. Individuals with high intrapersonal intelligence are a psychologist, writers, therapists, poets and counselors etc. (H. Gardner, 1983).

In the era that promote coordinated work, the teacher should likewise don't disregard the students who wanted to work alone. All students advantage from figuring out how to extend their intelligence into themselves, their contemplation, and their capacity to create suitable individual procedures.

Shearer (2004) stated that students ought to be urged to established objectives at various levels, for example, utilizing their decision of intelligence to remember truths, making their own augmentation tackle an issue, Finally, students can continue progressing arithmetic diaries in which they record their augmentation objectives, exercises, and self-appraisals, and also their mentalities.

### 2.3. ix. Existentialistic Intelligence
The existentialistic intelligence includes the skill of finding one’s own self as for the utmost scope of the universe. The individuals with high existentialistic intelligence constitute the ability to use their six senses and values in understanding the people and the world around him. Individuals with a high level of existentialists intelligence, mostly show interest in the realities of life, they think about the people and society around them, they try to get access to the actual truth behind an issue. Philosophers, life coaches, theologians are considered to have existentialistic intelligence (Gardner, 1999).

All individuals possess all nine intelligence; however, each person shows individual strengths and weaknesses within the multiple intelligence. For example, a professional athlete might be strong in kinesthetic and spatial intelligence but weak in musical and interpersonal intelligence. Gardner (1999) also suggested that strengths and weaknesses in the multiple intelligence are not fixed and can change over time. A person who is weak in linguistic intelligence can practice and develop this intelligence over time.

Gardner (2011) revealed that the brain anatomy associated with each type of intelligence showed that the nine intelligence are anatomically separated; however, these intelligence hardly functions independently. The intelligence is utilized with each other complementarily and parallel in a person to improve skills or resolves issues. Armstrong (1994) stated that Bloom’s taxonomy provided an instrument through which people could judge how students’ brains have been influenced by MI educational modules. Armstrong specified that "It is cool but difficult to develop MI instructional strategies that seemed convincing - attributable to the extensive variety of intelligence tended to - however that continued learning at the information or repetition level of intellectual complexity " (Armstrong, 1994, p. 27). In this connection, MI applications for teaching spelling, science realities, or history truths are cases of MI theory in the lower-rank psychological abilities.

Armstrong (1994) suggested that MI curricula could be intended to join the greater part of Bloom's levels of intellectual taxonomy. He created curriculum outlines that showed how teachers could articulate competencies that addressed each of Gardner’s intelligence in conjunction with Bloom’s taxonomy. This instructional model acts as a map that could be used to report various intelligence and levels of cognition. The inclusion of all of these
tasks is not required in a single unit. MI theory introduces a model that permits educators to move past vigorously etymological, lower-order thinking exercises into a more extensive scope of complex intellectual tasks that assisted students to become better prepared for higher ordered cognitive skills.

According to Traub (1998), Gardner’s theory offered a vision concerning human instinct, which identifies the expectation with the investigative technocratic world perspective. While Gardner had little to say in regards to real-world applications of his theory, he gave a worldview that gave new thoughts to teaching students. In 1990s new doors were open for Gardner's thesis to be to be used as templates for transforming schools. The theory intent to teachers’ innate understanding that students learn in distinctive ways and they reacted to his more express motivation of democratizing human endowments. Traub (1998) asserted that Gardner’s model school had much in common with progressive schools. Students worked together in collaboration with teacher:

Besides supporters, there are additionally a few commentators of various intelligence theories. Traub (1998) stated that the vast majority who study intelligence suggested intelligence is a quality rather than an idea. Supporters of Gardner’s theory wished Gardner could use a term “fitness” that would be more unbiased.

When Gardner published his book “Frames of Mind“, he certainly dodged talking about the critics’ statements on his theory for approximately an era. In an article published in 1995, Gardner reacts to a few "myths" on Multiple Intelligence Theory. Gardner repeats the meaning of intelligence and recognized it from the traditionally pertinent area, which sorted out the arrangement of activities portrayed by symbol framework and traditional operations. For instance, dance act is an area that depends on the utilization of bodily-kinesthetic and musical intelligence (Armstrong, 1999).

Different critics incorporated the thought that MI theory is not exact, is contradictory with g, heritability, and natural impacts, and expands the development of intelligence so generally as to render it good for nothing.

Armstrong (2009) revealed that it was exciting to point out that majority of the critics who criticized the theory were journalists and academics, who had no idea of classroom
environments and students’ issues that might teachers faces. A couple of reactions originated from the individuals who applied the theory and found a significant effect on students’ performance. This developed a significant debate among generalists, who discovered lots of spaces in the theory, and educational experts, who were excessively searching for the means of building up students’ interests in the teaching-learning process.

2.4 Multiple Intelligence and Teaching Strategies

In the process of teaching, the great effect of the theory is to build the inventiveness of teachers in creating strategies for teaching. The reason being was that, when instructors and curriculum planners thought about exercises for every type of intelligence, they unavoidably broaden their strategies and collection for their teaching procedure, which ultimately developed distinctive and unique methods. As multiple intelligence are utilized as a part of classroom exercises, amid that procedure, participation is conceivable between the instructors whose expertise levels and areas are not totally quite the same as one another (Demirel, 2000).

“Each classroom in a school is a garden of different intelligence. While plants have a striking resemblance from a distance, each develops differently and produces a different organic product” (Temur, 2007, p. 87). Instructing in the twenty-first century emphasizes assorted qualities and identifying that every student has his or her own particular set of qualities, needs, interests and learning styles. In today's classrooms, teachers are relied upon, to give evenhanded chances to students to accomplish their extreme capability in all phases of development. Students come into the classroom as people with remarkable culture, ethnicities, convictions and different states of mind (McFarlane, 2011).

It was trusted and expected that instructors grasped these differences by adjusting their instructing practices to better meet the capacities, identities and learning styles of their students (S. D. Levy & Gayler, 2008). Regrettably, this notion is for the most part not reflected in instructors' planning, teaching and assessing (S. D. Levy & Gayler, 2008).

Different intelligence instructions included:
(i) The process of Comprehension: The educators can perceive prevailing intelligence in teachers and students.

(ii) Applicability: An instructor ought to use particular intelligence for giving a guideline to students in their way of getting knowledge and empower qualities among them.

(iii) Motivation: an instructor ought to continually students prevailing intelligence and various intelligence.

Furthermore, instructors ought to assess own particular intelligence afore completing different intelligence instructing, and utilize their prevailing knowledge in arranging contents and preparing lessons. They ought to likewise monitor students’ exhibitions with perceptions and composed records. This can evaluate every students’ intelligence and give bolster appropriately. Gardner thought biology, art, physics, people, self-understanding and comprehension of the world are vital instructive goals. Subsequently, instructors ought to clarify the content key ideas and educate students using common sense, intriguing content to advance the learning content and fortify the process of learning. Ultimately, the key is to comprehend and receive the most advantageous strategy for learners (Seefchak, 2008).

Through the implementation of different instructional methods, while teaching to students’ through multiple intelligence teaching strategies, instructors can viably address students' issues and promote students’ engagement, inspiration and investment (Gable, Reis, & Elliot, 2000). Multiple intelligence (MI) theory can be portrayed as a theory of instruction. A segment of Gardner's theory holds that every individual included nine intelligence spaces: Linguistic intelligence, logical intelligence, musical intelligence, visual intelligence, kinesthetic intelligence, intrapersonal intelligence, naturalistic intelligence, interpersonal intelligence, and existentialistic intelligence (Stanford, 2003).

Despite a fact that every individual has each of the nine intelligence in more noteworthy and lesser degrees, they may be robust in a couple of areas and want to accumulate data and experience the world through specific intelligence.

Guild (2001) stated that teaching strategies can be clarified as far as, instructional practices and strategies to help in teaching, planning and assessing students’ learning. It is
a set of instructing strategies which support instructors to meet every students’ needs by making sure flexibility in the teaching contents, the way of teaching, and ways of students’ demonstration in what they have learned. The way to successful differentiation is adaptability and versatility. In this theory, by changing one's teaching strategies and styles, actualized exercises and lessons will precisely reflect the assorted capacities, interests and learning styles of every student.

Most teachers are intensely concerned with the content of the subject. With a supremacy of topic, theory, application, and execution and a lot of commitment and diligent work, one can succeed in one's field. In the realm of teaching, those components, while important, are pointless without the extra characteristics of having a satisfying identity and having the capacity to speak with other individuals. Hence, to be a compelling teacher, it is important that one be multitalented and multidiscipline. Essential attributes of good instructing are: Knowing one's subject substance knowing and loving student’s understanding one's culture (Borg, 2015).

Stanford (2003) mentioned that MI theory has been adjusted and deciphered by various writers, who have made it simple for both educators and folks to see the idea's estimation and its pertinence to use in the classroom. This wide scope of interpretations at delegate levels, make related procedures straightforward and applicable for both pre-service and in-service instructors. Additionally, because of the expansion of average interpretations, related presentations, and available classroom materials, has turned out to be essential for the child grass root development.

MI helps teachers in, effortlessly making more customized and expanded instructional ways, help instructors in assisting students with diverse needs. It Assists instructors with descriptive and endorses understanding at intrapersonal, interpersonal and social levels. Takes advantage of students' inborn levels of inspiration, through distinctive skills, along these lines, assisting instructors with building self-persuading instructive encounters and ones which help advance the idea of the stream in the classroom (Armstrong, 2009).

Habitually, instructors' ingenious and instinctive evaluations of students’ common abilities and offers such ideas which help in developing related customized instructive
techniques and strategies. It offers teachers, parents, and students with a broader and populist conceptualization of skills.

Douglas, Burton, and Reese-Durham (2008) revealed that a number of teaching strategies, that have practical implication for the classroom, are theorized in the multiple intelligence theory. Some of the teaching methods are already being used for a long time by the teacher while some of the other teaching strategies are unique and never before used in the current education system.

According to Mi theory, there is no single and absolute method which could be beneficial overall for all the students. Entirely individuals have different levels of multiple intelligence, so a single teaching strategy may be more effective on one group of students and the same may be less effective for another group. For example, students who are inclined towards logical will be more responsive to teachers who use logical aid for teaching while students with no inclination towards logical won't be affected with logical aids. Similarly, images and pictures usage in teaching will be more useful for specially oriented as compared to verbally and physically inclined students. Keeping in mind the distinct variances, instructors are advised to use various techniques so that different inclinations of different students are exploited (Armstrong, 2009).

Armstrong (2009) enlisted the following teaching strategies associated with each type of multiple intelligence in the book titled “Multiple Intelligences in The Classroom”.

2.4.i. Teaching strategies for linguistic Intelligence

Armstrong (2009) stated that in order to develop teaching techniques, the Linguistic intelligence is considered the easiest intelligence. The common traditional strategies including lectures, textbooks reading, worksheet etc. serve as excellent networks for effective impartation of knowledge. But viewing the intelligence point of view, they are a just minor portion of the huge collection of strategies for teaching. Although they are used widely in schools but with the growing learning needs and potentials of the students, such traditional methods are beneficial just for those who remained just concerned with books. The following strategies are reachable to wide range of learners Armstrong suggested the following teaching strategies for linguistic intelligence.
Storytelling is considered as an essential teaching tool. Major concepts, ideas, and teaching sticky stuff are presented in the form of story to students. Storytelling is mostly used for teaching Art subjects but it may be employed in mathematics and science. For instance, the concept of centrifugal force can be presented in the way of a world where everything is spring from the center outward. In the process, listing to the important elements, using imagination to generate a distinctive land, some interesting characters and creative plan for conveying the meaning. Mainly students are often captivated by a teacher's enthusiasm for the subject they are teaching (Haynes, 2010).

Campbell (1997) stated that brainstorming strategy leads learners to create many oral opinions which can be noted down. Brainstorming can be about a poem, developing team project, thoughts about a lecture etc. In brainstorming, the participants can share anything which comes in mind without any fear of Criticism. Students can present their ideas by using a mind map or yen diagram and can invite other students to review and reflect on it. They can discuss those ideas or can use them in a project. These sorts of activities can realize the students that their ideas and thoughts are acknowledged by others.

Audio recorders are considered the most useful and attracted tools for learning. The reason being is that it helps students to adopt verbal skills for problem solving and effective communication. Students use tape recorders to reflect on the issue they want to raise, to prepare their self for writing, to talk about their projects etc. Students with weak drafting skills can also use recorders to express their thoughts. It may be useful in sharing personal experiences in a short frame of time and in the easiest way and for getting feedback. In interviews, it is a great tool for collecting information. For developing students mind growth, the tape recorder is the best tool of teaching for teachers (Armstrong, 2000).

Journal Writing includes keeping records of a specific field. Journals can be arranged in any subject e.g. in math for keeping a record of a specific problem-solving strategy, in science it may be for keeping a record of the experiments, hypotheses, testing, in literature for maintaining a record of feedback on a topic. Journal writing can be maintained privately or it can be shared with others. Traditionally learners make assignments and appear in the exams for grading and no record of their writing is
being kept. Writing is a tool for communication of thoughts and to impress readers. Students may strengthen their ideas by publishing them. A student may publish in the school magazine, local newspapers, and sources of student’s write-up publishers. Students become linguistically endowed and feel motivated when their work is read by others and encouraged (Armstrong, 2009).

2.4.ii Teaching Strategies for Logical Intelligence

Logics are required mainly in science and math’s subjects however the core elements of the logical intelligence are also appropriate in other subjects. In order to enhance logical intelligence, a number of strategies might be initiated in the subjects taught at school level.

Teacher discusses numbers in the area of science and math’s. Logical thinking is not only in math and science but it exists in other subjects as well. Like in geography and history teachers can use the numbers mentioned in different lessons e.g. number of dead in wars, the population of the countries, states in a country etc. Similarly, in literature teacher may focus on the number of novels, short and long stories, and other fictional works create a reference to figures and numbers. The teacher may engaged students who have highly logical intelligence, to show other students that math’s contents do not belong just to math’s class, rather it covers our daily routine as well (Campbell, 1999).

Haynes, 2010 revealed that the logical mind can calculate any information whether the information is linguistic, logical, and spatial or any other kind of intelligence. Classification and categorizations involve logical thinking’s and instruction. For example, in the unit science subject “states of matter,” the teacher might ask the students to enlist the names of things belongs to gas, liquid and solid. Other examples included are Venn diagrams, characterizing a person, places, or things related to the subject which answers 5W questions. This approach can make the content of the subject clear, discuss, and easier to remember. Critical thinking movement has provided the picture of a teacher as “distributor of knowledge”. The Method acquired a teacher to act as a questioner. The teacher asks to student question to release the fear of the students of being right or wrong while expressing their thoughts on a topic. Student shares their ideas and teachers guides them according to their knowledge. For example, if a history student speaks out on World
War" that it would never happen if soldiers vigorously fought military service “teacher may carefully raise questions to see how students defend their point of view. The purpose is to enable the students to help in promoting their critical thinking skill so that they always make an opinion with maturity, confidence, and strong mental stability.

Heuristic strategies denote a free assembling of teaching strategies, thumb directions, parameters, as well as recommendations to resolve the problems coherently. The principles of this approach involve providing solutions to problems, backtracking a problem and then solving it. It is mostly applicable in science and math’s. Students should try to find creative ideas in all fields besides the science field. This approach is very significant. A number of ways can be used to enhance and promote science sophistication throughout all subjects i.e. The history learners can critically learn the effect of the atomic bomb on the World War II outcome. Students can study on universal disputes such as population crises etc. that need scientific knowledge (Campbell, 1997).

2.4.iii. Teaching Strategies for Visual Intelligence

According to Armstrong (2009), the method is applicable in almost every subject. Its application lies in developing students’ imagination in the eyes of their mind about the learning content. Developing a “mind blackboard” and putting the things need to remember is an interesting aspect of this strategy e.g. words spelling, historical facts, and figures, math formulas etc. An additional application of the strategy lies in closing students’ eyes and seeing pictures of what they have learned or read and discussion about their experience. Extremely spatial students are generally profound to colors. The principal of this strategy lies in putting a variation of colors (color chalks, markers etc.) in writing in order to make the learning contents interested and clear. Using color to highlight rules, patterns, or categorizations during teaching is an important aspect of this strategy. The teacher may ask students to utilize color pages, highlighters, markers etc. to colorize the learning contents (different colors for different elements of a topic e.g. key points, characteristics, unclear passages etc.

Campbell (1997) indicated that the strategy of idea sketching included inquiring the students for sketching the main points or the central idea of the lesson being learned. The
strategy was utilized to assessed student's in-depth understanding of the idea being taught. For example, in math, teacher may ask the students to illustrate probability, in literature, democracy, pathos in science ecosystem etc. Beside visualization and drawing pictures, teachers may keep using the graphic symbols, which can assess the learner in a wide range. For instance, the teacher might enquire the students to bring in front the three states of matter with dots, curves and circles or present a historical event with a timeline.

2.4. iv. Teaching Strategies for Bodily/ Kinesthetic Intelligence

Kinesthetic intelligence involved physique of the students in the learning process. The strategy is beneficial in developing attention, enhancing interest, motivation, and understanding. The principal of this strategy lies in incorporating hands-on and kinesthetic learning activities in teaching learning process. The succeeding teaching strategies can be used in math, science and art subjects.

weber (2005) indicated that using bodies as a medium of instructions is a common tool in teaching learning process. Most commonly teachers ask students to respond to the questions by raising their hands, in this way students understanding and attention are assessed. The other tools used in this strategy included a smile, eye blinking, holding up fingers, nodding head etc. while the Classroom theater strategy is very useful and is considered the most interesting strategy for students. In this strategy, the students are asked to perform or the role played on the learning content. For example, the teacher may ask the students to dramatize the story they read in English or Urdu or present a historical event by characterizing the different characters. Such strategy is very easy and interesting to adopt because mostly students body gestures are involved in classroom informal setting.

Hands-on thinking strategy involves making objects with hands. The strategy is useful in specifically in science subjects and generally in art subjects. For an example involving students in experiments or working in the lab and developing a different models e.g. excretory system in biology, an atomic structure in chemistry. In English students may remember new vocabulary by creating them in clay. Similarly, complex concepts can be understood easily but developing wood sculptures’ or other projects. The most common
practice of body maps approach in a classroom is using fingers in calculation counting. We can plot further areas on the human physique. For example, in geography subject, human physique can be used to show different countries of Asia. (If head represent Pakistan then where is India located? The strategy is useful in other academic subjects as well (Haynes, 2010).

2.4. v. Teaching Strategies for Musical Intelligence

Armstrong (2009) indicated that in an earlier time, singing was used as a medium of getting information and transferring it to the other generations. The importance of musical instruments was acknowledged in the 20th century, among the advertisers, but educators did not realize its importance in the process of learning. With the passage of time in developed countries, musical instruments were inculcated with the teaching-learning process and they found good results. Some of the teaching strategies related with music are described here.

Putting a learning content in a rhythmic setup e.g. song, rap, or chant is the strategy of songs, rhythms, and chants. In math, the approach might be used in singing the timetable or in English subject teaching a poem in the form of song. Similarly, the strategy is useful in other subjects as well in presenting the central theme of the story, the main idea, main points in the learning content. The strategy is beneficial in leading the students to high order level of learning by engaging them in creating and presenting the learning content in the form of raps, songs which involve the students to summarize, analyze and apply meaning from the subject. Finding an appropriate recorded music or sounds that can develop a specific emotional environment for a particular topic is the principal of this approach. For example, teaching a story that took place near a lake or sea, play the music of sea sound. It will create the enthusiasm of the students about the topic they are going to teach (Campbell, 1997).

Weber (1999) indicated that listening to teachers instruction in conjunction with a musical background helped provided an effective and easy compilation of Information to, student's memory. It was found that classical music was proved to be more effective. The principal of this strategy lies in the fact that at the time of delivery of information by the
teacher’ in rhythmical manners, the students should be in a relaxed state of mind. Musical rhythms and tones can also play a significant role as creative tools in expressing concepts outlines or schemas. The strategy provided a number of innovative expression opportunities to both students and teachers. In Math’s, let’s take the example of conveying the idea of a circle through a musical tone. Start humming at initially a slag higher tone and gradually drop down to a lower note, then raise the tone gradually get the initial tone. The gradual decrease and increase indicate the slope of the circle. Similar methods can be used to express concepts in other subjects. For examples in English subject, a poem can be narrated in musical tone, in history events can be described with different patterns of music.

2.4. vi. Teaching Strategies for Interpersonal Intelligence

Some students perform more efficiently in the classroom if they get a chance of bouncing their ideas. This development of cooperative learning has profited these social learners. Every teacher should be aware of the teaching techniques, keeping in mind the variances in levels of interpersonal intelligence from person to person. These techniques should incorporate interaction with one another.

Merrill, (2008) stated that peer sharing is the easiest applicable teaching strategy. Tell your students to share any topic to his friend that has in their mind. This technique of peer sharing can be used to help students to revise the material taught during the class or to get to the bottom of their existing knowledge about a certain topic before lesson start. This strategy can encourage students to share their knowledge with different students. Each time this will develop mutual understanding among all the students of the class. The sharing period can vary from 30 seconds to an hour or more. This is also a form of peer tutoring in which one student teaching to another.

Cooperative groups strategy involved the students in group work towards common instructional objectives. Working in groups form is an effective strategy as there are different individuals’ minds involve in solving a single topic. Such learning activity save the time of the students (students can divide the responsibilities of tackling an assignment) and enhance their conceptual learning of the content. Games related to
boards are an interesting strategy for the learners, in order to get the concept of a topic in an informal way. In board game strategy, at one side, students can chat, discuss the rules, throw the dice, and can enjoy and at another side, in the same time, they remain busy in learning the content. Such games included a pair of dice, mini cars or colored cubes etc (Everson, 1994).

Shepherd (2010) revealed that simulations strategy involves the students to produce an "as-if" circumstance. The strategy is useful and very effective for easily getting the learning content. Like students learning about a historical period might appear and act in the costumes of that period and creating the environment as they are living in that era. In the same way in learning the topic ecosystem, students can produce the environment of a jungle in the classroom. The strategy involves other intelligence e.g. linguistic, visual, kinesthetic etc. But because of the individuals’ interactions, it comes under the category of interpersonal intelligence.

2.4. vii. Teaching Strategies for Intrapersonal Intelligence

Most students pass most of the time in their schools with their class fellows. Students with highly intrapersonal intelligence feel exhausted in such social setting. so teachers need to develop opportunities for students to think to get exposure of their own life.

The period for One-minute reflection provide opportunities for learners to summarize the material and present it in their own words. The strategy can be adopted any time in the teaching process but it is very effective when it is used after teaching a topic. In this strategy, students have no choice of discussion they just have to simply think about the topic and present its theme or the main idea in any other way. Personal connections strategy requires making a connection between the learning content and its impact on the individual life is the principal of this approach. The strategy involves weaving students’ approaches, personal links, and exposures into teachers’ instruction. For example, in teaching the system of the skeleton, the teacher can ask the students " have you ever experience that your finger bone was broken?" and how? In geography teacher may ask? Have you ever visited any other province or country? Students’ will start sharing their experiences before the lesson and in this way, the teacher will develop their interest and enthusiasm for the lesson (Campbell, 2000).
Arends (2014) indicated that choice time is a particular and distinctive strategy among the other strategies. In this strategy choice of learning content is given to students. The strategy builds the opportunity to students to make their decision on the content they are going to learn. For example, choosing the title of what they want to learn, choosing the setting (informal setting) etc. The choices time may be minor and narrow students can select a passage of their choice on a teacher selected page. Or it may be open-ended and major (selecting a project).

Feeling-toned moments strategy recommends that in the teaching-learning process, teachers are accountable for producing the environment where students feel the excitement, joy, laugh, sadness, angry, or express high emotions or attitude for a topic. Teachers can tackle the creation of feeling-toned moments by molding students’ emotions to a safer side (discourage criticism, appreciation of another point of view, acknowledging the up and downs in emotions) providing opportunities (such as slide show, divisive ideas, and books,) that arouse feeling-toned feedbacks in a positive way (Weber, 2000).

2.4. viii. Teaching Strategies for Naturalistic Intelligence

Mainly students learning come about within the confines of the institute. Students with an aptitude to learn from nature, are deprived of their most optimum source for learning. This problem can be addressed by the two basic solutions. Firstly, more opportunity should be provided to the students, to learn from nature. Secondly, the classrooms should be equipped with naturalistic training aids so that the student with naturalistic intelligence can have access to nature within the bounds of school. The strategies drawn from naturalistic approach are listed below (Campbell, 1997).

Richard Feynman awarded the noble prize in the field of physics, recalls that, his inspiration to science was developed from the walk in nature alongside his father. His father would exercise his mind by asking a question about the nature along the way, which developed an attitude of scientific questioning inside him. Nature Walks technique can also benefit the teachers. The natural feature within the vicinity of school can be used for reinforcing the material. Nature can cover almost all the subjects. All the principles of
science are at work within the bounds of the sky and the earth. Even content from the literature or history could recreate in nature with the help of building imagination in the minds of students. It will also cultivate a student mind for drawing a creative writing (Armstrong, 2009).

Hallinger (2000) stated that a classic example of an inattentive student in a class is a student looking out of the window imagining about the thing he would rather be doing. What make a child look out the window? Probably it is because the things outside the window are more interested than the teaching inside the class. This tendency of a child can be used in constructive classroom strategy. Much can be accomplished from this strategy. It may include taking measurements by studying the weather, effect of different seasons on environment e.g. plants, grass, trees etc. or creative setting using a metaphor. The strategy of looking outside the window can be used in other subjects as well.

If the teacher does not have access to nature walk and cannot see through, then best alternation is to bring nature in the class. Some Teachers place plants on windows or shelves to create a positive learning. Plants can be used as a learning tool. For example, in math petals of the flower can be used in the concept of multiplication. Similarly, in science subjects, the core ideas, elements or parts of a system can be taught with the help of different branches of the tree. Similarly, math and science their growth can be measured. We can use plant growth as a metaphor to the learning in class. Bring any plant in the beginning and at the end of the year relate the growth of the plant with learning (Campbell, 1997).

The principal of the strategy Eco-Study lies in the way of relating science and arts subjects’ e.g. Math’s, history, literature, social studies, science etc. to the ecosystem. For instance, in teaching the concept of percentage or fractions, the student can be talked to the instructor can question learners to determine the percentage of a particular rare existing species with one existed 60 years ago. Students that are sensitive to ecological issues can be helped drew into circulation by this strategy and can pull the learners to show motivation and enthusiasm for the safety of ecology of the earth (Armstrong, 2009, pp. 72-97).
2.4. ix. Teaching Strategies for Existentialistic Intelligence

According to Kelly (2010), this strategy enabled the students to present the content, they learnt in diverse ways to other students and teachers. This strategy acquires the students to present their knowledge in new and different contexts. The strategy helped teachers to know that to what extent the students have understood the lesson.

Arranging a resource person inquired the teachers to provide such an opportunity to the students where they could hear other experts’ opinions and way of presentation about a topic. Requesting the resource experts who present additional viewpoints on the topic, undoubtedly enhance students’ motivation and students’ performance which ultimately increased their academic achievement. Connecting lessons to the outer world strategy facilitates the teacher to connect the learning lesson to the outer environment. Through this strategy, students might learn and realize the applicability of the information they learnt to the practical life circumstances, e.g. onto the surrounding people, community and the world (Hallinger, 2000).

Learning preferences strategy enables the students to build such opportunities for students where they can make choices in their learning activities within the teacher’s set parameters and make decisions about their learning experiences. This strategy enhances the student self-confidence and enables them to express their opinions without any hesitation and fear (Kelly, 2010).

Goldberg et al. (2006) found in an overview of their study that Instructors were found utilizing the theory of multiple intelligence as a premise for change in their classrooms in a range of ways which concluded that instructors reported that they plot for teaching in different ways that can allow utilization of as many intelligence as possible. Some made special structures utilizing the ranges of knowledge as a framework for arranging. All instructors reported that they included more intelligence in teaching than previous time; MI centers were being utilized broadly by primary school teachers. Moreover, it was found that teachers shaped instructions taking into account the intelligence profiles of their individual students. Teachers taught students regarding Multiple Intelligence theory and urged them to evaluate their own particular intelligence qualities and weaknesses. Perspectives of the teachers on assessment were found changed. Evaluation practices
were more real, students were given more decision in their learning, and assessment turned into a continuous piece of direction.

Differing qualities in learning was welcomed as it was found that when instructors learnt about MI, they better worthy the different abilities of students and proportionally the estimate for various qualities contributed to the accomplishment for more students. Classroom atmosphere was more constructive because the atmosphere turned out to a more helpful in students better comprehending and acquiring regard for each other's' qualities and weaknesses. Many teachers observed that MI-based guideline energized danger taking, and prompts a livelier and more innovative environment. It was found that MI theory energized self-reflection among educators because Teachers figured out how to acknowledge their own specific manners of knowledge, which support fearlessness. Acceptance of individual qualities and weaknesses lead to more noteworthy energy about other teachers' styles. (Goldberg et al., 2006, p. 12).

Gardner (1983) believed that students ought to learn literacies and disciplines. His contention was against the thought that a single way could be an appropriate to figure out how to learn, calculate, and determine other subject areas. He likewise focused on that classroom lessons ought not to be taught seven or eight ways as this was not his aim in multiple intelligence theory. Gardner (1983) who expressed that: The fact of the matter is to understand that any theme of significance, from any order, can be taught in more than one approach. There are things individuals need to know, and teachers must be remarkably creative in assisting students with comprehension things better (Checkley, 1997, p. 10) Every different intelligence has various core capacities which can be connected to the instructional educational programs in the educational curriculum for all levels. These core capacities could be further integrated into chosen subject areas and utilized as lesson augmentation. The learning capacities of students also likewise could be improved, in spite of the fact that this enhancement had subjected to the motivation and input of individual teachers (Lazear, 2000).

Gardner (2004) additionally, looked to apply MI approach to dealt with instructions. To encourage a successful teaching practice, two establishments are required:
i. Teachers need to perceive challenges students face in accomplishing certifiable comprehension of essential contents and topics.

ii. Instructors need to consider differences among minds and develop instructive programs that can access the vast diversity of students’ interest and capacities.

2.5 MI Theory Around the Globe

The most stimulating expansion of the multiple intelligence theory was its worldwide effect. Currently MI is considered an essential part of the instructive process in some developed countries of the world. In some cases, at the government level it was considered a part of the national education initiatives. Its effect was also observed at the local level, where the school teachers’ applied the theory in their teaching learning process according to their own cultural context.

2.5.i. MI Theory implementation at the Policymaking Level

There were a number of cases in which MI theory had been congregated by different institutes at the national or universal body's policymaking. As indicated by Gardner and Moran (2006) "... I have been astonished to learn of authorities in which the terms of MI have been joined into white papers, suggestions by ministers, and legislation.... I have gotten notification from responsible sources that MI methodologies are a piece of the approach in such different terrains as Australia, Bangladesh, China, Canada, Denmark, Ireland and the Netherlands" (Gardner & Moran, 2006, p. 248), for example, in Bangladesh, with the funding of UNICEF, a project of “Intensive District Approach for All Learners” started in the 1990s (Chanda, 2001) where a number of teachers were trained on the bases of MI teaching strategies (Ellison & Rothenberger, 1999). In Geneva, Switzerland, an International Baccalaureate (IB) Association, which presented schemes in 128 countries for more than 600,000 students, has recently observed Gardner’s theory affecting their own specific approach to managing to learn (Reed, 2007). “India's National Curriculum Framework for School Education (INCFSE)” obliged instructors to be familiar with the idea of different intelligence (Sarangapani, 2000).
2.5. ii. MI Theory at the Academic Level

The theory of MI remained a theme of different educational publications at school and college levels around the world. For instance, in Turkey, the “Middle East Technical University” in Ankara, in Jordan the “University of Jordan in Amman”, “Ferhat Abbes University in Setif”, in Algeria, and the “Mulawaram University in Samarinda”, Indonesia. The idea of the comparison of an individual’s MI profile with other members of the family like parents, children etc. Was much populated and different articles were published from Namibia, Zambia, Zimbabwe, and South Africa (Furnham & Akande, 2004), Malaysia (Swami, Furnham, & Kannan, 2006), Japan (Furnham & Fukumoto, 2008) and China (Furnham & Wu, 2008). The Other worldwide studies on MI and data proficiency education in Singapore (Mokhtar, Majid, & Foo, 2007), in Hong Kong, musical capacities and different multiple intelligence of Chinese talented students (Chan, 2007), and MI and academic excellence in Kuwaiti schools’ students (Al-Balhan, 2006).

2.5. iii. MI Theory at the Local/ Individual School Level

Armstrong (2009) indicated that all over the world MI theory have been associated with different ways in the curriculum of a large number of schools. In Argentina, for example, teachers exposed that using MI approach, how they taught English as a second language to the first grade students. The Amancaya Elementary School of La Florida in Santiago, Chile, arranged debates on a weekly basis on different topics of different multiple intelligence. They were used to celebrate an “MI” day in their “Week of the Arts” where students visited certifiable writers and a day when children made a painting with famous painters (Gundian & Anriquez, 1999).

In the Philippines, MI International High School in Quezon City used MI with the purpose of boosting efforts and struggle among its students. Using an MI approach, the students made a semantics bunch, made some Flash Range, a media focus that arranged books for high school students who were worried about natural, individual and passionate advancement issues. A musical band called “Boom Box Music”, which included students with high musical intelligence. The school arranged a yearly bazaar which offered things made by the distinctive associations of the students with different dominant intelligence
and the money earned from these products were used for the help of needy individuals (Times, 2008).

2.5. iv. MI Theory at the Community Level

Beside formal teaching applications, MI theory has likewise influenced the pop society in many countries of the world. For example, In China, the “Multiple Intelligences Education Society” implement MI theory in the courses, articles of the magazine, in radio programs, and in TV talks (Chen, Moran, & Gardner, 2009). In Denmark, the industrialist, Danfoss made an amusement park, “Danfoss Universe”, where the objects were arranged with various frameworks and thoughts from different multiple intelligence.

In South Korea, The Project Spectrum evaluation apparatuses were executed effectively and were taken as an approach to fix ideas regarding learning and individual improvement. According to Jung and Kim (2005), The methodology of Project Spectrum in the light of MI theory encouraged student centered instructions by expecting uniformity and independence among different intelligence ... Under such an evaluation framework, children had been the capacity to maintain a strategic distance from the negative self-esteem’ and had reshaped them in the form of an effective and dynamic learners (Jung & Kim, 2005, p. 591).

The wonderful thing about multiple intelligence globally is that, it was by all accounts, discovered a spot for itself in broadly differing social connections, evenly in societies with the values struggling with pluralistic and democratic foundations of MI theory. The MI theory remained a part of research studies at school and college levels in Saudi Arabia and Iran as well. The book “Multiple Intelligences in the Classroom” has been translated into 17 languages that included Farsi and Arabic languages as well. Schmidle (2007) stated that in the madrassas of Pakistan lessons on MI had also been delivered.
2.6 Application of the MI Theory in the Field of Education

Multiple intelligence theory presented many distinct ways for teaching and learning. Teachers who are fully equipped with the information and tools of multiple intelligence, they might ensure to provide sufficient varieties in their adopted activities that subsequently might be helpful in tapping the students learning potential (Bas & Beyhan, 2010). Shore (2004) argued, that multiple intelligence is composed of united skills and can provide high level educational experiences to the relevant diverse learners. MI assist educators in supporting every learner, by rewarding those students who draw well, sing loud, run fast, well socialize, equipped with a high sense of self awareness and those children who are best in collecting bugs (Whitaker, 2002).

The relevant literature revealed that various research exists that applied multiple intelligence theory by determining intelligence types and the impact of an individual intelligence in comparison with student success, attitude and knowledge performance. (Yalmanci & Gozum, 2013).

Besides a biological basis for each intelligence type, there was also a cultural basis. The culture was considered to be a haul mark in the uplifting of an intelligence type. The associated cultural values of each intelligence type determined the amount of motivation driving the development of skills in that intelligence (Gardner & Moran, 2006). This means that particular intelligence might gain adequate dominance among people of one culture, whereas that same intelligence failed to gain significant strength among people of other culture.

As mentioned earlier, different intelligence described within Gardner's theory rarely operate independently. Understanding how the mind works depends on understanding how the intelligence interact. Interactions among the intelligence can be grouped into three categories; first those that deal with persons, second those that deal with objects, and third those that deal with abstracts (Gardner & Moran, 2006).

M. L. Kornhaber, Fierros, and Veenema (2004) suggested that adoption of Multiple Intelligences Theory (MIT) by the education community was due to a set of five well-defined reasons.
i. Primarily, the theory validated educators’ observations that students learn in a variety of ways. This validation might encourage educators to consider implications of the theory within the classroom.

ii. Secondly, the theory complemented existing educational philosophies such as constructivism and areas of proximal development.

iii. Third, the theory suggested practices already used within the education field. Problem-based learning, thematic units, learning centers, and arts-integrated approaches are suggested by Gardner (1983).

iv. Fourth and fifth, Gardner's theory provided a framework for categorizing (fourth) and understanding (fifth) educational practice. Once the repertoire of knowledge and methods an educator has accumulated are organized, it is possible to reflect upon and further develop educational practice.

Multiple Intelligences theory has earned a vital position in education and it extended its support to its important aim which gives acknowledgements of variations among students and cultivations of their unique capacities and characteristics (Eisner, 2004). Educational theory encouraged Individualized study, viz-a-viz extended its support to dig out various opportunities for students in order to explore different studies along with boosting of interest in the process of learning.

A second article by Diaz-Lefebvre (2004) about a pilot study focused on reflections of students and instructors about the Multiple Intelligences and Learning for understanding the program. Instructors commented that students became "mini experts and co facilitators of learning" as they gave performances of understanding for the assessments of academic material studied. Students also commented on and assessed the impact of the program on their learning. All of the students surveyed agreed that having a creative option for assessment is very important. Eighty-five percent of the students believed encouragement of creativity enhanced learning.
Gardner presented the following principles for his multiple intelligence theory:

i. Weightage on individual different intelligence development;

ii. Utilization of all different multiple intelligence in the development of different teaching strategies

iii. Reviewing the lesson plans in view of multiple intelligence, ensuring that they have diversity, objectivity, and productivity.

iv. Providing opportunity to students to select learning activities and evaluation techniques

v. Providing such opportunities which enabled the students to develop their weaker intelligence using their dominant intelligence.

vi. Completely comprehending broad subjects using the multiple intelligence (Gardner, 1983).

Hoer (2002) indicated the significance of the theory of Multiple Intelligence in the field of education with the view that it

i. Highlight individuality of every student

ii. Highlight the dominant intelligence of the students

iii. Dominant intelligence enhances student learning

iv. Diversity in students learning experiences

v. Teaching through Multiple intelligence perspectives

vi. A Range of assessment techniques

vii. Diversity in means of expressions (Xie & Lin, 2009)

At diverse educational levels different projects were carried out which implemented MI Theory. These included: Spectrum Project, Project Zero, Arts PROPEL, Green Tree East, Key School Project, Renaissance Project and Hart-Ransom IDEAL Project, and the theory significant impact was seen in these projects.
2.7 Applications of Multiple Intelligence Theory in Elementary and Secondary Education

Sherman (2001) articulated valuable training on Gardner’s MI Theory, to elementary educators and offered multiple practical examples for implementing the theory at the classroom level. He also carried out certain activities to demonstrate each intelligence. However, Sherman’s presentation paper failed to question MI theory in any way. On the other hand, Mills (2001) investigated only musical intelligence and he chalked out its pivotal part in elementary schooling, and also recommended that MI strategies with special emphasis on musical activities which were related within Florida benchmarks of learning. Mills further suggested that art community must fully contribute to the development of MI literature, it will subsequently promote musical specialists that will help in the development of curricula. An Article highlighting the usefulness of MI theory in mathematical learning was published by Willis and Johnson (2001). It was dug out that implementing MI theory produces much interest and creativity in mathematics classroom than rote learning which is a common trend in mathematics classroom.

Condis, Parks, and Soldwedel (2000) concentrated on “playgroup children”’ lack of conversational aptitudes and basic concepts of a language. a momentous improvement in students’ receptive and expressive language skills was observed in the results.

In 1987, the Key School in Indianapolis turned into the primary MI school to authoritatively apply the theory over all evaluation levels (Olson, 1988). With accentuation in physical training, craftsmanship and music, students of age five years were required to play a musical instrument. Taking into account these differing learning encounters, students were urged to draw on and investigate their own particular level of intelligence through three activities every year, for example, concentrating on the "association" amongst individuals and their surroundings (Olson, 1988). They were additionally urged to learn through projects with the goal that they could be imaginative, helpful and individual in their own learning pace. Also, their performance was recorded at the initial stage and at the end of every year at the Key School to make a profile (Olson, 1988).
MI curriculum of the Fuller School was built as a model with the Key School. As per Bates (1998) the Fuller MI system was portrayed by students focused learning, credible evaluations, huge scale project adapting, the policy of "little is better than nothing " in the securing of information, and students and-instructor learning associations. The contrast between Key School and the Fuller School was the accentuation on "individual intelligence" in the Full School educational modules.

Blgn (2006) stated that majority of Farmington schools implemented MI based curriculum. Mettetal, Jordan, and Harper (1997), In an article “Attitudes Toward a Multiple Intelligence Curriculum”, examined a K-5, suburban, predominantly white, economically diverse elementary school in Indiana, called Farmington Elementary.

The article also discussed how the implementation of MI curriculum leads changes in administration. There were lots of changes that went on at the school. For the most part most of the changes were school wide but there were a lot of changes that went on in specific classrooms (Mettetal et al., 1997). Students had a choice in some classes where they could work on activities related to each of the MI. incorporated consciously Multiple Intelligences teaching into their lessons”.

After research was conducted at this school as to the effectiveness of MI in curriculum, Mett et al, Jordan, and Harper (1997) made these conclusions:

i. Everyone Accepted the Concept of Multiple Intelligences

ii. Positive reactions to the implementation of MI Curriculum Schoolwide.

iii. MI curriculum implementation across classrooms.

The discoveries of Harvard's Project Zero studies led the adequacy of MI. 78% principals of 41 schools’ utilizing MI, mentioned that their schools had acknowledged increases on institutionalized accomplishment scores and 63% principals ascribed the development to "performs invigorated by MI theory." (As anyone might expect, the utilization of MI paid different advantages in these schools also: 78% of the schools reported enhanced exhibitions by understudies having learning troubles, 80% reported a change in guardian interest, and 81% reported enhanced students discipline.). On account of MI center, children were more prone to discover learning fun and more averse to discover school exhausting. Discipline issues had a tendency to vanish when students were amped up for
learning and discovering achievement (Gardner, 2003).

In the study of Temur (2007), researcher tried the impacts on calculated comprehension in fourth grade students taught utilizing conventional science guideline versus MIT direction. Posttest results demonstrated an altogether higher accomplishment rate in applied comprehension in students taught utilizing the different intelligence program. The test gathering was taught utilizing procedures proposed by Gardner; particular systems were not specified other than utilization of portfolios. The researchers additionally found that through MI teaching, musical, spatial, and interpersonal intelligence expanded while logical and linguistics diminished. In the control group, logical and substantial kinesthetic intelligence expanded while spatial and interpersonal intelligence diminished in students (Ozdermir et al., 2006).

The impact of MI Theory on fifth graders’ achievement in science subject was examined by Coskungonullu (1998). Additionally, it was researched whether there was an impact of MI Theory on fifth graders' students’ attitudes towards Mathematics; and what were the beliefs and perspectives of science teachers and students about the theory implication. This experiment was done on the second term of fifth grade students of the session 1997-1998 in Ankara College Primary School and it took three weeks. For testing, 2 classes of 32 students were selected one class was taught science subject through multiple intelligence teaching strategies and the other with the traditional method of teaching. Additionally, meetings were conducted with both experimental and control group students and teachers. Mathematics Achievement Test and Mathematics Attitude Scale was used in the experiment. The results showed a huge impact of Multiple Intelligences Theory on fifth graders’ in science subject scores. the teachers and students both showed positive perspectives and conclusions about the MI theory.

Accordingly, Campbell, Campbell, B., & Dickinson. (1999) investigated the implication of multiple intelligence theory in seven learning centers in Marysville on third grade students. The students spent about 65 % of a school working day visiting theses centers and the centers provided the students to learn the subject material with seven diverse ways. students learnt a single lesson with seven different techniques. They construct different models, move, settle on cooperative choices, make melodies, take care of
deductive thinking issues, read, compose and delineate all in a single school day. The center was focused on; Reading Center based on Verbal/Linguistic Center, Math & Science Center based on Logical Mathematical Intelligence, Building Center based on Kinesthetic Center, Art Center based on Spatial Intelligence, Music Center based on Musical Intelligence, Working Together Center based on Interpersonal Intelligence, Personal Work Center based on Intrapersonal Intelligence. Students were asked to share their work after working in each center. Rest of the time students were tasked to spent time on their individual and group projects. The findings of the study showed students enhancement in positive behaviors and abilities.

As per Campbell et al., (1999), the reasons behind the behavioral and academic achievement of the project give off an impression of being twofold. To begin with, each student had a chance to practice and exceed expectations in no less than one range. Furthermore, every student learnt the topic in diverse ways. Their scholarly needs were met by continually being tested and oftentimes practicing their inventiveness. The emphasize in Campbell's project was learning instead of instructing. He trusted that teaching and learning with the use of different intelligence helped in solving the school most common problems and optimizing the students and teachers learning experience.

In Turkey, Akbas (2004) made an experimental study on grade six second term students of METU Ankara College Primary School. the study titled was "The Effects of Multiple Intelligences Based Instruction on Six Graders' Science Achievement and Attitudes toward Science". The study was conducted for the session 2002-2003 and it went on for three weeks. The researcher utilized science achievement test and science attitude scale.

The findings of the study revealed that MI based instructions were more viable than the traditional ways of teaching. But On the other hand, the findings also indicated no noteworthy results about the attitudes of students towards science.

Kornhaber et al. (2004) completed a 3.5-year study in 2004 on how educators are using multiple intelligence in the primary and secondary classrooms and the effects educators report on students. They collected data using two methods: (1) by telephone interviews addressing topics such as student, staff and community make-up, methods used to introduce multiple intelligences to the school, curriculum and assessment practices, and
outcomes resulting from the adoption of MIT and (2) by visits to several schools to observe classroom practice, document student work, and interview staff. Positive associations were reported between the use of MIT and improvements in standardized test scores, improvements in student behaviors, increased parent participation, and improvements in learning, motivation, and social adjustment in students with learning disabilities. Case studies of teachers implementing MIT in the classroom have also reported similar types of improvements in students (Hickey, 2004).

Five teachers in middle school grades implemented MIT practices in the classroom. Students initially were reluctant to use alternative activities because of familiarity with linguistic or visual/artistic assignments. After some students selected alternative assignments, such as interviews, storytelling, music creation, 3-D modeling, other students began to respond to the use of MIT in the classroom projects. Once students realized their areas of learning strength, MIT became validated for both the students and teachers and led to an observed improvement in student learning (Hickey, 2004).

2.8 Applications of MI Theory at Higher Education Levels

Weber (2005) urged Multiple Intelligence Teaching Approach (MITA) an adequate tool to overwhelm the reported disengagement and boredom in class. Weber cited The American Freshman: National Norms for Fall, a research held by UCLA to evaluate college students” interest in the educational process, a high degree of boredom was found in the collegiate classroom (Sax, Gilmartin, & Bryant, 2003).

Weber (2001) believed that getting interested of diverse students in higher education classes could be done by understanding and interacting within their unique worlds. Weber urged that Problem-Based Learning (PBL) was gaining momentum in higher education, and it offered a perfect opportunity for the usage of MI theory and application.

Four similarities between MI theory and PBL were shared:

i. Both started with a question instead of an answer.

ii. Teachers were entrusted to facilitate the learning process instead of simply lecturing.
iii. Holistic approach was used for results in which results were based on more than just a grade, and

iv. Assessments were based on performance which might alter accordingly with the desired outcomes (Weber, 2001). Keeping in mind these Weber proposed an approach of five-phase to MITA.

Lazear (2000), in The Intelligent Curriculum, noticed that if individuals needed to comprehend common learners, they ought to watch preschoolers who are starting their training. "By and large, the students are all gurgling without end like little pots on a stove, with the appetizing stew of their intelligence inside" (Lazear, 2000; p.13) From that early beginning stage, children's abundance vanishes as they advance through the framework. Lazear further remarked, "As a rule by the middle and secondary school years, the vast majority of the things that made school so energizing, and important in the early years, things that were fun, drawing in, energizing, provocative, and suggestive, are dealt with as "discretionary," as 'extracurricular'" (Lazear, 2000; p. 13).

Current methods of teaching and assessment with the community colleges emphasized linguistics and logical intelligence which focused on lecture method presentation and paper-pencil assessment. Accentuation on these two types of intelligence encourages rote-memorization that does not form connections to the students, lowers motivation of the students, and results in poor academic achievement in the students (Diaz-Lefebvre, 2004). Providing several methods of instruction and increasing the types of learning opportunities might be more effective in helping students master material taught in college level courses.

The fun parts of school have been exchanged to the external edges of the educational programs with most students understanding that accentuation is being put on advancing the genuine work of getting an instruction. Lazear proceeded with, "Year by year we take a few fixings out of the pot, put the top on the pot, turn down the warmth here, even expel a pots' portion from the stove inside and out" (Lazear, 2000; p. 13). Subsequently, a few understudies started to abhorrence school or begin to feel awful about themselves and their capacities and limits. Some students mark themselves as "stupid" and create
negative sentiments toward others, particularly the individuals who don't fit in with school models.

In web based instructions the MI theory was also investigated. As Osciak and Milheim (2001), stated that using Web design principles and understanding the types of available learning technologies, instructors’ educators, and instructional strategies through which teachers can develop instructions which enhance the needs and fulfill the expectations, developing opportunities for incorporating the multiple intelligence related activities and enhance learners rate of responses. Nelson (1998) stated that with the accessibility and customer sociability, web-based teaching is most likely one of the greatest flexible type of teaching, which provide a platform for the representation of all intelligence where it develops without the demographical location of the individuals.

Weber (2000) reported some possible causes of students less interest in higher education programs, to address and resolve this issue, he suggested a PBL model. He connected the MITA model to determine the inactiveness issues of 260,000 freshmen in higher education classes of UCLA’s Higher Education Research Institute. he demonstrated that MITA model helped students emphatically to resolve their problems of inactiveness.

Armstrong (1994) stated that MI theory has wide ramifications for group teaching. In a school focused on improving the different MI of the students, the perfect teaching group or educational programs arranging counselling group incorporated mastery in every one of the nine intelligence. A few teachers may imagine that MI theory had been grasped by numerous rudimentary and some center schools, however in secondary schools, its acknowledgment was rarer.
2.9 MI Implications for Students

For students, awareness of their associated strengths and shortcomings within multiple intelligence can be advantageous (Fasoli, Frawley, Ober, D’Arbon, & White, 2008). First, an awareness of how one is smart allows students to learn study strategies incorporating strengths and compensating for weaknesses. For example, a student who is fully equipped with interpersonal and spatial intelligence, but is bad in linguistic intelligence will not be benefitted from a teacher who only deliver lectures.

If students are awake of their intelligence profile, they might employ the approach of taking notes in a graphical manner, that will subsequently offer visual reinforcement. The student might then participate in a question answer session with the instructor or in a peer-group discussion to support their interpersonal learning style. Second, students who are aware of their learning profiles can inform teachers, parents and peers of how the student learns best. These support people can then interact with the student in different ways that improve the student's learning. A third advantage is that the use of Multiple Intelligences Theory can offer students a sense of personal ownership over their learning (Fasoli et al., 2008).

By understanding one's own learning needs and strengths, students can recognize services and products they can offer to the learning community of the classroom. Students discover strengths in relation to needs of others within the classroom culture and begin to recognize themselves as both in need of others and as a help to others. Finally, in the context of the community of learners, students learn to discern the difference between challenge and failure. This difference is critical to self-esteem development. Students transform failures into challenges in the context of who they are and how they learn best (Douglas et al., 2008).

As indicated by Campbell et al., (1999), examination results in a different knowledge classroom, various speculations were approved. In Singapore schools, firstly, students in the class showed expanded autonomy, obligation and self-direction throughout the academic year. Abilities might have enhanced in each student. The students esteemed their own particular voices and realize confidently that they should not just concentrate on what they are feeble at, yet, rather concentrate on their qualities. (Costanzo & Paxton,
Previously, students distinguished that they were having behavioral issues which made a huge change in their conduct. Students could work multilaterally and utilized at least three to five intelligence in their classroom reports and presentations.

A number of studies (Furnham, Shahidi, & Baluch, 2002; T. Hoerr, 2002; Neto, Furnham, & Paz, 2007; Ribot, 2004; Shore, 2004) have been conducted on multiple intelligence theory and its impact on students learning, students achievement, personality and directions. In these studies, a significant difference was observed between experimental group to which learning was imparted using different types of multiple intelligence and the control group was dealt through traditional methods. The MI based instructions impact was largely felt on students’ performance.

MI Theory served to increase the attention of the students towards classroom learning environment. Also, MI Theory showed a positive impact when used in developing educational modules, using agreeable instruction, and working with students' diverse population. At last, the utilization of Gardner's Theory empowered teachers to make learning environment which enabled a wide range of students to learn.

Asci (2003) explored the impacts of MI based instruction on students of ninth grade and assess their approaches and accomplishment in ecology, and their multiple intelligence. The study was experimental and consisted of two groups, control and experimental group. She used Ecology Attitude Scale, Ecology Achievement Test and Multiple Intelligences Inventory. She tested the data through MANCOVA and found the MI based teaching had more effect in relations to the achievement and multiple intelligence and were less effective in enhancing students' attitudes towards nature between the two groups.

Tertemiz (2004) used MI Theory in an experimental study to the grade 2nd students of two private schools. She integrated the objectives and attitudes related to Turkish Language, Domestic Sciences, and Mathematics courses. Her investigations lead her to the findings that experimental group student performance was enhanced.
Chan (2007) made an examination of six hundred and thirty-nine Chinese students using Student Adjustment Problems Inventory (SAPI). He noticed that interpersonal connections were found less remarkable. As indicated by the results and findings, Chan expressed that students reported more elevated scores in linguistics and logical and musical intelligence, and they scored least in the visual, naturalist, and kinesthetic intelligence. He found that distinctive numerous intelligence related diversely to distinctive alteration issues.

Koksal and Yel (2007) studied the effect of MIT-based teaching on tenth grade student attitudes toward the biology subject course, academic achievement of the students’ and retention of course information in students’ minds. Students were divided into two groups, experimental group and control group. The experimental group was taught using "MIT-based activities and the control group was instructed using lecture and question-response. A huge difference was found in the control and experimental groups academic achievement, and retention of learnt material. The MIT based instructions were concluded more effective than the lecture based method.

Carver, Price, and Wilken (2000) attempted to enhance the capacity of knowledge application to the experiences of routine life. They investigated school students of grade second, six and data were collected through teachers created assessment tests, researcher’s observation, and students’ feedback.

The findings of the Carver et al. (2000) revealed that learners experienced issues exchanging learning because of the absence of inspiration and the powerlessness to make associations between classroom lessons and genuine circumstances. Analysts checked on arrangement techniques and established three systems that were various intelligence, agreeable learning and journaling encounters. The study kept going 15 weeks and these techniques were executed. Toward the end of 15 weeks the outcomes demonstrated that understudies enhanced their insight exchange through the utilization of different intelligence, helpful learning encounters and these three techniques enhanced understudies’ information exchange from classroom to day by day life exercises.

Findings further indicated that it was hard for the students to implement their knowledge due to lack of motivation and the ineffectiveness in making connections of the learning
content to the routine life made it. The researchers analyzed different strategies in order to resolve these issues and finally he suggested three strategies that included cooperative-learning strategy, multiple intelligence strategy, and strategy of journaling experiences.

The study took fifteen weeks in implementing these strategies. After fifteen weeks, an improvement in students’ knowledge transferring skill was noticed. With the utilization of cooperative-learning strategy, multiple intelligence strategy, and strategy of journaling experiences students implemented their learning experiences in their routine life activities (Carver et al., 2000)

2.10 MI Implications for Teachers

Most of the teachers taught in light of the fact that they liked working with youths and expecting a section in a child's improvement. They also acknowledged being inventive, being "before a group of people," using their capacities, and, most importantly, being a problem resolver. They enjoyed the considered understanding a way to deal with students' achievement, amped up students for learning, assisting students began having confidence in their self. Around the end of a day, when a teacher gets back home, He/she physically depleted and genuinely exhausted, satisfaction came not from considering what number of activities manual pages were secured or how well the instructor's assistant was taken after. As Yalmanci and Gozum (2013) indicated that teachers feels satisfaction, feeling like a specialist, begun from understanding that you've had any sort of impact in a child's life. It started from understanding that teachers brought their curricular aptitude, learning of instructional techniques, and cognizance of child headway together, to accomplish their students. MI licensed educators to do just that. Right when instructive projects, rule, examination, and instructional system were seen through an MI perspective, there was a swarm of courses for students to learn. Exactly when MI was the feeling of taste, the teacher relied on upon her insightfulness to found the right brush and the right shades to make learning critical.

According to Armstrong (2009), In an MI setting, not just are students more prone to learn and educators more prone to convey their imagination to the fore, but different open doors have also introduced. Seeing intelligence as multidimensional and comprehension that all youngsters have a wide range of talents, can possibly change the talk among a
staff. Workforce and board gatherings can move from emphases of data to exchanges about learning and student development. Teaching can change from something that is finished by individual instructors to a collective, collegial attempt in which the whole staff lives up to expectations and becomes together. This theory likewise empowers teachers to change the dialog with students' guardians, both what is talked about and how it is examined.

In the process of teaching instructors have the capacity to watch changes in students’ mentality as they advance upward through every evaluation level from preschool through higher schooling. Noble (2004) stated that the blooms taxonomy concluded cognitive domain, and its six levels of complexity and mostly teachers used blooms taxonomy for the evaluation of teaching strategies which stimulated and developed skills of high-order thinking. the six levels of Bloom’s taxonomy included:

i. **Knowledge**: skills of Rote memory constituted knowledge of facts and figures, terms, processes, organization systems).

ii. **Comprehension**: comprehension refers to the skills of translation from native language to another language, language acquisition, paraphrasing, and interpreting and generalizing the materials.

iii. **Application**: the ability to transfer and implementing the knowledge from one situation to another situation.

iv. **Analysis**: Determining and distinguishing the fundamental parts of a larger whole.

v. **Synthesis**: examining and compiling together element parts into a logical order

vi. **Evaluation**: using an established set of standards, deciding the value and applications information.

Barrington (2004) indicated that teachers with differing students and students with exceptional needs perceived that not all learners exceed expectations in the linguistics and logical intelligence. MI gives a structure to instructors so they can see how their students learn. By drawing closer students with a model that objectives their effective
learning in a specific intelligent rather than a standard approach that pointed confinement learning, students get a chance to experience achievement in school.

Again, MI theory can't, independent from anyone else, address the adapting needs of different students’ masses in urban, rural, or rustic settings, however it can change the way educators consider understudies and their intelligence. The best effect of MI theory lies in the capacity of educators to recognize students' territories of intelligence and to arrange their guideline appropriately. Accordingly, instructors can address the issues of students from multicultural foundations. The utilization of MI advances assorted qualities and comprehensiveness, as opposed to the "one size fits all" way to deal with education (Barrington, 2004).

Armstrong (2009) stated that Gardner's model has suggestions for instruction. No single project or routine use of the theory can oblige the numerous ways that instructors’ can utilize to execute MI to assist students with learning and accomplish in school.

H. F. Silver, Strong, and Perini (2000) demonstrated that great instructors endeavor to utilize several strategies to execute this theory. They declared the idea that MI strategies provided a way to dealt with educational modules, guideline, and evaluation intended to help educators and bind together MI and teaching styles in a significant and commonsense way. It might lead to the following objectives:

Adequacy: augments the advantages and minimizes the liabilities of both teaching styles and multiple intelligence.

Common sense: regards the requests of teachers who were being requested that meet national, state, and nearby models, and in addition run proficient and connecting with classrooms.

Reasonableness: cultivates the fullest conceivable scope of scholastic differing qualities.

Moreover, H. F. Silver et al. (2000) further explained that the expression "coordinated" infers these without a moment's delay:

Coordinated means mixed into an entirety. Two awesome personalities of the twentieth century - Howard Gardner (MI) and Carl Jung (learning styles) – have supplied two
learning models. Yet, as it was found, both MI and learning styles have specific qualities and shortcomings that specifically compare to the qualities and shortcomings of the other. This implied that a really comprehensive way to dealt with training - one that permitted teachers to draw in a full scope of human assorted qualities and meet thorough scholarly benchmarks - happens just in the combination of these two models. Coordinated means joined as part of a bigger picture. From a teacher's point of view, any learning theory, model, or methodology was just in the same class as its materialness. On the off chance that it couldn’t be utilized without exorbitant exertion, it was not exceptionally important. The actuality of schools directed that teachers look after educational programs systems, meet state gauges, and made ready the students for state tests and academic and professional motives for living. Coordinated learning regards these substances. Incorporated means driven by the objective of fairness. We live and learn in an inexorably different world. New students, new issues, and new thoughts show up on an everyday schedule, powering the development to address.

Brualdi (1996) stated that the opinions of Psychologists and other researches shown that learning resulted as a product of the changes in the synaptic networks among the neurons. Essential components of various kinds of learning are found specifically in the mind that area which is responsible for transformation correspondence. Accordingly, different kinds of learning resulted in the synaptic network in various areas of the cerebrum.

Likewise, this might give awesome probability to teachers to teach the learners, realizing that this versatility empowers teachers to learn and enhance their capacity throughout their working duration in the concerned field. Jerome Bruner affirmed this by expressing that that any subject can be taught adequately in some psychologically genuine ways to any child and at any phase of growth (Berry, Hoke, & Hirsch, 2004).

Diamond (1984) demonstrated that enrich environment expand the span of the cortex, the thickness of the glial cells, and the thickness and number of synaptic networks. This perpetually demonstrated that brain development is effected with the change in the environment. Approaching this concept, if knowledge is introduced in those ways that fit every child learning styles, children would learn more best than our expectations.
Campbell (1994) stated that every individual has all the MI and each can be created to a satisfactory degree. The principal thing that instructors and parents need to do is to acknowledge individual contrasts and utilize approaches appealing to the capacities and necessities of every student.

The MI theory empowers parents and teachers to venture back and take a different point of view on intelligence. A really coordinated educational curriculum must be created to address each intelligence equally (Armstrong, 1998).

Armstrong (1998) stated that each learner is a genius and what instructors need to do is to stimulate his expertise in the classroom, by perceiving that there are various methods for learning and by giving a really comprehensive education by utilizing a mass of strategies.

Teachers can utilize MI theory in two comprehensive ways. In the former, teachers might arrange the lesson such that one idea is displayed in a style that connects with most or the greater part of the intelligence. For instance, when instructing about war, an instructor can demonstrate to students through maps of a battle, (visual Intelligence) playing strategic games (Logical intelligence), playing war melodies (musical intelligence), arranging a role play, (Kinesthetic Intelligence and linguistic Intelligence), arranging field trips to perceive how individuals lived and what they ate (Naturalistic intelligence) (Brualdi, 1996).

Lazear (2000) pointed out that some teachers were concerned about the evaluation of MI based learning. Teachers might reshape their teaching and assessment strategies once they incorporate they into their instructions. He wrote that

“I believe that a multiple intelligence approaches to assessment should grow naturally out of a multiple intelligence approach to curriculum (teaching for multiple intelligence), a multiple intelligence approach to instruction (teaching with multiple intelligences), and a multiple intelligence approach to the learning process (teaching about multiple intelligences” (Lazear, 2000, p. 13).

Armstrong (2009) further mentioned that this type of presentation not just energizes students about learning, it likewise permit instructors to strengthen the same materials in diverse ways. By actuating a wide variety of intelligence, teaching in this way can
encourage a more profound comprehension of the subject material. Every student has their own cognitive skills and shortcomings which decide how student learn. This is usually alluded to as the learning style of the student and it relies on upon the MI of the children. While it might be troublesome and unfeasible for an instructor to oblige each lesson with the majority of the learning styles to suit each person in the classroom, the instructor can demonstrate to student best practices to utilize their stronger intelligence to help with the comprehension of a subject which ordinarily utilizes their weaker intelligence.

The second technique that instructors can utilize is to plan to learn focuses inside their classrooms. A particular area of the classroom could be assigned for each of the multiple intelligence (Lazear, 1992).

Further inferences for teachers are identified, portrayed and broke down by a few scholars. Goldman and Schmalz (2003), Shore (2004), and Temur (2007), give important procedures that teachers can utilize in their classrooms to better meet the novel needs of individual students. Goldman and Schmalz (2003) evidently define each intelligence by explaining what people prefer to do and how they incline toward learning. The authors shared how verbal-linguistic learners reacted well to talking and listening exercises, for example, narrating, reading aloud, group discussions, pair sharing and thinking etc. Logical-mathematical learners lean toward asking questions that permit them to review, compare, distinguish characteristics, classify, ranked, demonstrate and prove something. For these kinds of learners, teachers ought to unite scientific ideas to conduct change and request that learners do calculations utilizing animating games.

The authors shared that kinesthetically intelligent individuals learnt through role playing in drama, imaginative development, dance, exercise breaks and competitions for example, scrounger chases or floor games. Visual-spatial learners learn through visual expressions exercises, anchor charting, idea mapping, and pictorial representations of data and card and board games.

Conferring to Goldman and Schmalz (2003), musical intelligence learners get information mostly by creating up songs, singing songs, and playing music instrument afore, in, or after their presentations. Learners with Interpersonal intelligence enjoy
learning in a combined and cooperative environment. In contrast intrapersonal intelligence learners learn well in the circumstances where they can best express their ideas and feelings. These activities include goal setting activities, self-respect enrichment activities, article writing and self-directed learning. learners with naturalistic intelligence enjoy categorizing games, cataloguing activities and matching tasks as they are put into a natural setting (Goldman & Schmalz, 2003), while existentialistic intelligence learners lean to learn when they get opportunities to express their preferences in the learning contents and act on their opinions, throw light on the importance of the course, demonstrate learning by applying understanding in new and different contexts.

Multiple intelligence Teaching comprises activities that were designing and adapted to the multiple intelligence theory, applying the new strategies, and investigating how it can affect students’ achievement in academics. Temur (2007) findings revealed that by applying the multiple intelligence domains, students were found academically more successful and more assertive. Precisely, a mathematics curriculum of grade four students was investigated in the study, which was settled according to MI. The findings revealed that every student energetically participated in the learning content, so MI put a positive impact on students’ achievement scores as thoroughly engaged and more aware of their own strengths and abilities.

In an article entitled “Applying MI in Schools,” Hoerr (2002) detailed thoughts about MI theory in school and others. He indicated that MI had been accepted by many educators because more children were successful and it was child-centered. Educators began by looking at how the child learns and then worked to develop curriculum and instruction. In traditional schools, a curriculum-centered approach is used with teachers attempting to bend students to fit the curriculum.

By realizing that all individuals are not same, and the individuals are different in their cognitive perspectives, and teaching learning process might be effective if individual differences are considered seriously (Gardner, 1995). According to Gardner (1995),

“It is of the utmost importance that we recognize and nurture all of the varied human intelligence, and all of the combinations of intelligence. We are all so different, largely because we all have different combinations of intelligence. If we recognize this, I think we
will have at least a better chance of dealing appropriately with the many problems that we face in the world” (Gardner, 1995, p.89).

Shore (2004) study was very strong in collecting qualitative and quantitative data as there were an in-depth description and analysis of a multiple intelligence – based graduate-level teacher preparation course. Data was collected through interviews and observations and a case study approach was used. The findings were authentic and meaningful as student dialogue was used to describe the effectiveness of employing MI strategies in the classroom. Students described feelings of empowerment and expressed that they were able to show their work and understanding more easily through the use of intelligence. Teacher efficacy was also discussed as an important component in effectively implementing MI techniques and strategies. If teachers do not believe in using multiple intelligence and are not confident in doing so, they will not employ strategies to meet the unique needs of each child. A whole school approach referred to schooling built on MI as Gardner’s theory was used as the framework for developing their educational philosophy.

Gen (2000) proposed that the idea of MI ought to concentrate on how human learns and not on how a human educates. Teachers ought to give opportunities, connections, and structures for the learning environment, however students ought to have the chance to learn by utilizing the intelligence that best suits every person.

In this era, with a prompt advancement in technology and with the realization of individual differences, MI theory might support the “individuality” and can help teachers and students in resolving their teaching and learning issues (Desimone, 2009).

Up to now, there have been such a large number of utilizations of multiple intelligence theory in distinctive territories and diverse subjects everywhere throughout the world. Multiple Intelligences hypothesis has a few ramifications for instructors as far as classroom applications. In this manner, instructors ought to think about all intelligence as just as essential (Brauldy, 1998). Christison (1998) stated that the theory implications can be seen if the instructors ought to design their teaching material according to the different types of intelligence. teaching can encourage a more profound comprehension of the subject material by initiating wide grouping of intelligence. Christison (1998) further
mentioned that every person possessed a wide range of intelligence. Generally, in classroom students come with different intelligence. Consequently, it was unimaginable for teachers to design each lesson for all of the learning styles found inside of the classroom. so the teachers can demonstrate to students generally accepted methods to utilize their more dominate intelligence.

One more guard of this thought was Haas. As per Haas-Foletta and Ottolini-Geno (2006), multiple intelligence theory likewise has gigantic ramifications for the professional field. Various teaching training brought up teachers without utilizing their MI. Which ultimately had little mindfulness or comprehension of identity and MI couldn't lead powerful and effective groups of teachers.

Moore, Gilbreath, and Maiuri (1998) presented a cross justification overview of the assessment system in view of MI. She examined the response to the accompanying inquiry: "Does teaching to the student on the basis of individual intelligence as characterized by Howard Gardner have an impact on students’ performance and achievement. the variables which impact the relationship of specific type of instructions with individual’s intelligence. A comprehensive writing pursuit was directed. the investigation leads towards eight significant studies for survey and research. The studies indicated constructive outcomes of MI on students and teachers. Additionally, an enhancement in a classroom learning environment was also observed. The studies also indicated students’ performance and achievement with the utilization of MI based techniques.

Bumen (2007), additionally researched conceivable contrasts between MI theory and customary instruction methods. The accomplishments and attitudes of the students were focused on the examination. The researcher found a significant effect on students’ attitudes towards learning.
2.11 Criticism On Multiple Intelligence Theory

Although many theorists and researchers supported MI, Davis and Franklin (2006), Klein (2003), Sew (2003), and Pappano (2011) provided arguments that criticized teaching to various learning styles. Allcock and Hulme (2010) mentioned Davis and Franklin (2006) study explaining that in determining students’ preferred learning styles or favored intelligence type, students must complete individual learning style inventories. This method of self-report might provide faulty data as students may not actually be aware of their learning preferences and might give inaccurate responses to inventories.

Klein (2003) first introduced multiple intelligence theory as an inspirational educational innovation that employed diverse practices and personalized programming to match learner variances. The author then moved on to critique the theory, stating that it presents a static view of student competence in regards to the theory of ability. He justified and explained his critiques through examples and by mentioning other researchers and studies such as Barton, Matthews, Farmer, and Belyavin (1995), Liu and Wickens (1992), and Griffin, Case, and Siegler (1994).

Klein (2003) article also discussed pedagogical problems pertaining to teachers’ abilities in employing strategies and practices based on the theory. Some teachers can quickly reference the theory but may be misinterpreting its components. Some other criticisms included an eruption in the work load of teachers in planning programs and experiences geared to MI and the weak validity of personal MI inventories that were completed by the students. This self-report method is not as reliable for younger students as they may not understand or be able to determine their preferred learning style.

Moreover, Sew (2006) short book reviewed criticized the work of Howard Gardner by specifically exploring each of his multiple intelligence and determining that they are not separate entities. The author claims that humans possess intelligence that work together and cannot be separated as individual learning styles. As well, the review explains how Gardner’s theory ignored the social influences of one’s environment. When Gardner formed the personal intelligence, he failed to incorporate the social domains and did not discuss socioeconomic factors, cultural values and societal
As this review provides only one perspective, it seems to be weak in its criticisms. Korthagen (2004) stated that other studies portray Gardner’s theory as an effective method for looking at students through a holistic lens. A holistic approach to education involves looking at the physical, social, intellectual, emotional, creative, and spiritual development of every individual. This approach grasped students accountable in the learning process and inspires them to overcome barriers to achieving set goals. Students’ intelligence is thus shaped by their social interactions within their environment and they are viewed as unique individuals.

According to Pappano (2011), Teachers are required to spend time during the day and after school to ensure that all students’ needs are met by employing DI and MI techniques. As DI begins by finding out the diverse learning styles of the students, critics deduce that it is encouraging teachers to sort students and categorize them in ways that may not be effective (Pappano, 2011).

In the article, Tomlinson’s DI approach is said to be a misinterpretation of Gardner’s theory of MI. In addition, the author explains how instruction is misguided when students are given ample choice in how they present or perform their understanding (Pappano, 2011). Students do not like when their classmate’s papers look different as assessment and summative tasks are differentiated. Bluntly, in today’s society, students are required to make important choices as they continue through high school and post-secondary education. As well, when students are given choices, they are more motivated and engaged in learning and teaching (Gable et al., 2000). Thus, differentiation matters and effective high quality educators will take the time and effort to support every student in their class by using flexible grouping, offering choices and using MI to instruct and assess student learning.
2.12 Gender Differences in Multiple Intelligences

The previous research studies regarding Gender differences mostly constituted multiple intelligence profiles of students, academic achievements and attitudes toward science. The finding of these studies revealed some differences among male and female multiple intelligence.

For instance, Snyder (2000) conducted a study on multiple intelligence, students learning styles, and academic accomplishments of the students. The main objectives of the Snyder’s study were to develop an effective tool which teachers could easily present to their classes in order to recognize the learning needs and potentials of the students. The second objective of the study was to investigate the correlation between multiple intelligence, academic achievement of the students and their learning styles. The utmost strongest and the noticeable result of the study indicated that the high school sampled students were found highly strongest in kinesthetic and interpersonal intelligence and show significant results in academic and achievement tests.

Additionally, the researcher found a positive correlation among the students’ average grade points and between the students’ grade point average and the types of multiple intelligence i.e. spatial visual intelligence and logical intelligence. A negative correlation was observed in male students’ GPA and preference towards 30 sound categories, and working with others. While in female students a positive correlation was found in female students’ GPA and kinesthetic intelligence, kinesthetic learning style and global learning style categories. It was noted that students with high GPA reflected themselves to be more determined, dynamic, and were more probable for studying alone (Snyder, 2000).

The study furthermore showed major gender differences in the academic achievement of the students and the classes of the instrument. The female students showed strong results in linguistic intelligence, intrapersonal intelligence, musical intelligence, and preference for working alone, visual intelligence, interpersonal intelligence as compared to male students (Ibid).

Gogebakan (2003) conducted a research study of her master thesis at METU in which she investigated the impact of gender differences on students’ multiple intelligence and the
student's grade level. The sample of the study was 321 students of Middle East Technical University Development Foundation School in the academic-years 2001-2002, for the session spring from first, third, fifth and eighth grade. The tool administered for data collection was Pictorial Teele Inventory for Multiple Intelligences. Results indicated that the students with different grade levels showed variety in their levels of multiple intelligence. For instance, first grade students showed strongest results in the level of linguistic intelligence and logical-mathematical intelligence following by kinesthetic intelligence and visual intelligence, whereas grade third students’ showed interpersonal intelligence, spatial intelligence, logical-mathematical intelligence, and linguistic intelligence as their most dominant intelligence while the grade fifth and eight students’ s were dominant in kinesthetic intelligence, visual intelligence, interpersonal intelligence, and musical intelligence.

Gogebakan’s and Snyder’s findings were in coherence with each other in relation to gender differences and academic achievements. The researcher found male students mean scores in logical intelligence and kinesthetic intelligence higher than female students’ while musical intelligence mean score was observed highest in female students’ as compared to male students.

Loori (2005) studied male and female students’ differences in multiple intelligence preferences for English as a second language acquisition at higher institutes of the United States of America. A sample of the study constituted 90 international students of three American University enrolled at ESL centers. The findings reveled an utmost difference in the preferences of males’ and females’ intelligence. Conferring the results, male students favored logical and mathematical intelligence learning activities, while female students chosen intrapersonal intelligence based learning activities additionally, interpersonal intelligence was noticed the most preferred intelligence followed by logical-mathematical, linguistic and bodily-kinesthetic intelligence.; whereas the intrapersonal intelligence was observed the minimum preferred intelligence.
To conclude, in the 1990s, educators began to recognize the viability of Multiple Intelligence theory (MI). During the last decade, MI theory was introduced, differentiated, assimilated, applied, studied, and assessed as a practice in various projects and schools in America. MI theory has been cross-linked with Bloom’s Taxonomy of Educational Objectives (Armstrong, 1994).

Today hundreds of schools claim to be based in whole or in part on MI pedagogy. McEwin, Dickinson, and Hamilton (2000) indicated that people ask how educational systems could be transformed to meet the needs of students at the present time. As lifelong learning is now essential, people, regardless of age, need to learn, unlearn, and relearn. They need to know how to develop skills needed to deal with complexity and challenges that had never before existed. Schools created for another time have to adapt to meet the needs of an increasingly diverse population of students.

In implementing MI theory, the faculty reached the conclusion that not all intelligence could be included in every lesson on a daily basis. Attempting to create the perfect lesson by using all the multiple intelligence meant that none would be served sufficiently.

MI theory provided an approach of thinking; it was an attitude about individuals which allowed them for resemblances and variances. It provided individuals with opportunities for insertion and improvement, arising self-confidence and the development of different potentials and skills. No single theory of learning gave a response to each learning circumstance. Several instructors experienced issues in coordinating Gardner's MI theory into standard educational programs (Gardner, 2009).

Since Multiple Intelligences Theory (MIT) has met with success in the primary and secondary students’ education levels, it is logical that MIT will also work in the teaching community. Unfortunately, there is a paucity of research concerning assessment of MIT in higher education setting. Many articles exist which describe implementation of MIT, but few research studies have been conducted on teachers’ outcomes due to the use of MIT in schools and colleges. The use of Gardner's multiple intelligence theory into the secondary schools presented conceivable outcomes to grow and improve the current educational modules. In the meantime, instructors could investigate the differing qualities of classroom teaching utilizing MI approach (Armstrong, 2009).
Nuzzi (1999) indicated that classroom teaching prompts under a constant change to address the needs of students and teachers, MI theory might provide opportunities’ is not generally a promptly utilized system for change. He stated that

"By teaching for, with, and about multiple intelligence, teachers can begin to shape teaching strategies that respect the wide range of gifts, talents, and intelligence present in their classrooms.” Multiple intelligence theory is not a panacea for education nor for educators. What MI offers are opportunities for teachers to seek out various intelligence factors present within their self and every student to best enhance the learning process both individually and collectively” (Nuzzi, 1999, p. 88).

The literature review showed that the previous studies found the multiple intelligence theory most effective in the field of teaching at different levels of education and in a different perspective of the education process. It is concluded form the whole discussion that Multiple Intelligences Theory might enable the students to be academically more successful by adopting a learning environment in which they are more active participants, utilize learning material by self, freely express their opinions and participate in discussions, learn through acting and seeing, and utilizing their hidden potentials and can fulfil their thirst of learning (Armstrong, 2009).
CHAPTER III
METHODS AND PROCEDURE

This chapter elaborates the methods used in data collection and analysis process. The topics of discussion include Research design, Population, Sample Size and its Distribution, Research Instrument, Pilot Study of Research Instruments, Procedure, Ethical Consideration, Data Analysis, and Hypotheses Tested.

3.1 Research Design

This study has adopted the descriptive survey design in which different questionnaires were used for data collection. In Descriptive research data is collected without any manipulation in the participants’ environment. It is a fact-finding method of research, which leads towards acceptable and accurate analysis of the results. According to Borg (2015), “Research with descriptive technique is a learning with and exact analysis of the outcomes. The aim of the descriptive study is to find out that "what is" so observational and how survey methods are normally used to gather descriptive data” (Borg, 2015, pp. 10-11).

It refers towards the actual existences of the situations’, practices, and other phenomena. As the study was concerned with the investigation of multiple intelligence of the teachers and the teaching strategies they used in their classrooms, so the research with descriptive approach was the most suitable way to use.

3.2 Population

Teachers of all secondary schools (male and female) in district Peshawar constituted the population of the study. There are approximately 118 high/higher secondary schools in district Peshawar out of which 70 schools are in the urban area and 48 schools in rural area. There are total 722 Secondary School Teachers (SST) working in these schools (ASC, 2014-2015).
3.3 Sample Size and its Distribution

Proportionate random sampling technique was used for this study. Proportionate sampling is a strategy which is used for a population that consists of subgroups and the sample size taken is proportional to the population size.

The population was divided into subgroups male and female. A sample size of 146 males and 107 females was taken that was proportional (35%) to the population size of 415 males and 305 female SST (using the criteria of sample size proposed by L, R Gay, 1996). Similarly, 73 males from an urban area, 73 males from a rural area, 54 females from an urban area and 53 females from rural area were randomly selected. Thus, a total of 253 SST constituted the sample size of this study.
3.4 Research Instrument

The research instruments used in the study were questionnaires. Questionnaire as an instrument helps in collecting information more rapidly than any other means. In addition, the participants of the study were teachers who could easily read and respond the statements given in English language in the questionnaire.

For developing the questionnaires, “Multiple Intelligence Survey” developed by Weber (1999), and the related teaching strategies questionnaire was consulted for help.

Two different questionnaires were used to collect data from Secondary School Teachers. The first questionnaire was used to measure the levels of nine multiple intelligence of Secondary School Teachers. The second questionnaire of thirty-six teaching strategies was used to get data about the most used strategies of the Secondary School teachers in their classrooms.

3.4.i. Instrument 1: Multiple Intelligence Questionnaire

Multiple Intelligence questionnaire measured teachers’ levels of nine multiple intelligence. 4 point Likert scale was used to rate 45-items on the questionnaire which ranked in an order where 1 was used for strongly disagree, 2 for disagree, 3 for agree, and 4 referred to strongly agree.

Up to date, a number of multiple intelligence inventory are produced. The researcher selected multiple intelligence questionnaire produced by Ellen weber (1999) as a sample. some researchers (e.g. Armstrong 1999, Silver 1997) referred that the instrument is valid to use for accessing multiple intelligence.

Ellen weber produced survey inventory for eight intelligence, the researcher with prior permission of the Author Ellen Weber, developed her own questionnaire with the help of multiple intelligence survey inventory. In the researcher’s questionnaire statements were made for nine kinds of intelligence in consultation with the supervisor and other professors of the education department.

In the original Multiple Intelligence Survey (Weber, 1999), there were 40 items for eight intelligence and the respondents were asked to select at least 15 items that were most like
them. The number of selections for each type of intelligence was then calculated and the highest total was indicative of the preferred intelligence.

The assessment was changed for the present study, to obtain a specific score for each of the nine intelligence that could allow the researcher to examine discrepancies among the multiple intelligence. In the researcher questionnaire, five items measured each of the nine intelligence. Table-3.1 presents the items on the questionnaire that measured each type of intelligence.

**Table-3.1: Items on the Questionnaire that Measured Each Type of Intelligence**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Type of Intelligence</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Linguistics Intelligence</td>
<td>Understands words, well expresses, summarizing people’s thoughts, good memory for objects, enjoy listening to spoken words</td>
</tr>
<tr>
<td>02</td>
<td>Logical Intelligence</td>
<td>Asks questions about objects, numerical problems solving skill, get sense by outlining the text, enjoy indoor games, interests in science subjects</td>
</tr>
<tr>
<td>03</td>
<td>Spatial Intelligence</td>
<td>Visualizes things, understands maps and charts, interests in visual presentations, express self by drawing, gets more out of pictures than text.</td>
</tr>
<tr>
<td>04</td>
<td>Musical Intelligence</td>
<td>Great listening skills, attracted to music, enjoy listening to background music, sensitive to noises, tapping rhythms while waiting</td>
</tr>
<tr>
<td>05</td>
<td>Kinesthetic Intelligence</td>
<td>Like to be active, can mimics other people’s gestures, enjoy sports in free time, love puzzle, skills in a craft</td>
</tr>
<tr>
<td>06</td>
<td>Interpersonal Intelligence</td>
<td>Enjoy peoples gathering, working in teams, belong to committees, helps others, sought out for other’s company</td>
</tr>
<tr>
<td>07</td>
<td>Intrapersonal Intelligence</td>
<td>Keep a personal diary, enjoy walking alone, in reading compare personal choices, work independently, good sense of self direction</td>
</tr>
<tr>
<td>08</td>
<td>Naturalistic Intelligence</td>
<td>Favorites pets, or spots in nature, learn from observing nature change, like filed trips in nature, can distinguish similarities and differences among objects, a keen eye for getting the detail of the things around.</td>
</tr>
<tr>
<td>09</td>
<td>Existentialistic Intelligence</td>
<td>Strong interest in society, discusses questions about life and death, learn a thing by their applications, enjoy viewing art work, like traveling.</td>
</tr>
</tbody>
</table>

**Scoring.** All the responses for each of the nine-multiple intelligence were summed up and a mean was taken out for each intelligence in a single questionnaire. The questionnaire for multiple intelligence shed light on Hypothesis 1.
3.4. ii. Instrument 2: Teaching Strategies Questionnaire

Thirty-six teaching strategies that could be used by teachers to provide instruction using nine multiple intelligence are included in the questionnaire. Table-3 presents the teaching strategies for nine multiple intelligence.

Table-3.2: Teaching Strategies for Nine Multiple Intelligences.

<table>
<thead>
<tr>
<th>No</th>
<th>Type of intelligence</th>
<th>Teaching strategies used</th>
<th>Items no</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Linguistics Intelligence</td>
<td>Teaching in the form of a story, group discussion, students Public speaking, provide books about topic</td>
<td>1,10,1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9,27</td>
</tr>
<tr>
<td>02</td>
<td>Logical/Mathematical Intelligence</td>
<td>Critical thinking exercises, logical questioning exercise, making connections and order between the topics, cause and effect</td>
<td>2,11,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0,29</td>
</tr>
<tr>
<td>03</td>
<td>Bodily-Kinesthetic Intelligence</td>
<td>Body answers, role playing, do experiments and projects, see and touch the things.</td>
<td>3,12,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,30</td>
</tr>
<tr>
<td>04</td>
<td>Interpersonal Intelligence</td>
<td>Personalizing and characterizing lessons, people interaction, share questions answers, Cooperative group work</td>
<td>4,13,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2,31</td>
</tr>
<tr>
<td>05</td>
<td>Intrapersonal Intelligence</td>
<td>Express opinions and feelings, make choice in learning activities, use emotions, Personal connections</td>
<td>5,14,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3,32</td>
</tr>
<tr>
<td>06</td>
<td>Visual/Spatial Intelligence</td>
<td>Visualize the learning content, drawing images of the material, demonstrate the learning concept by building a model of it, Show videos of the learning content</td>
<td>6,15,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4,33</td>
</tr>
<tr>
<td>07</td>
<td>Musical Intelligence</td>
<td>Play appropriate background music or sounds that relate to a specific lesson, teach different concepts in a musical tune, Teacher provides books of number games, word pattern games. Use recorded music that amplifies the lesson content.</td>
<td>7,16,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5,34</td>
</tr>
<tr>
<td>08</td>
<td>Naturalistic Intelligence</td>
<td>Teaching in a natural setting, bring nature into the class, make crafts and projects out of natural materials, compelling students to learn through observation and senses</td>
<td>8,17,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6,35</td>
</tr>
<tr>
<td>09</td>
<td>Existentialistic Intelligence</td>
<td>Provide opportunities to express their preferences in the learning contents and act on their opinions. Discussing how topics were important to their classroom, school, community or the world, arranging presentation of expert resource person who present additional viewpoint on specific topic, allow students to present learning by putting on understanding in different and new contexts</td>
<td>9,18,2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7,36</td>
</tr>
</tbody>
</table>
Teachers were inquired to rate the mentioned teaching strategies; which they used in their classrooms. Using a 4 point Likert Scale, the 36-statments on the questionnaire were rated that ranked in an order where “1” was used for infrequently, “2” for sometimes, “3” for frequently and “4” for always.

The teaching strategies that were included in this questionnaire were drawn from the literature on multiple intelligence. The teaching strategies questionnaire shed light on hypotheses ii.

3.5 Pilot study of Research Instruments

Before conducting the key questionnaire, a pilot testing containing questionnaire contained a sample of male and female teachers of urban and rural secondary schools of Peshawar in Khyber-Pakhtunkhwa was conducted. The main purposes of the pilot testing were:

i. It was a prerequisite for testing the appropriateness of items on the questionnaires and improve it beforehand.

ii. To ensure that the statements for different variables were clear, concise to read, understand and answerable and are in a coherent order.

iii. To identify weakness that might crawl into the process of data analysis.

iv. To detect any unexpected issues in data collection procedure and to find ways to tackle these issues.

Validity and reliability are considered the fundamental criteria for investigating the quality of the data (Denzin & Lincoln, 2005). For validation purpose, the questionnaire was administered to 15 high school teachers, five professors (experts) and supervisor from the education department. To determine their observations about the items in the questionnaire, the respondents were interviewed by the researcher after the data was collected. The questions about the clarity, ambiguity and undisputed nature of framed questionnaire items were asked by the researcher. Questions about the adequacy, interest-grabbing, objectivity, relevance, and length of items mentioned in the questionnaire, were also asked from the professors. The respondents were satisfied with both questionnaires.
except for a few statements, which were revised and cleared with the consultation of the research supervisor.

For reliability purpose, respondent’s responses were tested using Cronbach alpha process. the Cronbach alpha for all the items on multiple intelligence questionnaire was .902 and in the teaching strategies questionnaire, the Cronbach alpha of all the items for teaching strategies was .888.

3.6 Data Collection Procedure

The questionnaires were administered personally by the researcher to the teachers selected for participation in the study. Before data collection, the researcher provided their participants an information sheet which included the purpose of the study, their role in the study, assurances of confidentiality, volunteer nature of participation. Data was collected from the teachers. After a few days, all the copies distributed were retrieved also personally by the researcher.

3.7 Ethical Consideration

Ethical standards for conducting research studies are necessary to be followed in order to keep participants away from any ethical distraction. As participants of the study were teachers, the following ethical considerations were followed:

Before data collection from school teachers, permission was granted from district education department, Peshawar.

i. Consent letter was signed by the participants, which included, the purpose of the study, participants’ role in the study, and assurance of confidentiality.

ii. Confidentiality was maintained; Revelation of participant’s name and address were strictly prohibited.

iii. Confidentiality of data and access to that data were retained. just researcher had right to access the data.

iv. The researcher maintained the schools’ norms, rules, and regulations and stayed away from activities or any other conduct that conceivably could create uneasiness or embarrassment for teachers or the concerned department.
3.8 Data Analysis

Data collected through questionnaires were entered into a computer file for analysis using SPSS - Windows, version 18. Descriptive statistics was used for the analysis of sample demographic information and Inferential statistics was used for analyzing the variables of both questionnaires. With an alpha level .05, an independent-samples t-test. was used to compare the means of

i. Each of the nine Multiple Intelligence of male and female.

ii. The teaching strategies used by secondary school teachers of the urban area and secondary school teachers of rural area.

While Pearson r correlation coefficient was used to analyze the relationship between Multiple Intelligences of secondary School teachers and the teaching strategies they use in their classrooms.
CHAPTER -IV

DATA ANALYSIS AND INTERPRETATION

In this chapter results of data analysis that were used to describe the sample and address the research hypotheses are presented. This chapter is divided into three categories:

i. Description of the sample demographic information using descriptive statistics

ii. Description of the variables used in the questionnaire

iii. Results of statistical analyses that answered the research hypotheses.

The purpose of the study was to determine how teaching strategies attributed with MI will facilitate the learning process and make teaching more effective particularly in Pakistan. The current study investigated the levels of different multiple intelligence of SST and its relationship with the teaching strategies. The calculated sample size for this study was 253.

Description of The Sample

Gender of The Participants

Participants were questioned to mark their gender on the questionnaire, the output of the participants’ responses was analyzed by frequency distribution. The analysis results are presented in Table-4.1.

Table-4.1: Frequency Distribution of Gender

<table>
<thead>
<tr>
<th>Teacher Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Male</td>
<td>146</td>
<td>57.7</td>
</tr>
<tr>
<td>Valid Female</td>
<td>107</td>
<td>42.3</td>
</tr>
<tr>
<td>Valid Total</td>
<td>253</td>
<td>100.0</td>
</tr>
</tbody>
</table>

146 (57.7%) participants reported their gender male while female participants were 107 (43.3%). Thus, the majority of participants were male.
The Participants were asked to indicate the location of the school. Respondents’ responses were summarized using frequency distribution. Table-4.2 presents the results.

**Table-4.2: Frequency Distribution of School Location**

<table>
<thead>
<tr>
<th>School Location</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>128</td>
<td>50.6</td>
</tr>
<tr>
<td>Urban Area</td>
<td>125</td>
<td>49.4</td>
</tr>
<tr>
<td>Rural Area</td>
<td>253</td>
<td>100.0</td>
</tr>
</tbody>
</table>

From urban area 128 participants with a percentage of 50.6 participated in the study while 125 (49.5%) participants participated from a rural area.

Male participants from the urban and rural area were 74 (50.7%) and 72 (49.3%) and female participants from the urban and rural area were 54 (50.5%) and 53 (49.5%) respectively as shown in figure-4.1.

**Figure 4.1: Graph of Cross Tabulation of Teacher Gender and School Location**
Teachers were asked to mention their level of academic qualification on the questionnaire. Using frequency distributions, their responses were analyzed. Results are presented in the table-4.3.

**Table-4.3: Frequency Distribution for Level of Academic Qualification**

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA/ B.Sc</td>
<td>20</td>
<td>7.9</td>
</tr>
<tr>
<td>MA/ M.Sc.</td>
<td>211</td>
<td>83.4</td>
</tr>
<tr>
<td>MS/ Ph.D.</td>
<td>21</td>
<td>8.3</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The table-4.3 test results, presented that, most of the study respondents were highly qualified. 83 % (211 participants) of the total sample constituted MA/M.Sc. degree.

20 (7.9%) respondents had BA/B.Sc. the level of education while 21(8.3%) respondents had completed their M.Phil. and were enrolled in Doctorate (Ph.D.) programme.

Teachers were inquired about the level of their professional education on the questionnaire. Using frequency distribution, their responses were summarized, as shown in Table-4.4.

**Table-4.4: Frequency Distribution for Level of Professional Education**

<table>
<thead>
<tr>
<th>Valid</th>
<th>Professional Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTC/ CT</td>
<td></td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>B.Ed.</td>
<td></td>
<td>90</td>
<td>35.6</td>
</tr>
<tr>
<td>M.Ed.</td>
<td></td>
<td>158</td>
<td>62.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>252</td>
<td>99.6</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>253</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The result indicated that 90 respondents (35.6%) were B.Ed. degree holders and 158 (62.7 %) had completed their master of education while 1 respondent did not mention the level of professional education.
Results for academic qualification of urban and rural secondary school teachers showed that 84% urban area secondary school teachers indicated their academic qualification as MA/M.Sc. and 82% from a rural area mentioned their qualification as MA/M.Sc. therefore it was concluded that secondary school teachers of both urban and rural areas, have no significant difference in the levels of their academic education as shown in figure-4.3.

The results showed that majority of the respondents indicated Master of education (M.Ed.) as their high professional education. Further, it was calculated that the test results of Master of Education (M.Ed.) of rural secondary school teachers were high (68%) than urban secondary school teachers (57%).
Participants were asked to report their years of experience in the field of teaching. Their responses were summarized using frequency distribution, the results are shown in Table-4.5.

**Table-4.5: Frequency Distribution for Experience in Teaching**

<table>
<thead>
<tr>
<th>Experience in Teaching</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>36</td>
<td>14.2</td>
</tr>
<tr>
<td>6-10</td>
<td>37</td>
<td>14.6</td>
</tr>
<tr>
<td>11-15</td>
<td>46</td>
<td>18.2</td>
</tr>
<tr>
<td>16-25</td>
<td>134</td>
<td>53.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>253</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The test result indicated that 36 respondents (14.2%) were under the teaching experience of 1-5 years, 37 respondents (14.6%) were under teaching experience of 6-10 years, 46 respondents mentioned their teaching experience of 11-15 years and 134 respondents (53%) showed 25 years teaching experience. Test results indicated that majority of study participants were professionally highly experienced.

Teachers were inquired “how many classes they taught in a typical day”, Using descriptive statistics respondents’ responses were summarized. In Table-6 results of the analysis are presented.

**Table-4.6: Descriptive Statistics for Number of Classes in a Typical Day**

<table>
<thead>
<tr>
<th>No of Classes teach in a typical Day</th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid N (list wise)</td>
<td>253</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1.87</td>
<td>.454</td>
</tr>
</tbody>
</table>

The results indicated that majority of respondents (79%) taught a 4-6 number of classes in a typical day, with a mean of 1.87 (SD = .454). The range of classes for these respondents were 1-8 classes.
Teachers were asked about the content of the course compatibility with the students learning/understanding level. Frequency distribution was used for test analysis. In Table-4.7 the results are presented.

**Table-4.7: Descriptive Statistics for Course Compatibility with the Students’ Learning**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>177</td>
<td>70.0</td>
<td>70.0</td>
<td>70.0</td>
</tr>
<tr>
<td>No</td>
<td>68</td>
<td>26.9</td>
<td>26.9</td>
<td>96.8</td>
</tr>
<tr>
<td>somewhat</td>
<td>8</td>
<td>3.2</td>
<td>3.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The results indicated that majority of the respondents were satisfied with the content of the course compatibility with the students learning/understanding level. 177 (70%) gave their opinion as “Yes” and 68 respondents (26.9%) were in the opinion of “No”, while 8 respondents (3.2%) agreed to some extent.

Teachers were asked to mention that their adopted teaching strategies give them the desired output of student’s learning or not. The output of the respondents’ responses was analyzed by frequency distribution. In table 4.8, the results are presented.

**Table-4.8: Descriptive Statistics for Output of Student’s Learning**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>211</td>
<td>83.4</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td>somewhat</td>
<td>30</td>
<td>11.9</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The majority of the respondents (83%) showed satisfaction on students learning output, while 12 respondents (4.7%) responded “No”. The rest of 30 respondents (11.9%) were somewhat agreed.
DESCRIPTION OF THE SCALED VARIABLES

The mean of responses on Multiple Intelligence questionnaire and Teaching Strategies for Multiple Intelligence questionnaire were totaled and divided by the number of items in the questionnaire. Descriptive statistics was used to analyze the scores on both questionnaires. Table-4.9 presents the result of descriptive analysis of all levels of multiple intelligence.

Table- 4.9: Descriptive Statistics of Levels of Multiple Intelligence

<table>
<thead>
<tr>
<th>Multiple Intelligence</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linguistics intelligence</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>3.11</td>
<td>.419</td>
</tr>
<tr>
<td>Logical intelligence</td>
<td>253</td>
<td>2</td>
<td>4</td>
<td>3.03</td>
<td>.493</td>
</tr>
<tr>
<td>Visual intelligence</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>3.09</td>
<td>.527</td>
</tr>
<tr>
<td>Musical intelligence</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>2.73</td>
<td>.529</td>
</tr>
<tr>
<td>Kinesthetic intelligence</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>2.71</td>
<td>.477</td>
</tr>
<tr>
<td>Interpersonal intelligence</td>
<td>253</td>
<td>2</td>
<td>4</td>
<td>3.10</td>
<td>.473</td>
</tr>
<tr>
<td>Intrapersonal intelligence</td>
<td>253</td>
<td>2</td>
<td>4</td>
<td>2.90</td>
<td>.563</td>
</tr>
<tr>
<td>Naturalistic intelligence</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>3.09</td>
<td>.484</td>
</tr>
<tr>
<td>Existentialistic intelligence</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>3.20</td>
<td>.513</td>
</tr>
</tbody>
</table>

The test data in the table presented that among the levels of nine multiple intelligences, the mean of Existentialistic Intelligence was high (M= 3.20, SD= .513) trailed by Linguistics intelligence (M= 3.11, SD =.419) and Interpersonal intelligence (M= 3.10, SD= .473). The observed means for Visual and Naturalistic intelligence were (M= 3.09, SD= .527 and M= 3.10, SD= .484) respectively. Logical- Mathematical intelligence mean was found (M= 3.03, SD= .493) followed by Intrapersonal intelligence with (M=2.90, SD= .563), Musical intelligence with (M=2.73, SD= .529), and Kinesthetic intelligence (M= 2.71, SD= .477).
Table-4.10: Descriptive Statistics of Teaching Strategies

<table>
<thead>
<tr>
<th>Teaching strategies</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linguistics Teaching</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>2.76</td>
<td>.551</td>
</tr>
<tr>
<td>Logical teaching</td>
<td>253</td>
<td>2</td>
<td>4</td>
<td>3.20</td>
<td>.470</td>
</tr>
<tr>
<td>Visual Teaching</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>2.38</td>
<td>.691</td>
</tr>
<tr>
<td>Musical Teaching</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>1.72</td>
<td>.736</td>
</tr>
<tr>
<td>Kinesthetic Teaching</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>2.86</td>
<td>.610</td>
</tr>
<tr>
<td>Interpersonal Teaching</td>
<td>253</td>
<td>2</td>
<td>4</td>
<td>2.89</td>
<td>.489</td>
</tr>
<tr>
<td>Intrapersonal Teaching</td>
<td>253</td>
<td>2</td>
<td>4</td>
<td>3.04</td>
<td>.561</td>
</tr>
<tr>
<td>Naturalistic Teaching</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>2.43</td>
<td>.688</td>
</tr>
<tr>
<td>Existentialistic Teaching</td>
<td>253</td>
<td>1</td>
<td>4</td>
<td>2.74</td>
<td>.614</td>
</tr>
<tr>
<td>Valid N (list wise)</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicated that mean of the teaching strategies for Logical teaching (M=3.20, SD=.470) was found to be high among all teaching strategies while the mean of musical teaching strategies (M= 1.72, SD=.736) was found to be the lowest one.

The results also indicated that observed mean of Intrapersonal Teaching strategies was M= 3.04 with SD= .561, followed by Interpersonal Teaching strategies (M= 2.89 SD= .489), Kinesthetic Teaching strategies (M= 2.86, SD= .610), Linguistics Teaching strategies (M= 2.76, SD= .551), Existentialistic Teaching strategies (M= 2.74, SD= .614), Naturalistic Teaching strategies (M= 2.43, SD= .688) and Visual Teaching strategies (M= 2.38, SD= .691) respectively.
Hypothesis Results

Hypothesis 1;

H₀: There is no significant difference between male and female levels of multiple intelligence;

An independent-samples t-test (alpha level of .05), was used to determine the difference between males and females’ levels of multiple intelligence. The test results are shown in table-4.11.

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Linguistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>3.889</td>
<td>.061</td>
<td>-.786</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-.803</td>
</tr>
<tr>
<td>Logical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.157</td>
<td>.693</td>
<td>.061</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>.062</td>
</tr>
<tr>
<td>Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>10.968</td>
<td>.001</td>
<td>-2.609</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-2.724</td>
</tr>
<tr>
<td>Musical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.686</td>
<td>.408</td>
<td>-2.364</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-2.377</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>7.328</td>
<td>.007</td>
<td>-2.549</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-2.620</td>
</tr>
<tr>
<td>Interpersonal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>4.086</td>
<td>.056</td>
<td>1.941</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>1.900</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.581</td>
<td>.447</td>
<td>-1.810</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-1.845</td>
</tr>
<tr>
<td>Naturalistic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.296</td>
<td>.587</td>
<td>-.942</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-.961</td>
</tr>
<tr>
<td>Existentialistic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.213</td>
<td>.645</td>
<td>-.936</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>-.951</td>
</tr>
</tbody>
</table>
**Linguistic Intelligence**

For the Linguistic Intelligence, with a significant p value (Sig. (p)) value of 0.06, the “F” value of the Levene’s test was 3.88, which was greater than α level of .05 (P > .05) so the null hypothesis was accepted and it was assumed that the variance of both the groups i.e. males and females were homogeneous and no significant difference was found in variances of the two group’s (male and female).

Further we noticed that the observed “t” value in the table is -.786, with 251 degrees of freedom (df), and the “p” value is .433. Since p >.05, so it was concluded that male and female were not significantly different in their levels of Linguistic Intelligence. thus H₀ was accepted.

**Logical Intelligence**

For the Logical Intelligence, the “F” value was .157 with a Sig. (p) the value of 0.693, which was greater than α level of .05 (P > .05) so null hypothesis was accepted here and it was assumed that the two groups variances (i.e. males and females) were homogeneous and there was no significant difference their variances.

Further, “t” value in the table -4.11, with 251 df, was .061, and the “p” value was .951. Since p >.05, therefore, no significant difference in male and female levels of logical Intelligence was found. Thus H₀ was accepted.

**Visual Intelligence**

For the Visual Intelligence, the Levene’s test “F” value of was 10.96 with a Sig. (p) value of .001, which was less than α level of .05 (P < .05) so it was assumed that the variance of both the groups were heterogeneous.

Additionally, it was seen that the observed “t” value in the table was -2.724, with df of 250, and the “p” value was .007. As p <.05, the null hypothesis was rejected for the level of visual intelligence, and it was concluded that males and females differed significantly in their levels of Visual Intelligence. By examining the means of visual Intelligence of males and females, it was observed that females showed significantly high level of Visual intelligence as compared to males.
Musical Intelligence

The Levene’s test “F” value for the Musical Intelligence was .686 with a Sig. (p) the value of .408, which was greater than α (P > .05). Thus null hypothesis was accepted and it was assumed that variances in both groups (male and female) are homogeneous.

Furthermore, the observed “t” value in the table, with 251 df, was -.786, and the “p” value was .19. Since p > .05, so it was found that male and female were not significantly different on their levels of musical Intelligence. For that reason, H₀ was accepted here for musical intelligence.

Kinesthetic Intelligence

The “F” value of the Levene’s test was 7.328 with a Sig. (p) value of .007 which was less than α level of .05 (P < .05), therefore it was presumed that the variance of both the groups i.e. male and female were heterogeneous and it was found that the variances of male and female were significantly different in the level of Kinesthetic Intelligence.

Moreover, the “t” value in the table was -2.62, with 246.6 df, and the “p” value was .009. As p < .05, therefore, the null hypothesis was rejected here in the respective type of Kinesthetic intelligence level, and it was concluded that males and females differed significantly in their levels of Kinesthetic Intelligence. The group means of Kinesthetic Intelligence of male and female indicated that females exhibited significantly high level of kinesthetic intelligence (M= 2.80) than male (M= 2.65)

Interpersonal Intelligence

For the Interpersonal Intelligence, the “F” value of the Levene’s test was 4.086 with a Sig. (p) value of .06, which was greater than α level of .05 (P > .05). therefore, it was inferred that the variance of both the groups was homogeneous and there was no significant difference in their variances.

Further it was observed that “t” value in the table-11 was 1.941, with 251 df, and the “p” value was .057. As p > .05, therefore, male and female were not significantly different in their levels of interpersonal intelligence. Thus H₀ is accepted here.
Intrapersonal Intelligence

The “F” value of the Levene’s test was .581 with a Sig. (p) the value of .447, which was greater than α level of .05 (P > .05) so the null hypothesis was accepted here and it was concluded that variances in both groups were homogeneous.

Additionally, the observed “t” value in the table, with 251 df, is -1.810, and the “p” value was .071. Since p > .05, so it was concluded that male and female were not significantly different in their levels of intrapersonal intelligence. Therefore, H₀ was accepted here.

Naturalistic Intelligence

The “F” value of the Levene’s test for Naturalistic Intelligence was .296 with a Sig. (p) the value of .587. As P > .05 so null hypotheses was accepted here and it was assumed that the variance of both the groups was homogeneous.

Moreover, it was observed that “t” value in the table was -.942, with df of 251, and the “p” value was .347. As p > .05, therefore, levels of male and female Naturalistic Intelligence were not significantly different. Thus H₀ was accepted here.

Existentialistic Intelligence

For the Linguistic Intelligence, the “F” value of the Levene’s test was .213 with a Sig. (p) the value of .645, which was greater than our α level of .05 (P > .05) therefore null hypothesis was accepted and it was assumed that the variance of both the groups was homogeneous.

Further it was seen that the observed “t” value in the table, with 251 df, was -.936, and the “p” value was .065. As p > .05, thus, male and female were nto significantly different in their levels of Existentialistic Intelligence. Resultantly H₀ was accepted.
Hypotheses II:

H₀: There is no significant difference between the teaching strategies used by secondary school teachers in the rural and urban area.

Table-4.12: Group Statistics of Teaching Strategies Based on Multiple Intelligence

<table>
<thead>
<tr>
<th></th>
<th>School Location</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Linguistics Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>2.76</td>
<td>.532</td>
<td>.047</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>2.71</td>
<td>.572</td>
<td>.051</td>
</tr>
<tr>
<td><strong>Logical Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>3.24</td>
<td>.457</td>
<td>.040</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>3.17</td>
<td>.483</td>
<td>.043</td>
</tr>
<tr>
<td><strong>Visual Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>2.38</td>
<td>.730</td>
<td>.064</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>2.39</td>
<td>.652</td>
<td>.058</td>
</tr>
<tr>
<td><strong>Musical Teaching</strong></td>
<td>Rural Area</td>
<td>125</td>
<td>2.39</td>
<td>.611</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>Urban Area</td>
<td>128</td>
<td>1.69</td>
<td>.724</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>1.75</td>
<td>.750</td>
<td>.064</td>
</tr>
<tr>
<td><strong>Kinesthetic Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>2.86</td>
<td>.611</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>2.86</td>
<td>.610</td>
<td>.055</td>
</tr>
<tr>
<td><strong>Interpersonal Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>2.82</td>
<td>.458</td>
<td>.041</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>2.96</td>
<td>.510</td>
<td>.046</td>
</tr>
<tr>
<td><strong>Intrapersonal Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>3.01</td>
<td>.523</td>
<td>.046</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>3.06</td>
<td>.598</td>
<td>.053</td>
</tr>
<tr>
<td><strong>Naturalistic Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>2.36</td>
<td>.623</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>2.50</td>
<td>.744</td>
<td>.067</td>
</tr>
<tr>
<td><strong>Existentialistic Teaching</strong></td>
<td>Urban Area</td>
<td>128</td>
<td>2.66</td>
<td>.625</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>Rural Area</td>
<td>125</td>
<td>2.82</td>
<td>.594</td>
<td>.053</td>
</tr>
</tbody>
</table>

To compare the teaching strategies used by urban and rural secondary school teachers, an independent samples t-test was used with an alpha level of .05.
Table-4.13: Independent Sample t-test for Linguistics Teaching:

<table>
<thead>
<tr>
<th>Linguistic Teaching</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.006</td>
<td>.941</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-089</td>
<td>248.753</td>
</tr>
</tbody>
</table>

An examination of the group statistics indicated no significant difference in the scores of urban (M= 2.76, SD=.532) and rural (M= 2.76, SD=.572) secondary school teachers in the teaching strategies related with linguistics Intelligence.

The “F” value of the Levene’s test was .006 with a Sig. (p) the value of .941, which was greater than α level of .05 (P > .05), therefore variances of both groups are homogenous.

Further the test results indicated that the observed “t” value was -.089, with df of 251, and the “p” value was .929. Since p > .05, So H₀ was accepted here because rural and urban secondary school teachers were not significantly different in their teaching strategies based on linguistic intelligence.
### Table-4.14: Independent Sample t-test for Logical Teaching

<table>
<thead>
<tr>
<th>Logical Teaching</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal variances not assumed</td>
<td>F: 1.289, df: 249.4, Sig (2-tailed): .199, Mean: .076, Std. Error: .059</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An analysis of the group statistics indicated no significant difference in the Logical Intelligence teaching strategies of urban (M= 3.24, SD= .457) and rural (M= 3.17, SD= .483) secondary school teachers.

The “F” value of the Levene’s test was .035 with a Sig. (p) the value of .851, which was greater than α level of .05 (P > .05), therefore variances of both groups are homogeneous.

Additionally, the observed “t” value in the table was 1.29, with df of 251, and the “p” value is .198. Since p > .05, So H₀ was accepted here, because, rural and urban secondary school teachers were not significantly different in their Logical intelligence teaching strategies.
Table-4.15: Independent Sample t-test for Visual Teaching

<table>
<thead>
<tr>
<th>visual teaching</th>
<th>levene's test for equality of variances</th>
<th>t-test for equality of means</th>
<th>95% confidence interval of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>equal variances assumed</td>
<td>3.983</td>
<td>.067</td>
<td>-.059</td>
</tr>
<tr>
<td>equal variances not assumed</td>
<td>- .059</td>
<td>249.04</td>
<td>.953</td>
</tr>
</tbody>
</table>

An analysis of the group statistics indicated no significant difference in the scores of urban (M= 2.38, SD=.730) and rural (M= 2.39, SD=.652) secondary school teachers in the teaching strategies related to Visual Intelligence.

The “F” value of the Levene’s test was 3.983 with a Sig. (p) the value of .067, which was greater than α level of .05 (P > .05), therefore variances of both groups are homogeneous.

Moreover, the observed “t” value in the table was -.059, with 251 df, and the “p” value was .953. Since p >.05, thus, rural and urban secondary school teachers were not significantly different in their teaching strategies related with Visual intelligence. H₀ was accepted.
Table-4.16: Independent Sample t-test for Musical Teaching

<table>
<thead>
<tr>
<th>Musical Teaching</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.071</td>
<td>.302</td>
<td>-.653</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>1.072</td>
<td>.301</td>
<td>-.652</td>
</tr>
</tbody>
</table>

The results of the group statistics indicated no significant difference in the scores of urban (M=1.69, SD=.724) and rural (M= 1.75, SD=. 750) secondary school teachers in the teaching strategies related to Musical Intelligence.

The “F” value of the Levene’s test was 1.071 with a Sig. (p) the value of .302, which was greater than α level of .05 (P> .05), therefore variances of both groups were homogeneous.

Further, the test result indicated that the observed “t” value in the table, with 251 df, was -.653, and the “p” value was .515. Since p >.05, So H₀ was accepted here because rural and urban secondary school teachers were not significantly different in their teaching strategies based on Musical intelligence.
Table-4.17: Independent Samples t-test for Kinesthetic Teaching

<table>
<thead>
<tr>
<th>Kinesthetic Teaching</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.887</td>
<td>.171</td>
<td>-.008</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-.008</td>
<td>.882</td>
<td>250.8</td>
</tr>
</tbody>
</table>

The observed mean of urban (M= 2.86, SD=.611) and rural (M= 2.86, SD=.610) secondary school teachers indicated no significant difference in the scores in the teaching strategies related to Kinesthetic Intelligence.

The “F” value of the Levene’s test was 1.887 with a Sig. (p) the value of .171, which was greater than α level of .05 (P> .05), therefore variances of both groups were homogeneous.

Additionally, the test result indicated that the observed “t” value in the table, with 251 df, was -.008, and the “p” value was .994. Since p >.05, So H0 was accepted because rural and urban secondary school teachers were not significantly different in their teaching strategies.
Table 4.18: Independent Samples t-test for Interpersonal Teaching

<table>
<thead>
<tr>
<th>Interpersonal Teaching</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.337</td>
<td>.249</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-2.288</td>
<td>.063</td>
</tr>
</tbody>
</table>

Results indicated no significant difference in the scores of urban (M= 2.82, SD=.458) and rural (M= 2.96, SD=.510) secondary school teachers in the teaching strategies related to interpersonal intelligence.

The “F” value of the Levene’s test was 1.337 with a Sig. (p) the value of .249, which was greater than α level of .05 (P > .05), therefore variances of both groups are homogeneous.

According to the results, the observed “t” value was -2.291, with 251 df, and the “p” value was .063. Since p >.05, therefore, it was concluded that statistically there was no significant difference between rural and urban secondary school teachers teaching strategies based on interpersonal intelligence. Thus, +H_0 was accepted.
Table -4.19: Independent Samples t-test for Intrapersonal Teaching

<table>
<thead>
<tr>
<th>Intrapersonal Teaching</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>3.354</td>
<td>.068</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-2.739</td>
<td>.05</td>
</tr>
</tbody>
</table>

Results of the group statistics indicated no significant difference in the scores of the urban area (M= 3.01, SD=.523) and rural (M= 3.06, SD=.598) secondary school teachers in the teaching strategies related with Intrapersonal intelligence.

The “F” value of the Levene’s test was 3.354 with a Sig. (p) the value of .068, which was greater than α level of .05 (P> .05), therefore variances of both groups are homogeneous.

Further the test result indicated that the observed “t” value in the table, with 251 df, was -.740, and the “p” value was .460. Since p >.05, So H₀ was accepted because rural and urban secondary school teachers were not significantly different in their teaching strategies based on interpersonal intelligence.
Group statistics results indicated no significant difference in the scores of urban (M=2.36, SD=.623) and rural (M=2.50, SD=.744) secondary school teachers in the teaching strategies related to Naturalistic Intelligence.

The “F” value was 4.607 with a Sig. (p) the value of .063, which was greater than α level of .05 (P>.05), so the null hypothesis was accepted here because both groups variances were homogeneous. The observed “t” value in the table with 251 df, is -1.632, and the “p” value was .104. As p>.05, So H₀ is accepted here because teaching strategies of rural and urban secondary school teachers were not significantly different.
Results of the group statistics indicated no significant difference in the scores of urban (M= 2.66, SD=.625) and rural (M= 2.82, SD=.592) secondary school teachers in the teaching strategies related with existentialistic Intelligence.

The “F” value observed was 2.609 with a Sig. (p) the value of .108, which was greater than α level of .05 (P > .05), the therefore null hypothesis was accepted here for the assumption of homogeneity of variance between the two groups.

Moreover, the test result indicated that the observed “t” value in the table, with 251 df, was -2.083, and the “p” value was .058. As p > .05 therefore no significant difference was found in rural and urban secondary school teachers teaching strategies based on existentialistic intelligence. So H₀ was accepted.
Hypotheses- III

The correlation coefficients of the teacher’s levels of different multiple intelligence and the teaching strategies, are not significantly different.

In order to test the hypotheses, Pearson r correlation coefficient was used to assess the correlation in teachers’ different levels of multiple intelligence and their teaching strategies

Table -4.22: Multiple Intelligence and Related Teaching Strategies Correlations

<table>
<thead>
<tr>
<th>Multiple Intelligence</th>
<th>Number of Respondents</th>
<th>Linguistic Teaching</th>
<th>Logical Teaching</th>
<th>Visual Teaching</th>
<th>Musical Teaching</th>
<th>Kinesesthetic Teaching</th>
<th>Interpersonal Teaching</th>
<th>Intrapersonal Teaching</th>
<th>Naturalistic Teaching</th>
<th>Existentialistic Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linguistic</td>
<td>253</td>
<td>.294**</td>
<td>.149*</td>
<td>.221**</td>
<td>.214**</td>
<td>.233**</td>
<td>.348**</td>
<td>.225**</td>
<td>.392**</td>
<td>.407**</td>
</tr>
<tr>
<td>Logical</td>
<td>253</td>
<td>.316**</td>
<td>.193**</td>
<td>.250**</td>
<td>.123</td>
<td>.125**</td>
<td>.356**</td>
<td>.244**</td>
<td>.356**</td>
<td>.295**</td>
</tr>
<tr>
<td>Visual</td>
<td>253</td>
<td>.461**</td>
<td>.234**</td>
<td>.299**</td>
<td>.161*</td>
<td>.259**</td>
<td>.397**</td>
<td>.301**</td>
<td>.356**</td>
<td>.407**</td>
</tr>
<tr>
<td>Musical</td>
<td>253</td>
<td>.359**</td>
<td>.159*</td>
<td>.311**</td>
<td>.358**</td>
<td>.089</td>
<td>.251**</td>
<td>.298**</td>
<td>.380**</td>
<td>.338**</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>253</td>
<td>.406**</td>
<td>.178**</td>
<td>.339**</td>
<td>.339**</td>
<td>.241**</td>
<td>.413**</td>
<td>.311**</td>
<td>.513**</td>
<td>.377**</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>253</td>
<td>.295**</td>
<td>.175**</td>
<td>.181**</td>
<td>.167**</td>
<td>.136</td>
<td>.273**</td>
<td>.191**</td>
<td>.246**</td>
<td>.235**</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>253</td>
<td>.323**</td>
<td>.119</td>
<td>.415**</td>
<td>.393**</td>
<td>.077</td>
<td>.272**</td>
<td>.231**</td>
<td>.431**</td>
<td>.343**</td>
</tr>
<tr>
<td>Naturalistic</td>
<td>253</td>
<td>.357**</td>
<td>.312**</td>
<td>.429**</td>
<td>.314**</td>
<td>.212**</td>
<td>.314**</td>
<td>.276**</td>
<td>.476**</td>
<td>.401**</td>
</tr>
<tr>
<td>Existentialistic</td>
<td>253</td>
<td>.403**</td>
<td>.143*</td>
<td>.247**</td>
<td>.263**</td>
<td>.169**</td>
<td>.310**</td>
<td>.262**</td>
<td>.384**</td>
<td>.302**</td>
</tr>
</tbody>
</table>
**Linguistic intelligence**

The Pearson correlation coefficient of linguistic intelligence with the teaching strategies associated with linguistic intelligence was observed as $+.294$, $(r(253) = +.294, p < .05)$, two-tailed). Further it was highlighted in the table (22) that the correlation was significant.

**Logical Intelligence**

A significant positive correlation $(r = .193)$ was found between logical intelligence and teaching strategies related to Logical intelligence $(r = .193, p<.05)$ as shown in the table-4.22.

**Visual intelligence**

A strong positive correlation was found in Visual intelligence and teaching strategies linked with visual intelligence $(r = +.299, p < .05)$ as highlighted in table-4.22.

**Musical intelligence**

The Pearson correlation for Musical intelligence and the teaching strategies allied with Musical intelligence observed is $(r = +.358, p < .05)$. Further it is highlighted in table-4.22 that the correlation is significant.

**Kinesthetic Intelligence**

Data in the table-4.22 indicated a significant positive correlation $(r = .+231)$ between Kinesthetic intelligence and teaching strategies related to Kinesthetic intelligence $(r = +.241, p < .05)$.

**Interpersonal Intelligence**

The Pearson correlation coefficient value $(+.273)$ in table-4.22 indicated, positive correlation between Interpersonal intelligence and teaching strategies linked with Interpersonal intelligence $(r = +.273, p < .05)$. 
**Intrapersonal Intelligence**

A significant positive correlation \( r = .+231 \) was found between Intrapersonal intelligence and teaching strategies related with Intrapersonal intelligence, \( r = +.231, p < .05 \) as shown in table-4.22.

**Naturalistic Intelligence**

The Pearson correlation coefficient value of Naturalistic intelligence and the teaching strategies associated with Naturalistic intelligence observed was \( r = +.476, p < .05 \). Further it was highlighted in table-4.22 that the correlation was highly significant.

**Existentialistic Intelligence**

The Pearson correlation coefficient value \( r = +302 \) for Existentialistic intelligence and the teaching strategies related with Existentialistic intelligence highlighted in table-4.22, showed a significant and positive correlation \( r = +302, p < .05 \).
Overall Correlation of Levels of Multiple Intelligences and Teaching Strategies

The Pearson correlation coefficient value .581 was observed between multiple intelligence and Teaching strategies associated with multiple intelligence. The values shown in table 4.23, indicated that both variables are highly correlated and their correlation is positive. (r = +.581, p < .001).
CHAPTER V

FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This chapter deals with the findings, discussion, conclusion and recommendations in accordance with the outcomes of this study.

5.1 Findings

i. Among the levels of nine multiple intelligence, approximately the level of Existentialistic Intelligence was found the dominant intelligence (M=3.20, SD=.513) followed by Linguistics intelligence (M=3.11, SD=.419) and Interpersonal intelligence (M=3.10, SD=.473). while the lowest mean (M=2.71 SD=.477) was observed for the level of kinesthetic intelligence. The other intelligence observed were Visual intelligence (M=3.09, SD=.527), Naturalistic intelligence (M=3.09, SD=.484), Logical/ mathematical intelligence (M=3.03, SD=.493), Intrapersonal intelligence (M=2.90, SD=.563) and Musical intelligence (M=2.73, SD=.529).

ii. According to the results, among all teaching strategies, the mean of Logical/mathematical teaching strategies (M=3.20, SD=.470) was found to be high while the mean of musical teaching strategies was found to be the lowest one. The mean of other teaching strategies observed were Intrapersonal Teaching (M=3.04, SD=.561), Interpersonal Teaching (M=2.89 SD=.489), Kinesthetic Teaching (M=2.86, SD=.610), Linguistics Teaching (M=2.76, SD=.551), Existentialistic Teaching (M=2.74, SD=.614), Naturalistic Teaching (M=2.43, SD=.688) and Visual Teaching (M=2.38, SD=.691) respectively.

iii. The result of independent-sample t test for determining the difference between male and female levels of multiple intelligences indicated that male and female showed no significant difference in level of linguistics intelligence (t = -0.786, p=.433). Similarly male and female levels of Logical Intelligence (t = .061, p
.951), level of male and female Musical Intelligence with (t = -0.786, p = .19),
level of male and female Interpersonal Intelligence with (t = 1.941, p = .057),
level of male and female Intrapersonal Intelligence with (t = -1.81, p = .071),
level of male and female Naturalistic Intelligence with (t = -0.942, p = .347) and
level of male and female Existentialistic Intelligence with (t = -0.936, p = .065), no
significant difference was found.

iv. t value for visual intelligence was t = -2.724 and p= .007 which indicated that
males and females differed significantly in their levels of Visual Intelligence. By
examining the group means of visual Intelligence of male and female, it was
observed that females (M = 3.19) showed significantly high level of Visual
intelligence as compared to male (M = 3.02)

v. The t value of Kinesthetic Intelligence was found to be -2.620 with a p-value of
.009 which indicated that males and females differed significantly in their levels
of Kinesthetic Intelligence. from the group means of Kinesthetic Intelligence of
male and female, females with a mean of 2.80 showed significantly high level of
Kinesthetic intelligence than the male with a mean of 2.65.

vi. The results of the group statistics of second hypotheses about no significant
difference between the teaching strategies of rural area secondary school teachers
and urban area secondary school teachers showed that they are not significantly
different in their mean scores. The mean scores of teaching strategies related with
Linguistics intelligence was (urban M= 2.76 and rural M= 2.71), Logical
intelligence was (urban M=3.24 and rural M=3.17), Visual intelligence was
(urban M= 2.38 and rural M= 2.39) Musical intelligence was (urban M=1.69 and
rural M= 1.75), Kinesthetic intelligence was (urban M= 2.86 and rural M= 2.86)
Interpersonal intelligence was (urban M= 2.82 and rural M= 2.96), Intrapersonal
intelligence was (urban M= 3.01 and rural M= 3.06), Naturalistic intelligence was
(urban M= 2.36 and rural M= 2.50) Existentialistic intelligence was (urban M=
2.66 and rural M= 2.82) respectively.
vii. The F value of the Levene’s test with a Significant (p) value for teaching strategies related with linguistic intelligence (F = .006, p = .941) logical intelligence (F =.035, p = .851), visual intelligence (F = 3.983, p = .067), kinesthetic intelligence with (F = 1.88, p = .171), interpersonal intelligence with (F = 1.33, p=.249), intrapersonal intelligence with (F = 3.35, p = .068), naturalistic intelligence (F = 4.60, p = .063), musical intelligence (F = 1.071, p = .302) and existentialistic intelligence (F = 2.60, p= .108) was found to be greater than α level of .05 (P> .05), which indicated that the group’s variances are not significantly different.

viii. It was found that the observed t value, with df = 251, for teaching strategies related with linguistic intelligence (t = -.089, p = .929), logical intelligence (t = 1.290, p = .198), visual intelligence (t = -.059, p = .953), kinesthetic intelligence (t = -.008, p = .994), interpersonal intelligence (t = -2.29, p = .063), intrapersonal intelligence (t = -.740, p = .460), naturalistic intelligence (t = -1.63, p = .104), musical intelligence (t = -.653, p = .515) and existentialistic intelligence (t = -.208, p = .058) and the p value is .929. Since p >.05, So H0 is accepted here and it is concluded that teaching strategies of rural area secondary school teachers and urban area secondary school teachers are not significantly different.

ix. The results of the hypotheses that “the correlation coefficient of the teacher’s levels of different multiple intelligence and the related teaching strategies, are not significantly different” was tested through Pearson r correlation coefficient in order to assess the relationship in the Multiple Intelligences of the secondary school teachers and their teaching strategies. The Pearson correlation coefficient value (r = +.581, n =253, p = .000) was observed between multiple intelligence and Teaching strategies associated with multiple intelligence.

x. A significant positive correlation was found between linguistic intelligence, Logical Intelligence, Visual intelligence, Musical intelligence, Interpersonal Intelligence, Kinesthetic Intelligence, Naturalistic Intelligence, Intrapersonal
Intelligence, Existentialistic Intelligence and the teaching strategies associated with the intelligence.

5.2 Discussion

The findings of the study indicate that all secondary school male-female teachers possessed all types of multiple intelligence with different levels (range). Among the levels of all intelligence secondary school teachers possess, existentialistic intelligence was found to be the strongest intelligence, while kinesthetic intelligence was observed the weakest type of intelligence. The variation in levels of different intelligence shows that the results are compatible with Gardner’s multiple intelligence theory. The theory states that all individuals possess all kinds of intelligence, though, the levels of these intelligence are different in the individuals (Gardner, 1983).

The existentialistic intelligence was found to be high and kinesthetic intelligence level was low among the nine types of intelligence of secondary school teachers. The results are aligned with the study of Chan (2005) and Emmiyati, Rasyid, Rahman, Arsyad, and Dirawan (2014). In Emmiyati et al. (2014), Chan (2005), in his studies found the verbal linguistic intelligence at the strongest category and naturalistic intelligence at the weakest category. The findings of Halm (2001) indicated that students and faculty of the associate degree programs, showed dominance in interpersonal intelligence and intrapersonal intelligence while naturalistic and musical intelligence was found at the weakest level among the participants. These findings in coherence with the current study finding (highest level of existentialistic intelligence and the lowest level of kinesthetic intelligence) showed that the combination of these intelligence and their levels from highest to lowest are different in the individual to individual and the individuals can improve their lowest levels. As Armstrong (2009) stated that a main point of the MI theory is that individuals can improve their levels of intelligence to a mastery level. Theses intelligence might be dependent on three factors that are, biological factors (heredity and genetic), an individual life history (understandings with parents, friends, teachers etc.), and cultural factors (norms, costumes of the society where he born and living).
The findings of the hypotheses about “significant difference in male and female profiles of multiple intelligence found no statistically significant gender difference in secondary school teacher’s levels of multiple intelligence except for the levels of visual intelligence and kinesthetic intelligence, which were higher in female as compared to male. Visual intelligence is considered a skill of visualizing the thing in mind while kinesthetic intelligence is an ability to involve someone physically in the learning process.

Results of this study match with the findings of Abdul Aziz (2008), who concluded that female faculty members showed a significant difference in verbal-linguistic, logical-mathematical, body-kinesthetic, visual-spatial, interpersonal and intrapersonal intelligence with a male profile of intelligence. The findings are also in accord with the study of Snyder (1999). He found that female students were stronger on intrapersonal intelligence, linguistic intelligence, musical intelligence, visual intelligence and intrapersonal intelligence. male students were stronger in logical intelligence, interpersonal intelligence, and kinesthetic intelligence.

However, the findings contradict with some other studies like Asha, Iyer, and Sen (2007), Hanafiyeh (2013) and McClellan (2006). Asha et al. (2007) found no male and female were not significantly different in their levels of multiple intelligences except in Linguistic and Musical intelligences. Similarly, Hanafiyeh (2013) results indicated that male and female respondents were different in their level of linguistics intelligence, in the rest of intelligences, no significant difference was found. Gogebakan (2003) found a difference in the levels of logical and kinesthetic intelligences of male and female students which were found at the highest level in male students as compared to female students while female students showed a strong level of musical intelligence. Similarly, Saricaoglu and Arikan (2009), results indicated gender differences only in linguistics intelligence, while the levels of all other intelligences were found the same. Rammstedt and Rammsayer (2000), reported a high level of logical-mathematical intelligence and visual-spatial intelligence in male and high level of musical intelligence in the female. Loori (2005) found that male and female were no significantly different in their preferences for MI.
The generalization of findings based on this expected pattern of findings might be limited by the social influence and age of the participants. As Ali, Suliman, Kareem, and Iqbal (2009), reported that the possible factors which might affect the multiple intelligence difference in the two genders are social influences. Social influences included responsibilities, performance, external influence, self-perception, and education. Piaget and Vygotsky in cognitive development theories likewise accentuate that at each age a child has its own attributes, needs, and interests, which further shows contrasts as for genders too. Gender differences in multiple intelligences might be due to the age and terms of the individuals with their friends, relatives and other members of the society.

Gardner (1993) indicated that multiple intelligences have a social component. From this point of view, the gender wise distinction in multiple intelligence is not genetic, but instead social the present study participants were secondary school teachers of Pakistan, while in the other studies participants were selected from German, Britain, Hawaii, and Singapore, from this point of view, different results of the studies might be represented by conceivable diverse cultures. Subsequently, the findings may enhance and improve teachers' self-confidence and capacities which could help them to develop their weakest areas of intelligences.

This study provided an interesting finding regarding the teaching strategies used by urban and rural areas school teachers. No significant difference was observed between the teaching strategies of rural secondary school teachers and urban secondary school teachers. Rural and an urban location have been considered as an important indicator of differences between two variables. Literature revealed that there is no solid empirical research documented the differences in teaching strategies between rural and urban area. However, the current results indicated that both rural and urban secondary school teachers are highly qualified and both are not significantly different in the mean of their highest qualification. The resultant no difference in teaching strategies might be due to the participant’s high level of education as Wilson, Floden, and Ferrini-Mundy (2001) also concluded that there is a strong relationship between teacher education and teachers’ effectiveness.
The findings are also aligned with the findings of Greenwald, Hedges, and Laine (1996) and Rivkin and Hanushek (2007) who evaluate the effect of teacher education and preparation on teachers’ instructions and performance and found a positive impact. It proves that adapting teaching strategies based on multiple intelligences are not only beneficial for teachers but it has also a great impact on students’ performance. According to Temur (2007) students are academically more successful and more confident when curricular learning experiences are explained through nine intelligence domains. Students are given ample opportunities to explore concepts and topics through movement, visuals, songs, plays and poems. Gable et al. (2000) and Guild (2001) concluded that by adopting multiple intelligence teaching strategies, learning is individualized and students are motivated, engaged and willing to participate in lessons and experiences. Levy (2008), concluded that MI strategies are used consistently and effectively which help teachers in meeting each students’ needs by ensuring flexibility in what they teach, how they teach it, and how students demonstrate what they have learned.

Teacher’s levels of different multiple intelligences and concern teaching strategies are not significantly different which means that, levels of multiple intelligences of the secondary school teachers are significantly correlated with the teaching strategies they use in their classes. The findings are in line with the results of Serin, Serin, Yavuz, and Muhammedzade (2009), who found that multiple intelligences of the teachers have a foretelling effect on teaching strategies. These findings are highly significant, as revealed by Ozdermir, Guneysu, and Tekkaya (2006), the relationship of multiple intelligences and their associated teaching strategies strongly matter in the students’ academic performance, the success of learner and long-term learning. The current findings are also highly close to the findings of the Sulaiman, Abdurahman, and Rahim (2010) findings which reported that the levels of multiple intelligences are highly correlated with their teaching strategies. Same findings are yield by Walker (1998), who found that Linguistics, Logical, Musical, Interpersonal, Intrapersonal, Bodily/Kinesthetic, Mathematical, and Spatial/Visual were found highly correlated with their concern teaching strategies. Peduk and Baran (2009) also found a strong impact of the logical intelligence on the durability of mathematics education.
However, the current findings are somewhat contradicting with the findings of Al Sulim (2012) who found inconsistency in the teaching strategies related with logical-mathematical and Intrapersonal intelligence. However, teaching strategies related with naturalist intelligence, kinesthetic intelligence, spatial intelligence was perfectly consistent with their concern teaching strategies. Mujahid (2008) presented the similar findings that the teaching strategies of logical-mathematical intelligence and Intrapersonal intelligence were Inconsistent. Durmaz (2005) findings revealed that the naturalistic intelligence, interpersonal intelligence, and spatial/visual intelligence, showed a momentous foretelling on teaching strategies. However, the verbal/linguistic, intrapersonal, bodily/kinesthetic, logical/mathematical, and musical intelligence represented no expressive possessions on teaching strategies and learning styles. Bailey and Williams-Black (2008) took multiple intelligence as a stimulus which enables the students to learn. In ‘The Quest for Multiple Intelligences’ Smerechansky-Metzger (1995) also suggested the instructors to provide students ample learning opportunities by using the multiple intelligence theory in their classrooms.

Like Highland et al. (1999) and Al-Khatib and Hamza (2009), emphasized the need of considering the levels of MI achieved by the learners, selecting the most proper techniques, and encouraging the instructors and learners in selecting the instructing procedures that suit their MI. According to Heikkinen (1985), educators themselves have a favored technique for seeing and handling knowledge and it is coherent that instructors will convey their lesson that is perfect with their potential. The current research results support that behavior, skills and concepts are developed by conducting activities related to the intelligence power of children through the use of multiple intelligence areas.
5.3 Conclusion

Gardner theory of multiple intelligence is a widely accepted theory around the world with varying results and is implemented around different educational levels such as elementary, secondary and higher secondary levels and contexts including various personality traits of respondents and organization in behavioral patterns. This study has highlighted the intelligence and teaching strategies among the secondary schools’ teachers in one of the emerging area of Pakistan, district Peshawar. The study has implemented the Gardner Theory of Multiple intelligence by taking into account the diverse respondents in their educational level and coming from different segments of area understudy with high academic and professionally qualification.

Among all the nine levels of multiple intelligences, the level of linguistic, logical, interpersonal, musical, intrapersonal, naturalistic and existentialistic intelligence were not significantly different in both (male and female) genders except for visual and kinesthetic intelligence, where, females showed comparatively higher levels of visual and kinesthetic intelligence as compared to males, which may refer to the attribute such as their physique, activities, their interest in surroundings, colors, artistic compositions, opportunities of seeing images and videos available for the development of this intelligence (Gilakjani, 2011; Shahzada, Khan, Noor, & Rahman, 2014). Teaching strategies of high schools’ teachers from different geographical locations i.e. rural and urban were found in coherence with each other and no significant difference was observed between them. On the average, levels of different multiple intelligence showed a positive correlation with the related teaching strategies. A strong positive correlation was found between Naturalistic intelligence musical intelligence existentialistic intelligence and their related teaching strategies.

Highly significant results among the male and female with different background highlighted the coherence among all respondents. Overall the respondents’ viewpoints were in alignment with the theory under consideration, highlight that teachers from both the genders (male and female) from each demographic area (rural and urban) have the potential to improve their capabilities attributing to quality education. Although minor individual differences were observed in the responses among the dimensions of both
variables (levels of different intelligence and Teaching strategies), yet their interdependency and strength of correlation between these variables highlight the importance of theory in context to the teachers in sector of education in general and the secondary school teachers of district Peshawar at particular.

In order to accomplish needs and potentials of the students with respect to their different intelligence, learning styles and learning preferences, the educational policy makers in Pakistan need to focus on the capability enhancement of teachers in alignment to this Gardner theory of Multiple Intelligence to effectively enhance their teaching skills and professional growth.

5.4 Recommendations

Theory of Multiple Intelligences has been widely accepted to play a significant role in the learning process. Educators and professional from several domains exploits MI and its complaint tools in the academic process to achieve better learning outcomes. This research focuses on implementing Gardner’s theory of multiple intelligence, in district Peshawar, Pakistan, and evaluates its efficacy. Based on the findings of this research, several suggestions and workable recommendations for academic beneficiaries such as teachers, students, curriculum planners and policy makers, have been worked out and enlisted below.

i. Consider multiple intelligence dimension in the course curriculum at primary, secondary and elementary level and incorporate teaching models, video presentations, acting out literature and other similar activities in teaching and learning methods.

ii. Provide suitable environment and facilities for indoor and outdoor physical activities. Increase field trips for learning experiences and provide opportunities for students and teachers for executing independent projects.

iii. Give opportunities to teachers for getting a reflection in curricular and co-curricular activities and Provide teachers with space where they can think, design and recommend independently, the activities to participate for better learning outcomes.
iv. Incorporate scientific methods in teaching and learning methods (where appropriate) and include activities that are a complaint to logical learning such as playing puzzle games in daily life environment.

v. In order to access all learners in the classrooms, a greater effort must be made to create tasks and activities within textbook series that can target all intelligence. Likewise, to increase academic success and educational performance of the students, it is necessary for teachers to use these tasks and activities in the classroom.

vi. Various professional development programs could be used to teach various approaches to using multiple intelligence, adapting them into lesson plans, and developing assessments that incorporate multiple intelligence.

vii. Training of future educators in the education department with the knowledge of how to plan, adopt and implement MI teaching strategies according to different dimensions of the students continue to be documented, researched and shared.

viii. For a better understanding of the MI and accessing the students and teachers’ different intelligence furthers researchers’ needs to be conducted in different regions, in other different sector of education on different subjects separately and by incorporating the other factors such as cultural settings of different areas, language barriers, technological aspects, infrastructure and social factors.
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APPENDIX-A

A QUESTIONNAIRE ON

THE EFFECTIVENESS OF GARDNER MULTIPLE INTELLIGENCE THEORY
ON TEACHING STRATEGIES OF SECONDARY SCHOOL TEACHERS

The theory of multiple intelligence is Howard Gardner’s Theory in which he defined intelligence as “An ability to solve problems or create products. He proposed that all peoples possess an “exclusive set of nine intelligence”. The statements in the column for each intelligence will help the researcher to recognize levels of different Multiple Intelligences (MI) of Secondary School Teachers. For each of the following statements, determine the rating that best applies to you.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Place a check mark (✓) in the column that best describes your behavior.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>I understand words and language very well and have well developed vocabularies.</td>
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<tr>
<td>II.</td>
<td>I can express myself very well in both oral and written forms.</td>
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<tr>
<td>III.</td>
<td>When working in a group, I enjoy summarizing peoples’ thoughts.</td>
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<tr>
<td>IV.</td>
<td>I have a good memory for names, places, or dates.</td>
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<tr>
<td>V.</td>
<td>I enjoy listening to the spoken words (stories, commentaries etc.)</td>
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</tbody>
</table>

Linguistic/ Verbal Intelligence Total

| I.    | I ask a lot of questions about how things work. |
| II.   | Finding solutions for numerical problems is fun for me. |
| III.  | As I read a text, I makes more sense of it by outlining each chapter. |
| IV.   | I enjoy playing chess, checkers, or other indoor games. |
| V.    | I show interest in science related subjects. |

Logical/ Mathematical Intelligence Total

| I.    | I can visualize things very well in my mind. |
| II.   | I understand maps, charts and diagrams more easily than text. |
| III.  | I like to view movies, slides, or other visual presentations than sitting still. |
| IV.   | I can express myself very well by drawing physical objects. |
I get more out of pictures, than words while reading.

**Spatial/Visual Intelligence Total**

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<tr>
<td>I.</td>
<td>I have great listening skills and pick up on nuances very easily.</td>
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<tr>
<td>II.</td>
<td>I am attracted to interesting sounds and music.</td>
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<td>III.</td>
<td>When I am working, I enjoy listening to background music.</td>
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<td>IV.</td>
<td>I am sensitive to environmental noises.</td>
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<td>V.</td>
<td>Sometimes I find myself tapping rhythms on the table while waiting.</td>
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**Musical Intelligence Total**

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**Bodily/ Kinesthetic Intelligence Total**

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<tbody>
<tr>
<td>I.</td>
<td>It is often hard for me to sit still, I’d rather be up and active.</td>
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<tr>
<td>II.</td>
<td>I can cleverly mimic other people’s gestures or mannerisms.</td>
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<td>III.</td>
<td>Every chance I get, I enjoy sports (e.g., golf, tennis, bowling, or softball).</td>
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<tr>
<td>IV.</td>
<td>I love to take things apart and put them back together again.</td>
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<td>V.</td>
<td>I have skills in crafts (wood working, sewing, and mechanics).</td>
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**Interpersonal Intelligence Total**

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<tr>
<td>I.</td>
<td>One of my favorite activities is keeping a personal diary.</td>
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<tr>
<td>II.</td>
<td>I enjoy walking alone at times rather than having someone join me.</td>
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<td>III.</td>
<td>When I read a novel, I often compare personal choices I would make.</td>
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<td>IV.</td>
<td>I am a self-starter and can work independently.</td>
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<td>V.</td>
<td>I have a good sense of self direction.</td>
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<td><strong>Intra personal Intelligence Total</strong></td>
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<tr>
<td>I. I talk a lot about favorite pets, or preferred spots in nature, during class sharing.</td>
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<td>II. In all four seasons, I enjoy and learn from observing nature changes.</td>
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<td>III. I like field trips in nature, to the zoo, or to a natural history museum.</td>
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<td>IV. I have the ability to distinguish between similar items and can find minute differences.</td>
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<tr>
<td>V. I have a keen eye for getting details of the things around me.</td>
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<tr>
<th><strong>Naturalistic Intelligence Total</strong></th>
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<tbody>
<tr>
<td>I. I have a strong interest in a society and people in it.</td>
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<tr>
<td>II. I enjoy discussing questions about life, death and beyond.</td>
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<tr>
<td>III. Learning new things is easier when I see their real world application.</td>
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<tr>
<td>IV. I enjoy viewing the art work.</td>
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<tr>
<td>V. I like traveling to visit inspiring places.</td>
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| **Existentialistic Intelligence Total** |
### APPENDIX-B

### Questionnaire on Teaching Strategies

Teachers provide instructions to their students who have different interests, strengths, and needs. **How often do you use each of the following strategies with your students?** Use the following rating scale:

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Mark (✔️) in the column that best describe the instructional strategies you use in your classroom</th>
<th>Infrequently</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I teach the essential concepts or lessons in the form of a story to the students.</td>
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<tr>
<td>2.</td>
<td>During teaching I ask the students to think and argue about the learning material. E.g. How do we say about this information? Is this conclusion is based on any evidence?</td>
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<td>3.</td>
<td>I ask students to respond to instruction by using their bodies as a medium of expression, e.g. raising hands to indicate understanding, hold up fingers etc.</td>
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<td>4.</td>
<td>When I am explaining or teaching things, I try to insert multiple characters and personalities into it.</td>
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<td>5.</td>
<td>I ask students to express their opinions and feelings about what they learnt.</td>
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<td>6.</td>
<td>After teaching a concept, I provide time for students to close their eyes and visualize what they have just read or learnt.</td>
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<td>7.</td>
<td>I play appropriate background music or sounds that relate to a specific lesson (e.g., rain, sounds).</td>
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<td>8.</td>
<td>I teach in a natural setting, e.g. let students go to an open environment and ask them to think, write and analyses the plants, weather, earth and animals etc.</td>
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<td>9.</td>
<td>I provide opportunities to express their preferences in the learning contents and act on their opinions.</td>
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<td>10.</td>
<td>I arrange a group discussion about anything words for a class poem, ideas for solving theorems etc.</td>
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<tr>
<td>11.</td>
<td>I appreciate the students to ask questions in order to get them to the root of the issue e.g. what, why, when, where and how.</td>
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<td>12.</td>
<td>I ask students to act out on the texts, problems, or other material to be learned from dramatizing or role playing the content.</td>
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<td>13.</td>
<td>I assign activities that require them to meet and interact with people.</td>
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<td>14.</td>
<td>I build opportunities for students to make choices in their learning activities within the teacher’s set parameters and make decisions about their learning experiences.</td>
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<td>15.</td>
<td>I ask students to draw pictures of the material they are learning (e.g. making spelling words into pictures, drawing images of their vocabulary words.</td>
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<td>16</td>
<td>When I teach different concepts, I ask students to write songs or repeat it in a musical tune of their choice.</td>
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<td>17</td>
<td>I bring nature into the class. Decorate windows and shelves with house plants and use such environment in teaching Math’s, English, and science concepts.</td>
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<td>18</td>
<td>I discuss how topics are important to the classroom, school, community or the world.</td>
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<td>19</td>
<td>I provide an opportunity to students for public speaking about the issues related to the learning content.</td>
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<tr>
<td>20</td>
<td>I make connections between the topics, so the students can remember them logically.</td>
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<td>21</td>
<td>I help students do experiments, projects and make things with their hands to get the insight depth of the lesson content.</td>
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<td>22</td>
<td>I provide an opportunity for students to share questions, answers, and information with other students.</td>
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<td>23</td>
<td>I use emotions when teaching (e.g. getting excited about a concept, indicating sadness over a sad story, etc.)</td>
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<td>Allow students to demonstrate their understanding of a concept by building a model of it (e.g. clay figures to illustrate a story they’ve read, a diorama to show a historical event.</td>
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<td>I provide books which have number games, word pattern games.</td>
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<td>26</td>
<td>I make crafts and projects out of natural materials (using shells, plant presses).</td>
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<td>27</td>
<td>I provide students books about a variety of topics.</td>
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<td>28</td>
<td>I compel students to learn through observation and senses.</td>
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<td>29</td>
<td>I structure all concepts/topics as cause and effect.</td>
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<td>I give students a stimulative environment where things are within their sight and touch.</td>
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<td>31</td>
<td>I make students groups to work cooperatively towards common instructional goals and develop projects.</td>
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<td>32</td>
<td>I help students to understand how everything they learnt, is related to them.</td>
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<td>I show videos to accompany material being learned (e.g. watching the movie To Kill a Mockingbird).</td>
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<td>34</td>
<td>I make a list of recorded music that amplifies the lesson content (e.g. Civil War-poems, novels, addition and subtraction, etc.)</td>
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<td>I compel students to learn through observation and the senses.</td>
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<td>36</td>
<td>I allow students to demonstrate learning by applying understanding in new and different contexts.</td>
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# Demographic information

Please answer the following questions as they pertain to you. There are no right or wrong answers, and all responses will be confidential.

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<th>Question</th>
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<td>□ Female</td>
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<td>How many years have you been in the field of teaching?</td>
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<td>How many classes do you teach in a typical day?</td>
<td>…………………………Classes.</td>
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<tr>
<td>Is the content of the course compatible with the students learning/understanding level?</td>
<td>………..</td>
</tr>
<tr>
<td>Are your adopted teaching strategies gives you the desired output of student’s learning?</td>
<td>………..</td>
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Thank you for taking the time to participate in this study!!!!!
To: Elen Weber (PhD)
    Director - MTA International Brain Based Center
    PO Box 347, Pittsford, NY 14534
    MTA Brain Leaders and learners http://www.qbrx006eck3

Dear Ellen Weber,

I am a doctoral student working on my dissertation titled as "the effectiveness of multiple intelligences on teaching strategies of secondary school teachers."

I am writing to request approval to use your "Intelligence Survey (1000)" for measuring multiple intelligences of secondary school teachers.

I am seeking approval to use your above mentioned survey in all revisions of my dissertation (expected for completion by November, 2015).

If you find this request acceptable use of your publication, please sign this letter and return it back.

I greatly appreciate your time.

Yours truly,

Ms. Rani Oul

Ph.D. Scholar

University of Peshawar

Kpk, Pakistan

I HEREBY APPROVE THE ABOVE REQUEST

Signed / dated/ March 5th, 2015
APPENDIX-D

LIST OF SAMPLE SCHOOLS

2. Govt Comprehensive Girls High School, Peshawar
3. Govt Girls High School Badh Bair, Peshawar
4. Govt Girls High School Civil Quarters, Peshawar
5. Govt Girls High School Gharib Abad Town, Peshawar
6. Govt Girls High School Gulbela, Peshawar
7. Govt Girls High School Jogi Wara, Peshawar
8. Govt Girls High School Khan Mast Colony, Peshawar
9. Govt Girls High School Larama, Peshawar
10. Govt Girls High School Mathra, Peshawar
11. Govt Girls High School Matni, Peshawar
12. Govt Girls High School Mian Gujar Peshawar
13. Govt Girls High School Mian Gujar, Peshawar
14. Govt Girls High School Naqai, Peshawar
15. Govt Girls High School NO.1 Cantt, Peshawar
16. Govt Girls High School Nodhia Payan, Peshawar
17. Govt Girls High School Palosi, Peshawar
18. Govt Girls High School Sardar Ghari, Peshawar
19. Govt Girls High School Sardar Ghari, Peshawar
20. Govt Girls High School Sheikh Junaid Abad, Peshawar
22. Govt Girls High School Suafid Dheri, Peshawar
23. Govt Girls High School Sufid Sang, Peshawar
24. Govt Girls High School Tarnab, Peshawar
25. Govt Girls High School Temberpura, Peshawar
26. Govt Girls High School Wazir Bagh city, Peshawar
27. Govt Girls High School Zahir Abad, Peshawar
28. Govt Girls High School Zahir Abad, Peshawar
29. Govt Girls High School Zaryab Colony, Peshawar
31. Govt High School Agra, Peshawar
32. Govt High School Budhni, Peshawar
33. Govt High School Chamkani, Peshawar
34. Govt High School Dabgari, Peshawar
35. Govt High School Din Bahar Colony, Peshawar
36. Govt High School for boys Khan Mast, Peshawar
37. Govt High School Gulbela, Peshawar
38. Govt High School Haryana Bala, Peshawar
39. Govt High School haryana bala, Peshawar
40. Govt High School Hayatabad, Peshawar
41. Govt High School Kagawala, Peshawar
42. Govt High School Masho, Peshawar
43. Govt High School Mathra, Peshawar
44. Govt High School Mian Gujar, Peshawar
45. Govt High School Mulazai, Peshawar
46. Govt High School Mulazai, Peshawar
47. Govt High School Musa Zai, Peshawar
48. Govt High School Nanak Pura, Peshawar
49. Govt High School Naqai, Peshawar
50. Govt High School No.1 Peshawar
51. Govt High School No.3 Peshawar
52. Govt High School Pakha, Peshawar
53. Govt High School Ragi, Peshawar
54. Govt High School Sheer Kira, Peshawar
55. Govt High School Sher kira, Peshawar
56. Govt High Secondary School No.1 Cantt, Peshawar.
57. Govt High Secondary School No.2 Cantt, Railway Quarters, Peshawar
Dear Madam,

I am a doctoral student at Peshawar University and my research concerns Howard Gardner's Theory of Multiple Intelligences. The title of my thesis is “the effectiveness of Gardner's Multiple Intelligences Theory on teaching strategies of secondary school teachers”. As the title infers, my interest is to examine levels of different multiple intelligence of the school teachers and the teaching strategies they use in their classes.

The purpose of my study is to determine the relation between the teachers’ strongest type of intelligence with the teaching strategies he/she use while teaching his/her subject.

The participants will have to respond to two types of questionnaires, one is about the multiple intelligence and the other is about the teaching strategies. The questionnaire will take about 20-30 minutes to complete. There is no right or wrong answer. Please feel free to answer all the questions according to your teaching experiences. It will not only contribute to my doctoral research, but also more importantly, the results hopefully will be useful to future educators.

Participant’s participation is voluntary and they are free to withdraw from this research project at any time. Please be assured that participant’s comments will remain confidential and anonymous and will be used for this doctoral thesis only.

I thank you in advance for your cooperation in this matter.

Warm Regards,

Ms. Rani Gul  
PhD Scholar,  
University of Peshawar
### APPENDIX-F

#### Reliability Statistics of Multiple intelligence

<table>
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<th>Cronbach's Alpha</th>
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#### Descriptive Statistics of Multiple Intelligence

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<th>Maximum</th>
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#### Descriptive Statistics of Teaching Strategies

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### Tests of Normality of Multiple Intelligence

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Lilliefors Significance Correction

### Tests of Normality of Teaching strategies

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a. Lilliefors Significance Correction