

## Study Examines the Connection Between Students' Various Intelligence and Their Levels of Mathematical Success in School

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**Abstract:** Secondary education exposes students to the contributions of science, humanities and social sciences to the development of a nation. Because of its central role in the advancement of science and technology, mathematics has traditionally been accorded a high status in the curriculum across all academic levels. Gardner began a systematic, interdisciplinary, and scientific investigation of intelligence, pulling from fields as diverse as psychology, biology, neuroscience, sociology, anthropology, and the arts and humanities. Everyone has the potential to learn, but not everyone will learn at the same time or in the same way. Intelligence is demonstrated by seeing a need and creating a solution that meets that need or benefits a larger community. Multiple Intelligence is more important in today's high-tech society. Students can start to grasp their own intelligence when the notion of multiple intelligences is applied to them. Therefore, the researcher reasoned that it would be beneficial to look into the link between Multiple Intelligences and mathematical success. The sample of the population was chosen using a stratified random sampling method by the researcher. Stratification was performed according to gender, socioeconomic status, and educational background. The 200 high school students in the sample represent eight different schools, and it is clear that both the Multiple Intelligence and academic accomplishment levels of these students are around average.

**Keywords:** Secondary Education; Multiple Intelligences; Mathematics; Achievement; Logical-Mathematical Intelligence; School Students; Arts and Humanities.

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### 1. Introduction

Education is indispensable; human beings must have an education because education is the process through which human personality develops. Education plays a major role in moulding a person's personality and forming character. In this regard, the importance of education, as recorded in the world book Encyclopedia is worth mentioning. Education is how people acquire knowledge, skills, habits, values or attitudes. Education helps people adjust to change and new environments. This benefit has become increasingly important because social change today occurs with increasing speed and affects more people's lives. Education can help a person understand these changes and provide the skills of adjusting to them" [1]. Gandhiji describes education as "By education, I mean an all-round drawing out of the best in the child and man-body, mind and spirit" [2]. Vivekananda states, "Education is the manifestation of divine perfection already existing in man" [3]. Pestalozzi defines education as "The natural, harmonious and progressive development of man's innate powers" [4]. According to Plato, "Education develops in the body and the soul (of the people) all the beauty and all the perfection which he is capable of" [5].

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### **1.1. Secondary Education**

Secondary education exposes students to the contributions of science, humanities and social sciences to the development of a nation. This is also a stage where children are provided with a sense of history and natural perspective and given opportunities to understand their constitutional duties and rights as citizens. In this context, John [13] observes that literacy is not essential to economic growth [14]. Experts in human resources have advised the government to prioritise secondary and tertiary education in order to ensure a steady supply of mid-level specialists. For many reasons, finishing high school is crucial. It's the benchmark of education generally agreed upon as necessary for a person to function in today's technological society [15], and it opens doors professionally and socially. According to the Secondary Education Commission, "the secondary school must make itself responsible for equipping students adequately with civic as well as vocational efficiency and qualities of character that go with it" [7]. This is so that they can "play their part worthily and competently in the improvement of national life" [8].

### **1.2. Importance of Secondary Education**

Secondary education is an important stage in the educational ladder. It has well-defined objectives and a structure of its own. Its contribution is two-fold: 1. The individual's overall development, 2. The progress made in the area. The system's effectiveness may vary greatly from one place to the next for a number of reasons. If that's the case, finding out how to do it is crucial. This means that we can figure out how to close the achievement gap between different regions in secondary education and how to improve our schools overall. These kinds of talks will shed insight into how we should structure and run secondary schools in the future [16]. They will help the planner eliminate and prevent weak educational institutions and increase the number of successful ones [17].

### **1.3. Objectives of Secondary Education**

The objectives of secondary education, as defined by the Secondary Education Commission [6], are the Development of democratic citizenship, the development of vocational efficiency, the development of the qualities for leadership and the development of personality. According to the Kothari committee [6], secondary education is crucial to the development of the educational system. According to the report, the most pressing need in education is to make it more relevant to the lives, needs, and aspirations of the people so that it can serve as a potent instrument of the social, economic, and cultural transformations required to achieve national goals. The National Policy on Education [8] outlines the following as the function and purpose of education. In our country, we hold that a good education is crucial for everyone. This is fundamental to our all-round development [18]. Education has an outstanding role. It refines sensitivity and perceptions that contribute to national cohesion, a scientific temper and independence of mind and spirit, thus furthering the goals of socialism, secularism and democracy enshrined in our constitution. Education develops manpower for different levels of the economy. It prepares the students to identify occupations through rationalization to enhance individual employability and reduce the difference between the demand and supply of skilled manpower [19]. To sum up, education is a unique involvement in the present and the future. This cardinal principle is the key to the National Policy of Education [8].

### **1.4. Importance of Mathematics**

Because of its central role in the advancement of science and technology, mathematics has traditionally been accorded a high status in the curriculum across all academic levels. So, in the pursuit of scientific truth, mathematics has always retained a special allure and glitter for scientists and businessmen alike. According to Kant, "Mathematics is the indispensable instrument of all physical research [9]. Mellor remarked, "It is almost impossible to follow the later developments of physical or general chemistry without a working knowledge of higher mathematics" [10]. Kothari commission [6] remarked that we cannot overstress the importance of mathematics to science, education and research [20].

### **1.5. Theory of Multiple Intelligence**

Howard Earl Gardner was born in Scranton, Pennsylvania, in 1943. Gardner [12] proposed a new theory and definition of intelligence in his book "Frames of Mind: The theory of Multiple Intelligence". He set out to determine whether or not intelligence consists of a single trait or a collection of distinct mental abilities. Gardner taught at the Harvard Graduate School of Education and specialised in the field of education and cognition. Both the Department of Psychology at Harvard and the Department of Neurology at the Boston University School of Medicine employ him as an adjunct faculty member. His life's work has been an attempt to analyse and define what constitutes intelligence within the umbrella of the Multiple Intelligences theory. Using sources in psychology, biology, neuroscience, sociology, anthropology, and the arts and humanities, Gardner set out to investigate intelligence in a methodical, interdisciplinary, and scientific manner [21]. This led to the development of his theory of MI, which was first published in 1983 under the title Frames of Mind [22]. Gardner [12] argues that IQ (Intelligence Quotient) is only one measure of intelligence and that a high IQ without productivity does not equal intelligence. "Intelligence,"

he writes, "is a bio-psychological potential to digest information that can be triggered in cultural situations to solve problems or develop products that are of value in culture" [11].



**Figure 1:** Theory of Multiple Intelligences [23]

Therefore, Gardner's concept of intelligence sees it as many things rather than a simple item represented psychometrically with an IQ score (Fig. 1). He provided a far broader definition of intelligence than that used by psychometricians. Gardner developed numerous measures of intellect to accomplish this. In order for a construct to be eligible for inclusion as one of the 'Multiple Intelligences,' it had to fulfil a number of conditions. In order to meet the eight requirements needed for the ability to be classified as "Intelligence," researchers looked at it from a variety of fields, including the biological sciences, logical analysis, developmental psychology, experimental psychology, and psychometrics. There are a few ways to evaluate 'Multiple Intelligence' [12]:

- Isolation of the brain due to injury, its evolutionary significance
- The existence of essential processes
- Encoding susceptibility
- Clearly identifiable stages of growth
- The presence of geniuses, idiot savants, and other outliers.
- Backing on both the findings of experimental psychology and psychometric research.

Gardner developed and defined seven aspects of intelligence based on the eight requirements. Intelligence includes verbal/linguistic, mathematical/logical, visual/spatial, kinesthetic/bodily, musical/rhythmic, social/interpersonal, and introspective. According to Gardner, there are distinct talents that can be observed and assessed for each of these seven "intelligence." More recently, Gardner has nominated Naturalistic, Spiritual and Existentialistic intelligence and evaluated them in the context of the eight criteria he established in his research. Gardner is comfortable declaring that Naturalistic intelligence and Existentialistic intelligence meet the set criteria. However, he is less sure about how to define and incorporate Spiritual intelligence. Key points in Multiple Intelligence are:

- Each person possesses all intelligence.
- Most people can develop each intelligence to an adequate level of competency.
- Intelligence usually works together in complex ways.
- There are many ways to be intelligent within each category.

Multiple Intelligence theory says that students can be intelligent in diverse ways. This intelligence can be vital in the technologically sophisticated modern work fields. One such field is mathematics. It welcomes people with diverse abilities and scientific insight to work with it.

## **2. Multiple Intelligence and Its Characteristics**

The ability to find solutions to problems or produce goods that are valued in one or more cultural contexts is what Gardner [12] calls intelligence. According to Gardner, there is not one single form of intelligence but rather a wide range of them. He asserts

that everybody is multi-gifted. Either this Multiple Intelligence can be fostered and developed, or it can be disregarded and withered away. He considers the following quotas of intelligence to be present in every person.

### **2.1. Verbal-linguistic intelligence**

It entails proficiency in communicating effectively vocally and in writing. Managing language requires knowledge of its structure (syntax), its sounds (phonology), its meaning (semantics), and its pragmatics (practical application). Rhetoric, memorization techniques, explanatory writing, and "Meta" language are only a few examples. An early indicator of verbal-linguistic acuity is a propensity for reading and writing at an early age.

### **2.2. Logical-mathematical intelligence**

Mathematical and logical reasoning proficiency. Intelligence, in this sense, involves the ability to recognise and apply abstract logical concepts such as assertions, propositions, and their functions. Categorizing, classifying, inferring, generalising, calculating, and testing hypotheses are all operations that serve Logical-mathematical intelligence. This sort of intellect grows and becomes most noticeable in adolescents. When you hit 40, you start to lose your mathematical edge.

### **2.3. Visual-spatial intelligence**

The ability to construct accurate mental images of visual and spatial environments and then manipulate those images. This perceptiveness includes an awareness of colour, line, shape, form, space, and their interrelationships. The ability to visualise, to visually describe visual or spatial thoughts, and to correctly orient oneself inside a unique matrix are all components of this skill. By the time kids are 9 or 10, they're capable of combining abstract notions of shapes and dimensions into a single framework called "topological thinking." The ability to see things with an "artistic eye" lasts a lifetime.

### **2.4. Bodily-kinesthetic intelligence**

It's the ability to put one's whole body to work in expressing one's thoughts and feelings, as well as the skill with one's hands to make or alter objects. Physical abilities such as coordination, balance, agility, strength, flexibility, speed, and the ability to feel and manipulate objects are all part of this type of intelligence. How this intelligence develops in a child depends on whatever aspects of it are most readily apparent at an early age. Students could be pushed toward careers in sports, dancing, sculpture, painting, choreography, etc.

### **2.5. Musical-rhythmic intelligence**

This is the ability to perceive, discriminate, transform, and express musical forms. This intelligence includes sensitivity to a musical piece's rhythm, pitch, melody, or tone colour. One can have a figural or top-down understanding of music, a formal or bottom-up understanding or both. According to Gardner [12], musical intelligence runs in an almost structural parallel to linguistic intelligence. Musical intelligence is the earliest intelligence to develop. Musical prodigies often go through a developmental crisis at some stage. Students may be encouraged to explore to become composers, musicians, recording artists, etc.

### **2.6. Interpersonal intelligence**

The ability to read and understand the emotions, thoughts, and motivations of others is a hallmark of interpersonal intelligence. The ability to read and respond appropriately to a variety of interpersonal cues, such as tone of voice, body language, and facial expressions, is part of this category. It facilitates efficient collaboration among team members. A high level of interpersonal intelligence is necessary for careers in teaching, sales, religious and political leadership, and counselling. For this kind of intelligence to have a chance to emerge, it is crucial that newborns and toddlers bond and attaches to their caretakers. Counselling, psychiatry, psychotherapy, politics, law, and sociology are among the fields that could be recommended to students.

### **2.7. Intrapersonal intelligence**

It's knowing oneself and being able to respond to changing circumstances with flexibility. Possessing the ability for self-discipline, self-understanding, and self-esteem, as well as an accurate picture of oneself and awareness of inner emotions, goals, motivations, temperaments, and wants, all fall under this category of intelligence. According to Gardner, this is knowing oneself well enough to control one's actions based on that knowledge. Separating oneself emotionally from another human being is a crucial step in attaining this kind of intelligence. Careers in psychology, theology, philosophy, and creative writing are all viable

options that can be promoted to students. Recent research has led to the discovery of a form of intelligence known as "naturalistic intelligence." The ability to recognise and categorise natural phenomena is a hallmark of a true nature lover. The study of naturalistic intelligence focuses on seeing patterns and drawing analogies between natural phenomena. People with this kind of IQ might also care deeply about the planet, its inhabitants, and its ecosystems. Children of this IQ range often develop a deep love for nature and the animal kingdom. Farmers, gardeners, botanists, geologists, florists, and archaeologists are just a few of the professions open to someone with a naturalistic intelligence. A person with existentialist intelligence is one who is attuned to or capable of grappling with fundamental concerns about the human condition, such as what it means to be human, why we're here, what awareness is, and how we got here. Existentialistic intelligence is concerned with ultimate issues. Gardner believes that individuals possessing Existentialistic intelligence are inclined to pose questions about life, death, and ultimate realities. He has also stated that existentialistic intelligence might manifest in someone concerned with fundamental questions about existence or who questions the intricacies of existence.

### 3. Related Studies

Finding out how educators think about and implement Multiple Intelligences was the focus of this non-experimental, descriptive study. The participants in this research were all educators (n = 622). Specifically, the Intelligence Survey, a Survey of Instructional Methods, and a Mini-Demographics Survey were used in this investigation. Teachers at Catholic elementary schools preferred to use logical-mathematical, interpersonal, intrapersonal, and naturalistic intelligence but not verbal-linguistic, visual-spatial, bodily-kinesthetic, or musical intelligence, according to this study. The mean results for the eight Multiple Intelligences were considerably different from the teachers' self-reported strongest intelligence. The mean scores for the associated intellect were highest for teachers who reported that it was also their strongest intelligence. These results could mean that educators are putting their strengths to use in the classroom by catering lessons to their preferred intellect. In general, educators employ methods that play to the strengths of the Multiple Intelligences they themselves have identified. Effective pedagogical practises encourage student learning and facilitate the growth of their many intelligences. The purpose of this study was to examine whether or not there are any significant differences between the Multiple Intelligence profiles of college student singers and non-singers based on demographic variables such as singing involvement, age, gender, and ethnicity. Participants (n = 233) hail from three different universities in the Midwest. Eight distinct types of intelligence have their profiles determined using the MIDAS (Multiple Intelligence Development Assessment Scale) instruments. The study found that singers have superior musical and language intelligence compared to non-singers. The distinction in linguistic and verbal IQ was traced down to the actors alone. Both logical-mathematical and interpersonal intelligence were much greater in males than in girls.

According to the average results, women's spatial performance improves with age, whereas men's decline. The mean scores showed that the intrapersonal scores of non-singers increased with age while the intrapersonal scores of singers decreased. The purpose of this research was to establish if and how co-operative learning strategies correlate with students' interpersonal Multiple Intelligences. Two school districts and one private Catholic high school in Pennsylvania sent 103 educators. The MIDAS and the Cooperative Learning Survey were used to compile the data (Multiple Intelligence Developmental Assessment Scale). There is no association between interpersonal Multiple Intelligence and cooperative learning, as measured by Pearson's Product Moment correlation coefficient. We also looked at how different demographic factors relate to the prevalence of cooperative learning. The results of an ANOVA revealed a statistically significant difference in the mean attitude of elementary, middle, and high school teachers toward cooperative learning. According to a Bonferroni post hoc analysis, elementary school teachers feel more positively about co-operative learning than their high school counterparts.

The researchers set out to establish a connection between drive and cognitive capacity. The study's author suspected that youngsters could have benefited most from instruction that took into account their full range of talents and that fostered a variety of connections. As studies show that the concept of intelligence is too narrow to characterise most students, scholars from a variety of fields have contested the concept by providing extensive data that shows how schools restrict intellectual progress, primarily by focusing on a fixed learner model. In this investigation, we looked at how current understandings of the brain and how kids learn relate to the education of disadvantaged youth. In order for graduates of undergraduate nutrition and dietetics programmes to effectively satisfy the health and nutrition demands of a broad clientele, effective techniques for recruiting and retaining a diverse student body are required. A framework based on Gardner's theory of Multiple Intelligences is one strategy to increase inclusivity and the quality of education in the field of dietetics (MI). Based on their unique genetic makeup and upbringing, people have various levels of eight distinct bits of intelligence, according to this idea.

Research into MI strategies in tertiary education, international education, and dietetics training is scant. Thus, this study aimed to examine the MI profiles of undergraduate nutrition programme participants at the universal intelligence level, where substantial variations were found in the eight pieces of intelligence measured by the MIDAS. When comparing American and Mexican pupils, as well as the population as a whole, there were statistically significant disparities in scale scores. When the scores were organised into five ordinal groups, we saw the same pattern. The results also indicate that the specific abilities related to students' IQ vary by institution. The results show that dietetics students excel in areas of social sensitivity and

persuasion to a far greater extent than in many others. Furthermore, there were substantial discrepancies between the American and Mexican students with regards to abilities related to the eight intelligences. The quantitative approach used a sample drawn at random from the pool of students enrolled in the University of Denver's primary preparatory programme during the 2004-2005 academic year. Seventy students comprising four groups from the program were given the self-administered Multiple Intelligence Developmental Assessment Scales (MIDAS) assessments. The assessment comprised a 119-item questionnaire in the eight Multiple Intelligence and three intellectual style scales. Percentage scores were calculated from participants' responses for each intelligence, which produced a Multiple Intelligence profile, rating subjects from very low to very high in each Intelligence and leadership area.

A follow-up questionnaire surveyed the population for perceptions of their profiles. Responses indicated that candidates agreed with their profile and had increased awareness of their leadership strengths. This study makes recommendations for further researcher in Multiple Intelligence and leadership and applications to educational leadership standards. The standards present a common core of knowledge, dispositions, and performances that help link transformational leadership more forcefully to productive schools and enhanced educational outcomes. B. Abilash and P. Annaraja studied Awareness of Biotechnology and Multiple Intelligence of college students. The purpose of the study was to find out the relationship between awareness of biotechnology and Multiple Intelligence of college students. The survey method of research was conducted with a stratified random sampling technique for the samples of 300 college students from 3 colleges; among them, 103 are males, and 197 are females.

The survey found no significant difference between awareness of biotechnology and Multiple Intelligence of college students. D. Thomas Alexander and P. Annaraja studied the role of Multiple Intelligence on the learning of problem students. The study aimed to discover the role of Multiple Intelligence on the learning of problem students. It studied who are problem students, the causes of problem behaviour, what are Multiple Intelligence and their types and the Impact of MI on learning. It also dealt with brain-based learning, problem students and a student-centred approach to learning. This study gave the following suggestions student-active learning can be conducted to improve their understanding of contents. Brain-based learning must be given importance to the problem students. They also suggested that Multiple Intelligence based pedagogy might be followed. Ajith Raj, N.D. and S. Sebastian, S.J, studied the Learning Styles and Multiple Intelligence of B.Ed. students. The study aimed to assess the learning styles and Multiple Intelligence of B.Ed. students. The investigator used the tools viz., general data sheet, learning styles Inventory and Multiple Intelligence Inventory. It was administered through the survey method to the population sample of 300 students from six colleges out of 23 B.Ed. colleges, including one university B. Ed centre in Thiruvananthapuram district. It is inferred from the study that there is a significant difference in linguistic and musical learning styles of B.Ed. Students in terms of age. They also found a significant difference in social status in linguistic, logical and total learning of B.Ed. Students. The investigator has reviewed research reports related to the present problem in this chapter. Most of the research reports are international studies. Only a few researches have been done in India. The research reports surveyed contain survey research and case studies.

#### **4. Significance of the Study**

Everyone has the potential to learn, but not everyone will learn at the same time or in the same way. Intelligence is demonstrated by seeing a need and creating a solution that meets that need or benefits a larger community. According to Gardner's theory of multiple intelligences, persons possess a wide range of intelligences, each of which is emphasised to varied degrees. As a group, we have the potential to boost one another's IQ in every possible way. Teachers, principals, and parents can gain a deeper insight into their students by familiarising themselves with Gardner's theory of Multiple Intelligences. They can promote student agency in the classroom by providing a secure environment for students to try out new approaches to learning. Adults can assist kids in recognising their own abilities and locating learning-inducing experiences in the actual world. Because of its central role in the advancement of science and technology, mathematics has traditionally been given a prominent position in the curriculum across all grade levels. Multiple Intelligence is more important in today's high-tech society. Students can start to grasp their own intelligence when the notion of multiple intelligences is applied to them. Therefore, the researcher reasoned, it would be wise to look into the connection between Multiple Intelligences and mathematical success.

#### **4.1. Objectives**

##### **4.1.1. General Objectives**

- To find the level of Multiple Intelligence of high school students in terms of background variables.
- To find the level of achievement of high school students in terms of background variables.
- To find out whether there is any significant difference in the level of Multiple Intelligence of high school students in terms of background variables.
- To find out whether there is any significant difference in the level of achievement of high school students in terms of background variables.

- To find out whether there is any significant relationship between Multiple Intelligence and achievement in mathematics among high school students.

#### 4.2. Specific Objectives

- 1.1 To find out the level of Multiple Intelligence of high school students in terms of sex.
- 1.2 To find out the level of Multiple Intelligence of high school students in terms of birth order.
- 1.3 To find out the level of Multiple Intelligence of high school students in terms of locality.
- 1.4 To find out the level of Multiple Intelligence of high school students in terms of the type of school.
- 1.5 To find out the level of Multiple Intelligence of high school students in terms of the nature of the school.
- 1.6 To find out the level of Multiple Intelligence of high school students in terms of the medium of instruction.
- 2.1 To find out the level of achievement in mathematics among high school students in terms of sex.
- 2.2 To find out the level of achievement in mathematics of high school students in terms of birth order.
- 2.3 To find out the level of achievement in mathematics of high school students in terms of locality.
- 2.4 To find out the level of achievement in mathematics of high school students in terms of the type of school
- 2.5 To find out the level of achievement in mathematics of high school students in terms of the nature of school
- 2.6 To find out the level of achievement in mathematics of high school students in terms of the medium of instruction.

#### 4.3. Hypotheses

- 3.1 There is no significant difference between male and female high school students in their level of Multiple Intelligence.
- 3.2 There is no significant difference between rural and urban high school students in their level of Multiple Intelligence.
- 3.3 Tamil and English language high school pupils have similar Multiple Intelligence.
- 3.4 There is no significant difference between annual family income and Multiple Intelligence of high school students.
- 3.5 Aided, unaided, and government school pupils have similar Multiple Intelligence.
- 3.6 There is no significant difference among boys', girls' and co-education school students' levels of Multiple Intelligence.
- 4.1 There is no significant difference between mothers' occupations and the Multiple Intelligence of high school students.
- 4.2 There is no significant association between fathers' education and Multiple Intelligence of high school students.
- 4.3 There is no significant association between mothers' education and Multiple Intelligence of high school students.
- 4.4 There is no significant association between fathers' occupations and the Multiple Intelligence of high school students.
- 5.1 Multiple Intelligence does not affect high school math performance to a) sex, b) locality, c) medium of instruction and d) nature of the school.

#### 4.4. Limitations of the Study

- The study is confined to only High school students.
- The study is limited to mathematics subject.
- Marks of Quarterly Examinations are taken for the study.
- The sample is limited to the Trichy district alone.

#### 4.5. Method Used for The Study

The researcher is using a survey approach to learn more about the correlation between Multiple Intelligence and high school students' mathematical performance. Information is systematically gathered from a population through direct solicitation in survey research. This can be done through face-to-face interviews, questionnaires, or prearranged meetings.

There are three types of data that can be gathered from a meaningful survey:

- Existing conditions through research and critical evaluation.
- Of what we want by elaborating on our aims, perhaps by looking at other places and comparing them to our ideals, or by consulting with specialists.
- Obtaining this by identifying potential routes to success based on the insights and knowledge of specialists in the field.

The present study is to know the relationship between Multiple Intelligence and achievement in mathematics among high school students.

## 5. Tools Used in The Present Study

The purpose of this research is to investigate whether or not high school pupils who score higher on the Multiple Intelligences tests also perform better in mathematics. Terry Armstrong's Multiple Intelligence Inventory (MII) was employed for this investigation of ML in high school pupils. The 117-item assessment can be used to gauge a person's proficiency in the many facets of their Multiple Intelligences. Against each statement, there are five alternatives representing the five possible ways. The respondent can choose one of the five alternatives for each statement indicating how well that statement describes the respondent. To determine the academic achievement of high school students, the investigator obtained quarterly marks in mathematics from each respondent [24].

### 5.1. Population For the Study

The population for the present study is the high school students in Trichy district, Tamil Nadu.

### 5.2. Sample For the Study

The investigator used a stratified random sampling technique to select the population sample. The stratification has been done based on sex, standard and type of school. The sample consists of 200 high school students from 8 schools. Among them 125 are males, and 75 are females. The sample distribution under different categories is below (tables 1 to 6).

**Table 1:** School-Wise Distribution of The Sample

| Sl. No. | Name of the school                         | No. of Students | Percentage |
|---------|--|-----------------|------------|
| 1.      | St. Joseph's Hr. Sec. School, Trichy-2     | 30              | 15.0       |
| 2.      | Holy Cross, Hr. Sec. School, Trichy-2      | 30              | 15.0       |
| 3.      | U.D.V. Hr. Sec. School, Trichy-2           | 25              | 12.5       |
| 4.      | National college Hr. Sec. School, Trichy-2 | 25              | 12.5       |
| 5.      | Bishop Heber Hr. Sec. School, Trichy-2     | 25              | 12.5       |
| 6.      | St. Mary's High School, Trichy-2           | 25              | 12.5       |
| 7.      | Syed Mursa Govt. Hr. Sec. School, Trichy   | 20              | 10.0       |
| 8.      | Rockfort Matriculation. School, Trichy     | 20              | 10.0       |

**Table 2:** Sex-Wise Distribution of The Sample

| Sex    | No. of students | Percentage |
|--------|-----------------|------------|
| Male   | 125             | 62.5       |
| Female | 75              | 37.5       |

**Table 3:** Birth Order-Wise Distribution

| Birth order | No. of students | Percentage |
|-------------|-----------------|------------|
| 1           | 99              | 49.5       |
| 2           | 72              | 36.0       |
| 3.          | 19              | 9.5        |
| 4.          | 10              | 5.0        |

**Table 4:** Locality-Wise Distribution

| Locality | No. of students | Percentage |
|----------|-----------------|------------|
| Rural    | 25              | 12.5       |
| Urban    | 175             | 87.5       |



**Table 5:** Type of School-Wise Distribution

| Type of school | No. of students | Percentage |
|----------------|-----------------|------------|
| Aided          | 160             | 80.0       |
| Un-aided       | 20              | 10.0       |
| Government     | 20              | 10.0       |

**Table 6:** Nature of School-Wise Distribution

| Nature of school | No. of students | Percentage |
|------------------|-----------------|------------|
| Boys'            | 87              | 43.5       |
| Girls'           | 45              | 22.45      |
| Co-education     | 68              | 34.0       |

## 6. Analysis of Data

### 6.1. Objective Testing

#### 6.1.1. Objective 1.1

To find out the level of Multiple Intelligence of high school students regarding sex.

**Table 7:** Level of Multiple Intelligence of High School Students In Terms of Sex

| Dimensions                           | Category | Low |       | Moderate |       | High |       |
|--------------------------------------|----------|-----|-------|----------|-------|------|-------|
|                                      |          | N   | %     | N        | %     | N    | %     |
| a. Verbal-linguistic Intelligence    | Boys     | 5   | 4.0   | 103      | 82.4  | 17   | 13.6  |
|                                      | Girls    | 13  | 17.33 | 47       | 62.66 | 15   | 20    |
| b. Logical-mathematical Intelligence | Boys     | 18  | 14.4  | 90       | 72.0  | 17   | 13.6  |
|                                      | Girls    | 24  | 32.0  | 39       | 52.0  | 12   | 16.0  |
| c. Visual-spatial Intelligence       | Boys     | 11  | 8.8   | 82       | 65.6  | 32   | 25.6  |
|                                      | Girls    | 19  | 25.33 | 43       | 57.33 | 13   | 17.33 |
| d. Bodily-kinesthetic Intelligence   | Boys     | 17  | 13.6  | 101      | 80.8  | 7    | 5.6   |
|                                      | Girls    | 11  | 14.66 | 41       | 54.66 | 23   | 30.66 |
| e. Musical-rhythmic Intelligence     | Boys     | 10  | 8.0   | 104      | 83.2  | 11   | 8.8   |
|                                      | Girls    | 9   | 12.0  | 51       | 68.0  | 15   | 20.0  |
| f. Intrapersonal Intelligence        | Boys     | 12  | 9.6   | 99       | 79.2  | 14   | 11.2  |
|                                      | Girls    | 9   | 9.33  | 62       | 82.66 | 6    | 8.0   |
| g. Interpersonal Intelligence        | Boys     | 17  | 13.6  | 87       | 69.6  | 21   | 16.8  |
|                                      | Girls    | 9   | 12.0  | 54       | 72.0  | 12   | 16.0  |
| h. Naturalistic Intelligence         | Boys     | 14  | 11.2  | 96       | 76.8  | 15   | 12.0  |
|                                      | Girls    | 12  | 16.0  | 47       | 62.66 | 16   | 21.33 |
| i. Existentialistic Intelligence     | Boys     | 28  | 22.4  | 79       | 63.2  | 18   | 14.4  |
|                                      | Girls    | 15  | 20.0  | 39       | 52.0  | 21   | 28.0  |
| j. In toto                           | Boys     | 22  | 17.6  | 87       | 69.6  | 16   | 12.8  |
|                                      | Girls    | 15  | 20.0  | 42       | 56.0  | 18   | 24.0  |

It is inferred from Table 7 that 4% and 17.33% of boys and girls have a low level, 82.4% and 62.66% of them have an average level, and 13.6% and 20% of them have a high level of Verbal-linguistic Intelligence.

14.4% and 32% of boys and girls have a low level, 72% and 52% have an average level, and 13.6% and 16% have a high level of Logical-mathematical Intelligence.

8.8% and 25.33% of boys and girls have a low level, 65.6% and 57.33% have an average level, and 25.6% and 17.33% have a high level of Visual-spatial Intelligence.

13.6% and 14.66% of boys and girls have a low level, 80.8% and 54.66% have an average level and 5.6% and 30.66% have a high level of Bodily-kinesthetic Intelligence.

8.0% and 12.0% of boys and girls have a low level, 83.2% and 68.0% have an average level, and 8.8% and 20.0% have a high level of Musical-rhythmic Intelligence.

9.6% and 9.33% of boys and girls have a low level, 79.2% and 82.66% have an average level, and 11.2% and 8.0% have a high level of Intrapersonal Intelligence.

13.6% and 12.0% of boys and girls have a low level, 69.6% and 72.0% have an average level, and 16.8% and 16.0% have a high level of Interpersonal Intelligence.

11.2% and 16.0% of boys and girls have a low level, 76.8% and 62.66% have an average level, and 12.0% and 21.33% have a high level of Naturalistic Intelligence.

22.4% and 20.0% of boys and girls have a low level, 63.2% and 52% have an average level, and 14.4% and 28.0% have a high level of Existentialistic Intelligence.

17.6% and 20.0% of boys and girls have low levels, 69.6% and 56.0% have average levels, and 12.8% and 24.0% have high levels of Multiple Intelligence.

### 6.1.2. Objective 1.2

To determine the level of Multiple Intelligence of high school students regarding birth order.

**Table 8:** Level of Multiple Intelligence of High School Students in Terms of Birth Order

| Dimensions                           | Category | Low |       | Moderate |       | High |       |
|--------------------------------------|----------|-----|-------|----------|-------|------|-------|
|                                      |          | N   | %     | N        | %     | N    | %     |
| a. Verbal-linguistic Intelligence    | 1        | 23  | 23.23 | 62       | 62.62 | 14   | 14.14 |
|                                      | 2        | 18  | 25.0  | 44       | 61.11 | 10   | 13.88 |
|                                      | 3        | 6   | 31.57 | 11       | 57.89 | 2    | 10.52 |
|                                      | 4        | 0   | 0.0   | 9        | 90.0  | 1    | 10.0  |
| b. Logical-mathematical Intelligence | 1        | 19  | 19.9  | 67       | 67.67 | 13   | 13.13 |
|                                      | 2        | 21  | 29.16 | 39       | 54.16 | 12   | 16.66 |
|                                      | 3        | 3   | 15.78 | 15       | 78.94 | 1    | 5.26  |
|                                      | 4        | 3   | 30.0  | 5        | 50.0  | 2    | 20.0  |
| c. Visual-spatial Intelligence       | 1        | 17  | 17.17 | 72       | 72.72 | 10   | 10.10 |
|                                      | 2        | 17  | 23.61 | 42       | 58.33 | 13   | 18.05 |
|                                      | 3        | 4   | 21.05 | 13       | 68.42 | 2    | 10.52 |
|                                      | 4        | 2   | 20.0  | 6        | 60.0  | 1    | 10.0  |
| d. Bodily-kinesthetic Intelligence   | 1        | 12  | 12.12 | 74       | 74.74 | 13   | 13.13 |
|                                      | 2        | 19  | 26.38 | 37       | 51.35 | 16   | 22.22 |
|                                      | 3        | 2   | 10.52 | 15       | 78.94 | 2    | 10.52 |
|                                      | 4        | 1   | 10.0  | 7        | 70.0  | 2    | 20.0  |
| e. Musical-rhythmic Intelligence     | 1        | 11  | 11.11 | 81       | 81.81 | 7    | 7.07  |
|                                      | 2        | 15  | 20.83 | 43       | 59.72 | 14   | 19.44 |
|                                      | 3        | 2   | 10.52 | 13       | 68.42 | 4    | 21.05 |
|                                      | 4        | 1   | 10.0  | 8        | 80.80 | 1    | 10.00 |
| f. Intrapersonal Intelligence        | 1        | 7   | 7.07  | 83       | 83.83 | 9    | 9.09  |
|                                      | 2        | 17  | 23.61 | 40       | 55.55 | 15   | 20.83 |
|                                      | 3        | 3   | 15.78 | 15       | 78.94 | 1    | 5.26  |
|                                      | 4        | 0   | 0.0   | 10       | 100   | 0    | 0     |
| g. Interpersonal Intelligence        | 1        | 9   | 9.09  | 80       | 80.8  | 10   | 10.10 |
|                                      | 2        | 21  | 29.16 | 34       | 47.22 | 17   | 23.61 |
|                                      | 3        | 3   | 15.78 | 14       | 73.68 | 2    | 10.52 |
|                                      | 4        | 0   | 0     | 9        | 90.0  | 1    | 10.0  |
| h. Naturalistic Intelligence         | 1        | 9   | 9.09  | 85       | 85.85 | 5    | 5.05  |

|                                  |   |    |       |    |       |    |       |
|----------------------------------|---|----|-------|----|-------|----|-------|
|                                  | 2 | 16 | 22.22 | 37 | 51.38 | 19 | 26.38 |
|                                  | 3 | 4  | 21.05 | 12 | 63.15 | 3  | 15.78 |
|                                  | 4 | 2  | 20    | 7  | 70.0  | 1  | 10.0  |
| i. Existentialistic Intelligence | 1 | 19 | 19.19 | 62 | 62.62 | 18 | 18.18 |
|                                  | 2 | 17 | 23.61 | 41 | 56.94 | 14 | 19.44 |
|                                  | 3 | 2  | 10.52 | 15 | 78.94 | 2  | 10.52 |
|                                  | 4 | 1  | 10.0  | 8  | 80.0  | 1  | 10.0  |
| j. In toto                       | 1 | 12 | 12.12 | 67 | 67.67 | 20 | 20.20 |
|                                  | 2 | 21 | 29.16 | 39 | 54.16 | 12 | 16.66 |
|                                  | 3 | 3  | 15.78 | 12 | 63.15 | 4  | 21.05 |
|                                  | 4 | 1  | 10.0  | 8  | 80.0  | 1  | 10.0  |

It is inferred from Table 8 above that 23.23%, 25.0%, 31.57% and 0.0% of I, II, III & IV birth order students in the family have low levels, 62.62%, 61.11%, 57.89% and 90.0% of them have average level and 14.14%, 13.88%, 10.52% and 10% of them have a high level of Verbal-linguistic Intelligence.

19.9%, 29.16%, 15.78% and 30% of I, II, III & IV birth order students in the family have low level, 67.67%, 54.16%, 78.94% and 50% of them have average level and 13.13%, 16.16%, 5.26% and 20.0% of them have a high level of Logical-mathematical Intelligence.

17.17%, 23.61%, 21.05% and 20.0% of I, II, III & IV birth order students in the family have low level, 72.72%, 58.33%, 68.42% and 60% of them have average level and 10.10%, 18.05%, 10.52% and 10% of them have a high level of Visual-spatial Intelligence.

12.12%, 26.38%, 10.52%, and 10% of I, II, III & IV birth order students in the family have low level, 74.74%, 51.38%, 78.94% and 70% of them have average level and 13.13%, 22.22%, 10.52% and 20% of them have a high level of Bodily-kinesthetic Intelligence.

11.11%, 20.83%, 10.52%, and 10% of I, II, III & IV birth order students in the family have low level, 81.81%, 59.72%, 68.42% and 80.80% of them have average level and 7.07%, 19.44%, 21.05% and 10% of them have a high level of Musical-rhythmic Intelligence.

7.07%, 23.61%, 15.78%, and 0% of I, II, III & IV birth order students in the family have low level, 83.83%, 55.55%, 78.94% and 100% of them have average level and 9.09%, 20.83%, 5.26% and 0% of them have a high level of Intrapersonal Intelligence.

9.09%, 29.16%, 15.78%, and 0% of I, II, III & IV birth order students in the family have low level, 80.8%, 47.22%, 73.68% and 90% of them have average level and 10.10%, 23.61%, 10.52% and 10% of them have a high level of Interpersonal Intelligence.

9.09%, 22.22%, 21.05% and 20% of I, II, III & IV birth order students in the family have low level, 85.85%, 51.38%, 63.15% and 70% of them have average level and 5.05%, 26.38%, 15.78% and 10% of them have a high level of Naturalistic Intelligence.

19.19%, 23.61%, 10.52% and 10% of I, II, III & IV birth order students in the family have low level, 62.62%, 56.94%, 78.94% and 80% of them have average level and 18.18%, 19.44%, 10.52% and 10% of them have a high level of Existentialistic Intelligence.

12.12%, 29.16%, 15.78%, and 10% of I, II, III & IV birth order students in the family have low level, 67.67%, 54.16%, 63.15% and 80% of them have average level and 20.20%, 16.16%, 21.05% and 10% of them have a high level of Multiple Intelligence.

### 6.1.3. Objective 1.3

To find out the level of Multiple Intelligence of high school students in terms of locality.

**Table 9:** Level of Multiple Intelligence of High School Students in Terms of Locality

| Dimensions                        | Category | Low |    | Moderate |       | High |       |
|-----------------------------------|----------|-----|----|----------|-------|------|-------|
|                                   |          | N   | %  | N        | %     | N    | %     |
| a. Verbal-linguistic Intelligence | Rural    | 5   | 20 | 14       | 56.0  | 6    | 24.0  |
|                                   | Urban    | 42  | 24 | 113      | 64.57 | 20   | 11.42 |

|                                      |       |    |       |     |       |    |       |
|--------------------------------------|-------|----|-------|-----|-------|----|-------|
| b. Logical-mathematical Intelligence | Rural | 6  | 24    | 17  | 68.0  | 2  | 8.0   |
|                                      | Urban | 57 | 32.57 | 101 | 57.71 | 17 | 9.71  |
| c. Visual-spatial Intelligence       | Rural | 2  | 8.0   | 21  | 84.0  | 2  | 8.0   |
|                                      | Urban | 42 | 24.0  | 97  | 55.42 | 36 | 20.57 |
| d. Bodily-kinesthetic Intelligence   | Rural | 4  | 16.0  | 19  | 76.0  | 2  | 8.0   |
|                                      | Urban | 38 | 21.71 | 111 | 63.42 | 26 | 14.85 |
| e. Musical-rhythmic Intelligence     | Rural | 5  | 20    | 20  | 80.0  | 0  | 0.0   |
|                                      | Urban | 48 | 27.42 | 100 | 57.14 | 27 | 15.42 |
| f. Intrapersonal Intelligence        | Rural | 5  | 20.0  | 17  | 68.0  | 3  | 12.0  |
|                                      | Urban | 22 | 12.57 | 128 | 73.14 | 25 | 14.28 |
| g. Interpersonal Intelligence        | Rural | 3  | 12.0  | 21  | 84.0  | 1  | 4.0   |
|                                      | Urban | 54 | 30.85 | 104 | 59.42 | 17 | 9.71  |
| h. Naturalistic Intelligence         | Rural | 5  | 20.0  | 16  | 64.0  | 4  | 16.0  |
|                                      | Urban | 32 | 18.28 | 131 | 74.85 | 12 | 6.85  |
| i. Existentialistic Intelligence     | Rural | 6  | 24.0  | 19  | 76.0  | 0  | 0     |
|                                      | Urban | 55 | 31.42 | 98  | 56.0  | 22 | 12.57 |
| j. In toto                           | Rural | 2  | 8.0   | 21  | 84.0  | 2  | 8.0   |
|                                      | Urban | 66 | 37.71 | 82  | 46.85 | 27 | 15.42 |

It is inferred from Table 9 above that 20.0% and 24.0% of rural and urban students have low levels, 56.0% and 64.57% of them have average levels, and 24.0% and 11.42% of them have high levels of Verbal-linguistic Intelligence.

2.4% and 32.57% of rural and urban students have low levels, 68.0% and 57.71% have average levels, and 8.0% and 9.71% have high levels of Logical-mathematical Intelligence.

8.0% of boys and 24.0% of rural and urban students have a low level of, 84.0% and 55.42% of them have an average level, and 8.0% and 20.57% have a high level of Visual-spatial Intelligence.

16% and 21.71% of rural and urban students have a low level, 76% and 63.42% have an average level, and 8% and 14.8em % have a high level of Bodily-kinesthetic Intelligence.

20% and 27.42% of rural and urban students have a low level, 80% and 57.14% have an average level, and 0% and 15.42% have a high level of Musical-rhythmic Intelligence.

20.0% and 12.57% of rural and urban students have low levels, 68% and 73.14% have average levels, and 12.0% and 14.28% have high levels of Intrapersonal Intelligence.

12% and 30.85% of rural and urban students have low levels, 84.0% and 59.42% have average levels, and 4.0% and 9.71% have high levels of Interpersonal Intelligence.

20% and 18.28% of rural and urban students have a low level, 64.0% and 74.85% have an average level, and 16% and 6.85% have a high level of Naturalistic Intelligence.

24.0% and 31.42% of rural and urban students have low levels, 76% and 56% have average levels, and 0% and 12.57% have high levels of Existentialistic Intelligence.

8.0% and 37.71% of rural and urban students have low levels, 84% and 46.85% have average levels, and 8.0% and 15.42% have high levels of Multiple Intelligence.

#### 6.1.4. Objective 1.4

To find out the level of Multiple Intelligence of high school students in terms of type of school.

**Table 10:** Level of Multiple Intelligence of High School Students in Terms of Type of School

| Dimensions                        | Category | Low |       | Moderate |       | High |       |
|-----------------------------------|----------|-----|-------|----------|-------|------|-------|
|                                   |          | N   | %     | N        | %     | N    | %     |
| a. Verbal-linguistic Intelligence | Aided    | 41  | 25.62 | 97       | 60.62 | 22   | 13.75 |

|                                      |            |    |       |     |       |    |       |
|--------------------------------------|------------|----|-------|-----|-------|----|-------|
|                                      | Un-Aided   | 2  | 10    | 16  | 80    | 2  | 10    |
|                                      | Government | 2  | 10    | 18  | 90    | 0  | 0     |
| b. Logical-mathematical Intelligence | Aided      | 37 | 23.12 | 102 | 63.75 | 21 | 13.12 |
|                                      | Un-Aided   | 2  | 10    | 18  | 90    | 0  | 0     |
|                                      | Government | 2  | 10    | 16  | 80    | 2  | 10    |
|                                      | Aided      | 35 | 21.87 | 99  | 61.87 | 26 | 16.25 |
| c. Visual-spatial Intelligence       | Un-Aided   | 1  | 5     | 17  | 85    | 2  | 10    |
|                                      | Government | 3  | 15    | 15  | 75    | 2  | 10    |
| d. Bodily-kinesthetic Intelligence   | Aided      | 24 | 15    | 120 | 75    | 16 | 10    |
|                                      | Un-Aided   | 4  | 20    | 14  | 70    | 2  | 10    |
|                                      | Government | 0  | 0     | 20  | 100   | 0  | 0     |
|                                      | Aided      | 28 | 17.5  | 115 | 71.87 | 17 | 10.62 |
| e. Musical-rhythmic Intelligence     | Un-Aided   | 5  | 25    | 14  | 70    | 1  | 5     |
|                                      | Government | 7  | 35    | 12  | 60    | 1  | 5     |
| f. Intrapersonal Intelligence        | Aided      | 32 | 28    | 99  | 61.87 | 29 | 18.12 |
|                                      | Un-Aided   | 4  | 20    | 13  | 65    | 3  | 15    |
|                                      | Government | 6  | 30    | 10  | 50    | 4  | 20    |
|                                      | Aided      | 15 | 9.37  | 127 | 79.37 | 18 | 11.25 |
| g. Interpersonal Intelligence        | Un-Aided   | 5  | 25    | 14  | 70    | 1  | 5     |
|                                      | Government | 2  | 10    | 18  | 90    | 0  | 0     |
| h. Naturalistic Intelligence         | Aided      | 16 | 10    | 119 | 74.37 | 25 | 15.62 |
|                                      | Un-Aided   | 0  | 0     | 20  | 100   | 0  | 0     |
|                                      | Government | 3  | 15    | 14  | 70    | 3  | 15    |
|                                      | Aided      | 23 | 14.37 | 108 | 67.5  | 29 | 18.12 |
| i. Existentialistic Intelligence     | Un-Aided   | 1  | 5     | 18  | 90    | 1  | 5     |
|                                      | Government | 2  | 10    | 17  | 85    | 1  | 5     |
| j. In toto                           | Aided      | 36 | 22.5  | 97  | 60.62 | 27 | 16.87 |
|                                      | Un-Aided   | 2  | 10    | 16  | 80    | 2  | 10    |
|                                      | Government | 1  | 5     | 19  | 95    | 0  | 0     |

It is inferred from Table 10 above that 25.62%, 10% and 10% of Aided, Un-aided, and Government school students have low levels, 60.62%, 80%, and 90% of them have average levels, and 13.75%, 10% and 0% of them have a high level of Verbal-linguistic Intelligence.

23.12%, 10% and 10% of Aided, Un-aided, and Government school students have low level, 63.75%, 90%, and 80% of them have average level, and 13.12%, 0% and 10% of them have high level of Logical-mathematical Intelligence.

21.87%, 5% and 15% of aid, Unaided, and Government school students have low levels; 61.87%, 85%, and 75% of them have average levels and 16.25%, 10%, and 10% of them have a high level of Visual-spatial Intelligence.

15%, 20% and 0% of aid, Unaided, and Government school students have low levels; 75%, 70%, and 100% of them have average levels and 10%, 10%, and 0% of them have high levels of Bodily-kinesthetic Intelligence.

17.5%, 25% and 35% of aided, Un-aided and Government school students have low levels, 71.87%, 70% and 60% of them have average levels and 10.62%, 5%, and 5% of them have high levels of Musical-rhythmic Intelligence.

20%, 20% and 30% of aided, Un-aided and Government school students have low levels, 61.87%, 65% and 50% have average levels, and 18.12%, 15% and 20% have high levels of Intrapersonal Intelligence.

9.37%, 25% and 10% of aid, Unaided, and Government school students have low levels, 79.37%, 70% and 90% have average levels and 11.25%, 5%, and 0% have high levels of Interpersonal Intelligence.

10%, 0% and 15% of aided, Unaided, and Government school students have low levels; 74.37%, 100%, and 70% have average levels, and 15.62%, 0% and 15% have high levels of Naturalistic Intelligence.

14.37%, 5% and 10% of aided, Un-aided and Government school students have low levels; 67.5%, 90% and 85% of them have average levels, and 18.12%, 5%, and 5% of them have high level of Existentialistic Intelligence.

22.5%, 10% and 5% of aided, Un-aided and Government school students have low levels, 60.62%, 80% and 95% of them have average levels, and 16.87%, 10%, and 0% of them have high levels of Multiple Intelligence.

### 6.1.5. Objective 1.5

To find out the level of Multiple Intelligence of high school students in terms of the nature of the school.

**Table 11:** Level of Multiple Intelligence of High School Students in Terms of The Nature of School

| Dimensions                           | Category     | Low |       | Moderate |       | High |       |
|--------------------------------------|--------------|-----|-------|----------|-------|------|-------|
|                                      |              | N   | %     | N        | %     | N    | %     |
| a. Verbal-linguistic Intelligence    | Boys         | 25  | 28.73 | 52       | 59.77 | 10   | 11.49 |
|                                      | Girls        | 8   | 17.77 | 27       | 60    | 10   | 22.22 |
|                                      | Co-education | 14  | 20.58 | 48       | 70.58 | 6    | 8.82  |
| b. Logical-mathematical Intelligence | Boys         | 18  | 20.68 | 57       | 65.51 | 12   | 13.79 |
|                                      | Girls        | 11  | 24.44 | 32       | 71.11 | 2    | 4.44  |
|                                      | Co-education | 14  | 20.58 | 46       | 67.64 | 8    | 11.76 |
| c. Visual-spatial Intelligence       | Boys         | 25  | 28.73 | 49       | 56.32 | 13   | 14.94 |
|                                      | Girls        | 7   | 15.55 | 33       | 73.33 | 5    | 11.11 |
|                                      | Co-education | 8   | 11.76 | 51       | 75    | 9    | 13.23 |
| d. Bodily-kinesthetic Intelligence   | Boys         | 17  | 19.54 | 53       | 60.91 | 17   | 19.54 |
|                                      | Girls        | 12  | 26.66 | 30       | 66.66 | 3    | 6.66  |
|                                      | Co-education | 16  | 23.52 | 47       | 69.11 | 5    | 7.35  |
| e. Musical-rhythmic Intelligence     | Boys         | 14  | 16.04 | 61       | 70.11 | 12   | 13.79 |
|                                      | Girls        | 9   | 20    | 29       | 64.44 | 7    | 15.55 |
|                                      | Co-education | 15  | 22.05 | 51       | 75    | 2    | 2.94  |
| f. Intrapersonal Intelligence        | Boys         | 12  | 13.79 | 58       | 66.66 | 17   | 19.54 |
|                                      | Girls        | 4   | 8.88  | 32       | 71.11 | 9    | 20    |
|                                      | Co-education | 16  | 23.52 | 47       | 69.11 | 5    | 7.35  |
| g. Interpersonal Intelligence        | Boys         | 20  | 22.98 | 48       | 55.15 | 19   | 21.83 |
|                                      | Girls        | 5   | 11.11 | 29       | 64.44 | 11   | 24.44 |
|                                      | Co-education | 19  | 27.94 | 42       | 61.76 | 7    | 10.29 |
| h. Naturalistic Intelligence         | Boys         | 15  | 17.24 | 51       | 58.62 | 21   | 24.13 |
|                                      | Girls        | 7   | 15.55 | 31       | 68.88 | 7    | 15.55 |
|                                      | Co-education | 21  | 30.88 | 39       | 57.35 | 8    | 11.76 |
| i. Existentialistic Intelligence     | Boys         | 26  | 29.88 | 42       | 48.27 | 19   | 21.83 |
|                                      | Girls        | 5   | 11.11 | 38       | 84.44 | 2    | 4.44  |
|                                      | Co-education | 10  | 14.7  | 50       | 73.52 | 8    | 11.76 |
| j. In toto                           | Boys         | 25  | 28.73 | 57       | 65.51 | 5    | 5.74  |
|                                      | Girls        | 3   | 6.66  | 41       | 91.11 | 1    | 2.22  |
|                                      | Co-education | 5   | 7.35  | 49       | 72.05 | 14   | 20.58 |

It is inferred from Table 11 above that 28.73%, 17.77%, and 20.58% of Boys, Girls' and Co-education school students have low levels, 59.77%, 60%, and 70.58% of them have average levels, and 11.49%, 22.22% and 8.82% of them have a high level of Verbal-linguistic Intelligence.

20.68%, 24.44% and 20.58% of Boys', Girls' and Co-education school students have low levels, 65.51%, 71.11%, and 67.64% of them have average levels, and 13.79%, 4.44% and 11.76% of them have a high level of Logical-mathematical Intelligence.

28.73%, 15.55% and 11.76% of Boys', Girls' and Co-education school students have low levels, 56.32%, 73.33%, and 75% of them have average levels, and 14.94%, 11.11%, and 13.23% of them have a high level of Visual-spatial Intelligence.

19.54%, 26.6% and 23.52% of Boys', Girls' and Co-education school students have low levels, 60.91%, 66.66%, and 69.11% of them have average levels, and 19.54%, 6.66% and 7.35% of them have a high level of Bodily-kinesthetic Intelligence.

16.04%, 20% and 22.05% of Boys', Girls' and Co-education school students have low levels, 70.11%, 64.44%, and 75% of them have average levels, and 13.79%, 15.55%, and 2.94% of them have a high level of Musical-rhythmic Intelligence.

13.79%, 8.88% and 23.52% of Boys', Girls' and Co-education school students have low levels, 66.66%, 71.11%, and 69.11% of them have average levels, and 19.54%, 20% and 7.35% of them have a high level of Intrapersonal Intelligence.  
22.98%, 11.11% and 27.94% of Boys', Girls' and Co-education school students have low levels, 55.15%, 64.44%, and 61.76% of them have average levels and 21.83%, 24.44%, and 10.29% of them have a high level of Interpersonal Intelligence.

17.24%, 15.55% and 30.88% of Boys', Girls' and Co-education school students have low levels, 58.62%, 68.88%, and 57.35% of them have average levels, and 24.13%, 15.55% and 11.76% of them have a high level of Naturalistic Intelligence.

29.88%, 11.11% and 14.7% of Boys', Girls' and Co-education school students have low levels, 48.27%, 84.44%, and 73.52% of them have average levels, and 21.83%, 4.44% and 11.76% of them have a high level of Existentialistic Intelligence.

28.73%, 6.66% and 7.35% of Boys', Girls' and Co-education school students have low levels, 65.51%, 91.11%, and 72.05% of them have average levels, and 5.74%, 2.22%, and 20.58% of them have a high level of Multiple Intelligence.

### 6.1.6. Objective 1.6

To find out the level of Multiple Intelligence of high school students in terms of the medium of instruction.

**Table 12:** Level of Multiple Intelligence of High School Students in Terms of Medium of Instruction

| Dimensions                           | Category | Low |       | Moderate |       | High |       |
|--------------------------------------|----------|-----|-------|----------|-------|------|-------|
|                                      |          | N   | %     | N        | %     | N    | %     |
| a. Verbal-linguistic Intelligence    | Tamil    | 40  | 25.97 | 93       | 60.38 | 21   | 13.63 |
|                                      | English  | 7   | 15.21 | 34       | 73.91 | 5    | 10.86 |
| b. Logical-mathematical Intelligence | Tamil    | 40  | 25.97 | 91       | 59.09 | 23   | 14.93 |
|                                      | English  | 7   | 15.21 | 32       | 69.56 | 7    | 15.21 |
| c. Visual-spatial Intelligence       | Tamil    | 39  | 25.32 | 85       | 55.19 | 30   | 19.48 |
|                                      | English  | 6   | 13.04 | 37       | 80.43 | 3    | 6.52  |
| d. Bodily-kinesthetic Intelligence   | Tamil    | 27  | 17.53 | 100      | 64.93 | 27   | 17.53 |
|                                      | English  | 13  | 28.26 | 28       | 60.86 | 5    | 10.86 |
| e. Musical-rhythmic Intelligence     | Tamil    | 25  | 16.23 | 112      | 72.72 | 17   | 11.03 |
|                                      | English  | 8   | 17.39 | 31       | 67.39 | 7    | 15.21 |
| f. Intrapersonal Intelligence        | Tamil    | 21  | 13.63 | 109      | 70.77 | 24   | 15.58 |
|                                      | English  | 12  | 26.08 | 25       | 54.34 | 9    | 19.56 |
| g. Interpersonal Intelligence        | Tamil    | 50  | 32.46 | 86       | 55.84 | 18   | 11.68 |
|                                      | English  | 11  | 23.91 | 32       | 69.56 | 3    | 6.52  |
| h. Naturalistic Intelligence         | Tamil    | 23  | 14.93 | 111      | 72.07 | 20   | 12.98 |
|                                      | English  | 12  | 26.08 | 29       | 63.04 | 5    | 10.86 |
| i. Existentialistic Intelligence     | Tamil    | 49  | 31.81 | 78       | 50.64 | 27   | 17.53 |
|                                      | English  | 7   | 15.21 | 37       | 80.43 | 2    | 4.34  |
| j. In toto                           | Tamil    | 20  | 12.98 | 110      | 71.42 | 24   | 15.58 |
|                                      | English  | 12  | 26.08 | 29       | 63.04 | 5    | 10.86 |

It is inferred from Table 12 above that 25.97% and 15.21% of Tamil and English medium students have a low level, 60.38% and 73.91% of them have an average level, and 13.63% and 10.86% of them have a high level of Verbal-linguistic Intelligence.

25.97% and 15.21% of Tamil and English medium students have a low level, 59.09% and 69.56% of them have an average level, and 14.93% and 15.21% of them have a high level of Logical-mathematical Intelligence.

25.32% and 13.04% of Tamil and English medium students have a low level, 55.19% and 80.43% have an average level, and 19.48% and 6.41% have a high level of Visual-spatial Intelligence.

17.53% and 28.26% of Tamil and English medium students have a low level, 64.93% and 60.86% of them have an average level, and 17.53% and 10.86% of them have a high level of Bodily-kinesthetic Intelligence.

16.23% and 17.39% of Tamil and English medium students have a low level, 72.72% and 67.39% of them have an average level, and 11.03% and 15.21% of them have a high level of Musical-rhythmic Intelligence.

13.63% and 26.08% of Tamil and English medium students have low levels, 70.77% and 54.34% have average levels, and 15.58% and 19.56% have high levels of Intrapersonal Intelligence.

32.46% and 23.91% of Tamil and English medium students have low levels, 55.84% and 69.56% have average levels, and 11.68% and 6.52% have high levels of Interpersonal Intelligence.

14.93% and 26.08% of Tamil and English medium students have a low level, 72.07% and 63.04% have an average level, and 12.98% and 10.86% have a high level of Naturalistic Intelligence.

31.83% and 15.21% of Tamil and English medium students have a low level, 50.64% and 80.43% have an average level, and 17.53% and 4.34% have a high level of Existentialistic Intelligence.

12.98% and 26.08% of Tamil and English medium students have a low level, 71.42% and 63.04% have an average level, and 15.58% and 10.86% have a high level of Multiple Intelligence.

### 6.1.7. Objective 2.1

To find out the level of achievement in mathematics among high school students in terms of sex.

**Table 13:** Level of Achievement In Mathematics Among High School Students In Terms of Sex

| Sex   | Low |       | Moderate |       | High |       |
|-------|-----|-------|----------|-------|------|-------|
|       | N   | %     | N        | %     | N    | %     |
| Boys  | 20  | 16.00 | 78       | 62.40 | 27   | 21.60 |
| Girls | 11  | 14.67 | 48       | 64.0  | 16   | 21.33 |

From the above table 13, it is clear that most male and female students have an average level of achievement in mathematics (62.40%) and (64.0%), respectively.

### 6.1.8. Objective 2.2

To find out the level of achievement in mathematics of high school students in terms of birth order.

**Table 14:** Level of Achievement in Mathematics of High School Students in Terms of Birth Order

| Birth order | Low |       | Moderate |       | High |       |
|-------------|-----|-------|----------|-------|------|-------|
|             | N   | %     | N        | %     | N    | %     |
| I           | 15  | 15.15 | 66       | 66.67 | 18   | 18.18 |
| II          | 11  | 15.28 | 46       | 63.89 | 15   | 20.83 |
| III         | 2   | 10.53 | 13       | 68.42 | 4    | 21.05 |
| IV          | 2   | 20.00 | 7        | 70.00 | 1    | 10.00 |

From Table 14 above, it is evident that most of the high school students of I, II, III and IV birth order in the family has average levels of achievement in mathematics (66.67%), (63.89%), (68.42%) and (70.00) respectively.

### 6.1.9. Objective 2.3

To find out the level of achievement in mathematics of high school students in terms of locality.



**Table 15:** Level of Achievement in Mathematics of High School Students in Terms of Locality

| Locality | Low |       | Moderate |       | High |       |
|----------|-----|-------|----------|-------|------|-------|
|          | N   | %     | N        | %     | N    | %     |
| Rural    | 4   | 16.00 | 17       | 68.00 | 4    | 16.00 |
| Urban    | 26  | 14.86 | 115      | 65.71 | 34   | 19.43 |

From the above table 15, it is found that most rural and urban students have average levels of achievement in mathematics (68.00%) and (65.71%), respectively.

#### 6.1.10. Objective 2.4

To find out the level of achievement in mathematics of high school students in terms of the type of school.

**Table 16:** Level of Achievement in Mathematics of High School Students in Terms of Type of School

| Type of school | Low |       | Moderate |       | High |       |
|----------------|-----|-------|----------|-------|------|-------|
|                | N   | %     | N        | %     | N    | %     |
| Aided          | 22  | 13.75 | 107      | 66.88 | 31   | 19.38 |
| Un-aided       | 5   | 25.0  | 11       | 55.0  | 4    | 20.0  |
| Government     | 4   | 20.0  | 12       | 60.0  | 4    | 20.0  |

From the above table 16, it is clear that most of the aided, unaided and government school students have an average level of achievement in mathematics (66.88%), (55.0%) and (60.0%) respectively.

#### 6.1.11. Objective 2.5

To find out the level of achievement in mathematics of high school students in terms of the nature of the school.

**Table 17:** Level of Achievement in Mathematics of High School Students in Terms of Nature of School

| Nature of school | Low |       | Moderate |       | High |       |
|------------------|-----|-------|----------|-------|------|-------|
|                  | N   | %     | N        | %     | N    | %     |
| Boys             | 13  | 14.94 | 55       | 63.22 | 19   | 21.84 |
| Girls            | 5   | 11.11 | 33       | 73.33 | 7    | 15.56 |
| Co-education     | 10  | 14.71 | 43       | 63.24 | 15   | 22.06 |

From Table 17 above, it is evident that most of the boys', girls' and co-education school students have average levels of achievement in mathematics (63.22%), (73.33%) and (63.24%) respectively.

#### 6.1.12. Objective 2.6

To find out the level of achievement in mathematics of high school students in terms of the medium of instruction.

**Table 18:** Level of Achievement in Mathematics of High School Students in Terms of Medium of Instruction

| Medium of Instruction | Low |       | Moderate |       | High |       |
|-----------------------|-----|-------|----------|-------|------|-------|
|                       | N   | %     | N        | %     | N    | %     |
| Tamil                 | 21  | 13.64 | 101      | 65.58 | 32   | 20.78 |
| English               | 10  | 21.74 | 28       | 60.87 | 8    | 17.39 |

From the above table 18, it is clear that most Tamil and English medium school students have average mathematics achievement levels (65.58%) and (60.87%), respectively.

### 6.2. Hypotheses Testing

#### 6.2.1. Null Hypothesis 3.1

There is no significant difference between male and female high school students in their level of Multiple Intelligence.

**Table 19:** Difference Between Male and Female High School Students in Their Level of Multiple Intelligence

| Dimensions                           | Category       |       |                |       | Calculated 't' value | Remarks at 5% level |
|--------------------------------------|----------------|-------|----------------|-------|----------------------|---------------------|
|                                      | Boys (N = 125) |       | Girls (N = 75) |       |                      |                     |
|                                      | Mean           | SD    | Mean           | SD    |                      |                     |
| a. Verbal-linguistic Intelligence    | 33.57          | 6.07  | 35.01          | 5.54  | 1.72                 | NS                  |
| b. Logical-mathematical Intelligence | 29.51          | 5.75  | 33.52          | 7.91  | 3.83                 | S                   |
| c. Visual-spatial Intelligence       | 36.87          | 7.20  | 37.29          | 7.08  | 0.40                 | NS                  |
| d. Bodily-kinesthetic Intelligence   | 37.69          | 5.58  | 34.40          | 5.98  | 1.01                 | NS                  |
| e. Musical-rhythmic Intelligence     | 43.46          | 31.18 | 39.84          | 9.32  | 1.21                 | NS                  |
| f. Intrapersonal Intelligence        | 36.02          | 44.19 | 37.44          | 7.39  | 0.35                 | NS                  |
| g. Interpersonal Intelligence        | 32.17          | 7.71  | 34.21          | 5.79  | 17.80                | S                   |
| h. Naturalistic Intelligence         | 39.28          | 7.71  | 41.12          | 7.58  | 1.65                 | NS                  |
| i. Existentialistic Intelligence     | 32.63          | 5.68  | 34.09          | 5.66  | 1.76                 | NS                  |
| j. In toto                           | 370.82         | 64.73 | 382.41         | 47.21 | 1.46                 | NS                  |

(At a 5% level of significance, the table value of 't' is 1.96)

It is inferred from Table 19 above that the calculated 't' values for 1 (a, c, d, e, f, h, i & j) are less than the table value (1.96) at a 5% level of significance. Hence the null hypothesis 1 (a, c, d, e, f, h, i & j) is accepted. Since the calculated 't' values for 1(b & g) are greater than the table value (1.96) at a 5% level of significance, the null hypotheses 1 (b & g) are rejected.

**6.2.2. Null Hypothesis 3.2**

There is no significant difference between rural and urban high school students in their level of Multiple Intelligence.

**Table 20:** Difference Between Rural and Urban High School Students in Their Level of Multiple Intelligence

| Dimensions                           | Category       |       |                 |       | Calculated 't' value | Remarks at 5% level |
|--------------------------------------|----------------|-------|-----------------|-------|----------------------|---------------------|
|                                      | Rural (N = 25) |       | Urban (N = 175) |       |                      |                     |
|                                      | Mean           | SD    | Mean            | SD    |                      |                     |
| a. Verbal-linguistic Intelligence    | 36.60          | 5.30  | 33.75           | 5.91  | 2.48                 | S                   |
| b. Logical-mathematical Intelligence | 29.24          | 7.25  | 31.27           | 6.83  | 1.32                 | NS                  |
| c. Visual-spatial Intelligence       | 36.76          | 6.73  | 31.27           | 7.22  | 0.21                 | NS                  |
| d. Bodily-kinesthetic Intelligence   | 33.12          | 5.97  | 36.93           | 30.23 | 1.48                 | NS                  |
| e. Musical-rhythmic Intelligence     | 41.44          | 10.47 | 42.19           | 26.80 | 0.26                 | NS                  |
| f. Intrapersonal Intelligence        | 39.56          | 7.46  | 36.13           | 6.91  | 2.17                 | S                   |
| g. Interpersonal Intelligence        | 33.60          | 5.26  | 32.84           | 6.59  | 0.65                 | NS                  |
| h. Naturalistic Intelligence         | 41.32          | 8.60  | 39.78           | 7.57  | 0.85                 | NS                  |
| i. Existentialistic Intelligence     | 32.84          | 5.55  | 33.23           | 5.73  | 0.33                 | NS                  |
| j. In toto                           | 380.2          | 62.07 | 374.75          | 60.03 | 0.41                 | NS                  |

(At a 5% level of significance, the table value of 't' is 1.96)

It is inferred from Table 20 above that the calculated 't' values for 2 (b, c, d, e, g, h, i & j) are less than the table value (1.96) at a 5% level of significance. Hence null hypothesis 2 (b, c, d, e, g, h, i & j) is accepted. Since the calculated 't' values for 2 (a & f) are greater than the table value (1.96) at a 5% level of significance, the null hypotheses 2(a & f) are rejected.

**6.2.3. Null Hypothesis 3.3**

There is no significant difference between Tamil and English medium high school students in their level of Multiple Intelligence.

**Table 21:** Difference Between Tamil and English Medium High School Students in Their Level of Multiple Intelligence

| Dimensions                           | Category        |      |                  |      | Calculated 't' value | Remarks at 5% level |
|--------------------------------------|-----------------|------|------------------|------|----------------------|---------------------|
|                                      | Tamil (N = 154) |      | English (N = 46) |      |                      |                     |
|                                      | Mean            | SD   | Mean             | SD   |                      |                     |
| a. Verbal-linguistic Intelligence    | 33.84           | 5.92 | 35.00            | 5.82 | 1.18                 | NS                  |
| b. Logical-mathematical Intelligence | 31.05           | 7.31 | 30.91            | 5.39 | 0.14                 | NS                  |
| c. Visual-spatial Intelligence       | 36.82           | 7.47 | 37.74            | 5.93 | 0.87                 | NS                  |
| d. Bodily-kinesthetic Intelligence   | 34.12           | 6.62 | 44.28            | 5.69 | 1.19                 | NS                  |
| e. Musical-rhythmic Intelligence     | 39.64           | 8.62 | 50.35            | 9.93 | 1.45                 | NS                  |

|                                  |        |       |        |       |      |    |
|----------------------------------|--------|-------|--------|-------|------|----|
| f. Intrapersonal Intelligence    | 36.40  | 7.31  | 37.09  | 6.17  | 0.64 | NS |
| g. Interpersonal Intelligence    | 33.03  | 6.60  | 32.61  | 5.92  | 0.41 | NS |
| h. Naturalistic Intelligence     | 40.46  | 7.93  | 38.33  | 6.67  | 1.82 | NS |
| i. Existentialistic Intelligence | 33.36  | 5.76  | 32.57  | 5.52  | 0.84 | NS |
| j. In toto                       | 369.82 | 49.42 | 393.07 | 81.38 | 1.84 | NS |

(At a 5% level of significance, the table value of 't' is 1.96)

It is inferred from Table 21 above that the calculated 't' values for 3 (a, b, c, d, e, f, g, h, i & j) are less than the table value (1.96) at a 5% significance level. Hence the null hypotheses 3 (a, b, c, d, e, f, g, h, i & j) are accepted.

#### 6.2.4. Null Hypothesis 3.4

There is no significant difference between annual family income and Multiple Intelligence of high school students.

**Table 22:** Difference Between Annual Family Income and Multiple Intelligence of High School Students

| Dimensions                           | Category                    |       |   |       | Calculated 't' value | Remarks at 5% level |
|--------------------------------------|-----------------------------|-------|---|-------|----------------------|---------------------|
|                                      | Upto Rs.49,999/yr (N = 151) |       | From Rs.50,000 to Rs.1,49,999/yr (N =149) |       |                      |                     |
|                                      | Mean                        | SD    | Mean                                      | SD    |                      |                     |
| a. Verbal-linguistic Intelligence    | 34.20                       | 6.16  | 33.84                                     | 5.07  | 0.41                 | NS                  |
| b. Logical-mathematical Intelligence | 30.84                       | 6.91  | 31.55                                     | 6.92  | 0.62                 | NS                  |
| c. Visual-spatial Intelligence       | 37.01                       | 7.34  | 37.10                                     | 6.58  | 0.09                 | NS                  |
| d. Bodily-kinesthetic Intelligence   | 36.89                       | 8.07  | 35.12                                     | 8.70  | 0.61                 | NS                  |
| e. Musical-rhythmic Intelligence     | 40.19                       | 8.38  | 41.04                                     | 8.74  | 0.60                 | NS                  |
| f. Intrapersonal Intelligence        | 36.72                       | 7.46  | 36.04                                     | 5.65  | 0.67                 | NS                  |
| g. Interpersonal Intelligence        | 32.62                       | 6.68  | 33.92                                     | 5.54  | 1.36                 | NS                  |
| h. Naturalistic Intelligence         | 40.36                       | 7.84  | 38.76                                     | 7.16  | 1.36                 | NS                  |
| i. Existentialistic Intelligence     | 33.47                       | 5.55  | 32.29                                     | 6.12  | 1.20                 | NS                  |
| j. In toto                           | 371.27                      | 57.28 | 380.22                                    | 42.62 | 1.17                 | NS                  |

(At a 5% level of significance, the table value of 't' is 1.96)

It is inferred from Table 22 above that the calculated 't' values for 4 (a, b, c, d, e, f, g, h, i & j) are less than the table value (1.96) at a 5% significance level. Hence the null hypotheses 4 (a, b, c, d, e, f, g, h, i & j) are accepted.

#### 6.2.5. Null Hypothesis 3.5

There is no significant difference among aided, un-aided, and government school students in their level of Multiple Intelligence.

**Table 23:** Difference Among Aided, Un-Aided and Government School Students in Their Level of Multiple Intelligence

| Dimensions                           | Sources of Variation | Sum of squares | df  | Mean square variance | Calculated 'F' value | Remarks at 5% level |
|--------------------------------------|----------------------|----------------|-----|----------------------|----------------------|---------------------|
| a. Verbal-linguistic Intelligence    | Between              | 116.58         | 2   | 58.29                | 1.68                 | NS                  |
|                                      | Within               | 6817           | 197 | 34.60                |                      |                     |
| b. Logical-mathematical Intelligence | Between              | 1.30           | 2   | .65                  | 0.01                 | NS                  |
|                                      | Within               | 9471.65        | 197 | 48.08                |                      |                     |
| c. Visual-spatial Intelligence       | Between              | 87.62          | 2   | 43.81                | 0.86                 | NS                  |
|                                      | Within               | 1062.19        | 197 | 51.08                |                      |                     |
| d. Bodily-kinesthetic Intelligence   | Between              | 233.65         | 2   | 116.83               | 0.14                 | NS                  |
|                                      | Within               | 159901.94      | 197 | 811.68               |                      |                     |
| e. Musical-rhythmic Intelligence     | Between              | 276.05         | 2   | 138.03               | 0.21                 | NS                  |
|                                      | Within               | 127333.94      | 197 | 646.37               |                      |                     |
| f. Intrapersonal Intelligence        | Between              | 58.80          | 2   | 29.40                | 0.59                 | NS                  |
|                                      | Within               | 9838.59        | 197 | 49.94                |                      |                     |
| g. Interpersonal intelligence        | Between              | 9.01           | 2   | 4.51                 | 0.11                 | NS                  |
|                                      | Within               | 8227.14        | 197 | 41.76                |                      |                     |
| h. Naturalistic intelligence         | Between              | 237.62         | 2   | 118.81               | 2.03                 | NS                  |

|                                  |         |          |     |         |      |    |
|----------------------------------|---------|----------|-----|---------|------|----|
|                                  | Within  | 11546.19 | 197 | 58.61   |      |    |
| i. Existentialistic intelligence | Between | 16.945   | 2   | 8.47    | 0.26 | NS |
|                                  | Within  | 6448.57  | 197 | 32.73   |      |    |
| j. In toto                       | Between | 855.52   | 2   | 427.76  | 0.12 | NS |
|                                  | Within  | 690026.7 | 197 | 3502.67 |      |    |

(At a 5% level of significance for 2, 197 df, the table value of 'F' is 3.04)

It is inferred from Table 23 above that the calculated 'F' values for 5 (a, b, c, d, e, f, g, h, i & j) are less than the table value (3.04) at a 5% level of significance. Hence the null hypotheses 5 (a, b, c, d, e, f, g, h, i & j) are accepted.

### 6.2.6. Null Hypothesis 3.6

No significant difference exists among boys', girls' and co-education high school students' levels of Multiple Intelligence.

**Table 24:** Difference Among Boys', Girls' and Co-Education High School Students in Their Level of Multiple Intelligence

| Dimensions                           | Sources of Variation | Sum of squares | df  | Mean square variance | Calculated 'F' value | Remarks at 5% level |
|--------------------------------------|----------------------|----------------|-----|----------------------|----------------------|---------------------|
| a. Verbal-linguistic Intelligence    | Between              | 339.96         | 2   | 169.98               | 5.08                 | S                   |
|                                      | Within               | 6593.61        | 197 | 33.47                |                      |                     |
| b. Logical-mathematical Intelligence | Between              | 475.83         | 2   | 237.92               | 5.21                 | S                   |
|                                      | Within               | 8997.11        | 197 | 45.67                |                      |                     |
| c. Visual-spatial Intelligence       | Between              | 234.27         | 2   | 117.14               | 2.33                 | NS                  |
|                                      | Within               | 9915.54        | 197 | 50.33                |                      |                     |
| d. Bodily-kinesthetic Intelligence   | Between              | 1766.24        | 2   | 883.12               | 1.10                 | NS                  |
|                                      | Within               | 158369.34      | 197 | 803.91               |                      |                     |
| e. Musical-rhythmic Intelligence     | Between              | 791.16         | 2   | 395.58               | 0.61                 | NS                  |
|                                      | Within               | 126818.83      | 197 | 643.75               |                      |                     |
| f. Intrapersonal Intelligence        | Between              | 566.84         | 2   | 283.42               | 5.98                 | S                   |
|                                      | Within               | 9330.54        | 197 | 47.36                |                      |                     |
| g. Interpersonal Intelligence        | Between              | 80.44          | 2   | 40.22                | 0.97                 | NS                  |
|                                      | Within               | 8155.70        | 197 | 41.40                |                      |                     |
| h. Naturalistic Intelligence         | Between              | 511.77         | 2   | 255.89               | 4.47                 | S                   |
|                                      | Within               | 11272          | 197 | 57.22                |                      |                     |
| i. Existentialistic Intelligence     | Between              | 150.59         | 2   | 75.30                | 2.35                 | NS                  |
|                                      | Within               | 6314.92        | 197 | 32.06                |                      |                     |
| j. In toto                           | Between              | 16661.46       | 2   | 8330.73              | 2.43                 | NS                  |
|                                      | Within               | 674220.75      | 197 | 3422.44              |                      |                     |

(At a 5% level of significance for 2, 197 df, the table value of 'F' is 3.04)

It is inferred from Table 24 above that the calculated 'F' values for 5 (c, d, e, g, i & j) are less than the table value (3.04) at a 5% significance level. Hence the null hypotheses 5 (c, d, e, g, i & j) are accepted. Since the calculated 'F' values for 5(a, b, f & h) are greater than the table value (3.04) at a 5% level of significance, the null hypotheses 5(a, b, f & h) are rejected.

### 6.2.7. Null Hypothesis 3.7

There is no significant difference between mothers' occupations and the Multiple Intelligence of high school students.

**Table 25:** Difference Among Mothers' Occupation and Multiple Intelligence of High School Students

| Dimensions                           | Sources of Variation | Sum of squares | df  | Mean square variance | Calculated 'F' value | Remarks at 5% level |
|--------------------------------------|----------------------|----------------|-----|----------------------|----------------------|---------------------|
| a. Verbal-linguistic Intelligence    | Between              | 654.88         | 2   | 327.44               | 5.78                 | S                   |
|                                      | Within               | 11164.62       | 197 | 56.67                |                      |                     |
| b. Logical-mathematical Intelligence | Between              | 640.11         | 2   | 320.06               | 4.79                 | S                   |
|                                      | Within               | 13150.44       | 197 | 66.75                |                      |                     |
| c. Visual-spatial Intelligence       | Between              | 1613.00        | 2   | 806.50               | 11.66                | S                   |
|                                      | Within               | 13623.00       | 197 | 69.15                |                      |                     |

|                                    |         |            |     |          |       |    |
|------------------------------------|---------|------------|-----|----------|-------|----|
| d. Bodily-kinesthetic Intelligence | Between | 1490.38    | 2   | 745.19   | 0.90  | NS |
|                                    | Within  | 163941.00  | 197 | 532.19   |       |    |
| e. Musical-rhythmic Intelligence   | Between | 1413.38    | 2   | 706.69   | 7.61  | S  |
|                                    | Within  | 18283.02   | 197 | 92.81    |       |    |
| f. Intrapersonal Intelligence      | Between | 727.99     | 2   | 363.99   | 4.08  | S  |
|                                    | Within  | 14696.89   | 197 | 74.60    |       |    |
| g. Interpersonal Intelligence      | Between | 754.11     | 2   | 377.05   | 5.75  | S  |
|                                    | Within  | 12914.81   | 197 | 65.56    |       |    |
| h. Naturalistic Intelligence       | Between | 1461.32    | 2   | 730.66   | 7.84  | S  |
|                                    | Within  | 18360.47   | 197 | 93.2     |       |    |
| i. Existentialistic Intelligence   | Between | 915.46     | 2   | 457.73   | 8.59  | S  |
|                                    | Within  | 10498.93   | 197 | 53.29    |       |    |
| j. In toto                         | Between | 118241.70  | 2   | 59120.85 | 11.52 | S  |
|                                    | Within  | 1011110.05 | 197 | 5132.54  |       |    |

(At a 5% level of significance for 2, 197 df, the table value of 'F' is 3.04)

It is inferred from Table 25 above that the calculated 'F' value for 5(d) is less than the table value (3.04) at a 5% level of significance. Hence the null hypothesis 5(d) is accepted. Since the calculated 'F' values for 5 (a, b, c, e, f, g, h, i & j) are greater than the table value (3.04) at a 5% level of significance, the null hypotheses 5 (a, b, c, e, f, g, h, i & j) are rejected.

#### 6.2.8. Null Hypothesis 4.1

There is no significant association between fathers' education and Multiple Intelligence of high school students.

**Table 26:** Association Between Fathers' Education and Multiple Intelligence of High School Students

| Dimensions                           | Category              | Low    | Moderate | High   | Calculated ' $\chi^2$ ' value | Remarks at 5% level |
|--------------------------------------|-----------------------|--------|----------|--------|-------------------------------|---------------------|
| a. Verbal-linguistic Intelligence    | Un-educated           | 6(8)   | 42(39)   | 8(8)   | 2.80                          | NS                  |
|                                      | Upto 12 <sup>th</sup> | 15(16) | 76(76)   | 17(16) |                               |                     |
|                                      | Graduate              | 5(3)   | 16(17)   | 3(4)   |                               |                     |
|                                      | Professional          | 3(2)   | 7(8)     | 2(2)   |                               |                     |
| b. Logical-mathematical Intelligence | Un-educated           | 8(8)   | 42(41)   | 6(7)   | 2.27                          | NS                  |
|                                      | Upto 12 <sup>th</sup> | 13(15) | 81(79)   | 14(14) |                               |                     |
|                                      | Graduate              | 5(3)   | 15(18)   | 4(3)   |                               |                     |
|                                      | Professional          | 2(2)   | 9(9)     | 1(2)   |                               |                     |
| c. Visual-spatial Intelligence       | Un-educated           | 9(9)   | 41(39)   | 6(8)   | 4.41                          | NS                  |
|                                      | Upto 12 <sup>th</sup> | 19(18) | 71(76)   | 18(15) |                               |                     |
|                                      | Graduate              | 2(4)   | 20(17)   | 2(3)   |                               |                     |
|                                      | Professional          | 3(2)   | 8(8)     | 1(2)   |                               |                     |
| d. Bodily-kinesthetic Intelligence   | Un-educated           | 9(3)   | 37(49)   | 10(4)  | 4.22                          | NS                  |
|                                      | Upto 12 <sup>th</sup> | 0(6)   | 107(94)  | 1(8)   |                               |                     |
|                                      | Graduate              | 0(1)   | 22(21)   | 2(2)   |                               |                     |
|                                      | Professional          | 2(1)   | 8(10)    | 2(1)   |                               |                     |
| e. Musical-rhythmic Intelligence     | Un-educated           | 7(8)   | 41(40)   | 8(8)   | 3.87                          | NS                  |
|                                      | Upto 12 <sup>th</sup> | 19(16) | 73(77)   | 16(15) |                               |                     |
|                                      | Graduate              | 4(4)   | 17(17)   | 3(3)   |                               |                     |
|                                      | Professional          | 0(2)   | 11(9)    | 1(2)   |                               |                     |

|                               |                       |        |        |        |     |      |    |
|-------------------------------|-----------------------|--------|--------|--------|-----|------|----|
| f. Intrapersonal Intelligence | Un-educated           | 4(8)   | 44(40) | 8(9)   | 56  | 4.06 | NS |
|                               | Upto 12 <sup>th</sup> | 17(15) | 74(77) | 17(17) | 108 |      |    |
|                               | Graduate              | 4(3)   | 15(17) | 5(4)   | 24  |      |    |
|                               | Professional          | 2(2)   | 9(9)   | 1(2)   | 12  |      |    |
| g. Interpersonal Intelligence | Un-educated           | 6(8)   | 43(39) | 7(8)   | 56  | 1.57 | NS |
|                               | Upto 12 <sup>th</sup> | 17(16) | 74(76) | 17(16) | 108 |      |    |
|                               | Graduate              | 4(3)   | 16(17) | 4(4)   | 24  |      |    |
|                               | Professional          | 2(2)   | 8(8)   | 2(2)   | 12  |      |    |
| h. Naturalistic Intelligence  | Un-educated           | 12(10) | 33(36) | 11(10) | 56  | 1.25 | NS |

|                                  |                       |        |        |        |     |      |    |
|----------------------------------|-----------------------|--------|--------|--------|-----|------|----|
|                                  | Upto 12 <sup>th</sup> | 17(19) | 72(69) | 19(20) | 108 |      |    |
|                                  | Graduate              | 4(4)   | 15(15) | 5(4)   | 24  |      |    |
|                                  | Professional          | 2(2)   | 8(8)   | 2(2)   | 12  |      |    |
| i. Existentialistic Intelligence | Un-educated           | 12(11) | 34(37) | 10(8)  | 56  | 1.87 | NS |
|                                  | Upto 12 <sup>th</sup> | 20(21) | 72(71) | 16(6)  | 108 |      |    |
|                                  | Graduate              | 4(5)   | 18(16) | 2(4)   | 24  |      |    |
| J. In toto                       | Professional          | 2(2)   | 8(8)   | 2(2)   | 12  | 3.40 | NS |
|                                  | Un-educated           | 10(8)  | 39(42) | 7(6)   | 56  |      |    |
|                                  | Upto 12 <sup>th</sup> | 12(15) | 86(81) | 10(12) | 108 |      |    |
|                                  | Graduate              | 3(3)   | 17(18) | 4(3)   | 24  |      |    |
|                                  | Professional          | 2(2)   | 8(9)   | 2(1)   | 12  |      |    |

(At a 5% level of significance for eight df, the table value of  $\chi^2$  is 15.507)

It is inferred from Table 26 above that the calculated ' $\chi^2$ ' values for 6 (a, b, c, d, e, f, g, h, i & j) are less than the table value (15.507) at a 5% level of significance. Hence the null hypotheses 6 (a, b, c, d, e, f, g, h, i & j) are accepted.

#### 6.2.9. Null Hypothesis 4.2

There is no significant association between mothers' education and Multiple Intelligence of high school students.

**Table 27:** Association Between Mothers' Education and Multiple Intelligence of High School Students

| Dimensions                           | Category              | Low    | Average  | High   | Calculated $\chi^2$ value | Remarks at 5% level |    |
|--------------------------------------|-----------------------|--------|----------|--------|---------------------------|---------------------|----|
| a. Verbal-linguistic Intelligence    | Un-educated           | 9(7)   | 25(28)   | 7(6)   | 2.21                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 20(23) | 100(97)  | 22(22) |                           |                     |    |
|                                      | Graduate              | 1(1)   | 6(5)     | 1(1)   |                           |                     |    |
|                                      | Professional          | 2(1)   | 6(6)     | 1(1)   |                           |                     |    |
| b. Logical-mathematical Intelligence | Un-educated           | 5(5)   | 31(31)   | 5(6)   | 2.34                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 14(16) | 109(107) | 19(19) |                           |                     |    |
|                                      | Graduate              | 1(1)   | 6(6)     | 1(1)   |                           |                     |    |
|                                      | Professional          | 2(1)   | 5(7)     | 2(1)   |                           |                     |    |
| c. Visual-spatial Intelligence       | Un-educated           | 6(6)   | 31(29)   | 4(6)   | 2.92                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 20(21) | 99(102)  | 23(20) |                           |                     |    |
|                                      | Graduate              | 1(1)   | 6(6)     | 1(1)   |                           |                     |    |
|                                      | Professional          | 2(1)   | 7(6)     | 0(1)   |                           |                     |    |
| d. Bodily-kinesthetic Intelligence   | Un-educated           | 4(1)   | 30(37)   | 7(2)   | 4.26                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 0(5)   | 140(129) | 2(9)   |                           |                     |    |
|                                      | Graduate              | 1(0)   | 5(7)     | 2(0)   |                           |                     |    |
|                                      | Professional          | 2(0)   | 6(8)     | 1(1)   |                           |                     |    |
| e. Musical-rhythmic Intelligence     | Un-educated           | 6(7)   | 25(27)   | 10(7)  | 2.84                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 25(24) | 96(94)   | 21(24) |                           |                     |    |
|                                      | Graduate              | 2(1)   | 5(5)     | 1(1)   |                           |                     |    |
|                                      | Professional          | 1(2)   | 6(6)     | 1(2)   |                           |                     |    |
| f. Intrapersonal Intelligence        | Un-educated           | 3(5)   | 33(29)   | 5(7)   | 3.81                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 20(18) | 97(99)   | 25(24) |                           |                     |    |
|                                      | Graduate              | 1(1)   | 5(6)     | 2(1)   |                           |                     |    |
|                                      | Professional          | 2(1)   | 5(6)     | 2(2)   |                           |                     |    |
| g. Interpersonal Intelligence        | Un-educated           | 8(6)   | 29(30)   | 4(5)   | 2.36                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 20(22) | 104(102) | 18(18) |                           |                     |    |
|                                      | Graduate              | 1(1)   | 5(6)     | 2(1)   |                           |                     |    |
|                                      | Professional          | 2(1)   | 6(6)     | 1(1)   |                           |                     |    |
| h. Naturalistic Intelligence         | Un-educated           | 7(7)   | 29(26)   | 5(7)   | 2.16                      | NS                  |    |
|                                      | Upto 12 <sup>th</sup> | 26(26) | 88(92)   | 28(25) |                           |                     |    |
|                                      | Graduate              | 1(1)   | 6(5)     | 1(1)   |                           |                     |    |
|                                      | Professional          | 2(2)   | 6(6)     | 1(2)   |                           |                     |    |
| i. Existentialistic                  | Un-educated           | 8(7)   | 26(28)   | 7(6)   | 41                        | 1.69                | NS |

|              |                       |        |          |        |     |      |    |
|--------------|-----------------------|--------|----------|--------|-----|------|----|
| Intelligence | Upto 12 <sup>th</sup> | 23(23) | 101(99)  | 18(20) | 142 |      |    |
|              | Graduate              | 1(1)   | 6(6)     | 1(1)   | 8   |      |    |
|              | Professional          | 1(1)   | 6(6)     | 2(1)   | 9   |      |    |
| j. In toto   | Un-educated           | 6(5)   | 28(31)   | 7(6)   | 41  | 2.78 | NS |
|              | Upto 12 <sup>th</sup> | 14(16) | 110(106) | 18(21) | 142 |      |    |
|              | Graduate              | 1(1)   | 5(6)     | 2(1)   | 8   |      |    |
|              | Professional          | 1(1)   | 6(7)     | 2(1)   | 9   |      |    |

(At a 5% level of significance for 8 df, the table value of  $\chi^2$  is 15.507)

It is inferred from Table 27 above that the calculated ' $\chi^2$ ' values for 7 (a, b, c, d, e, f, g, h, i & j) are less than the table value (15.507) at a 5% level of significance. Hence the null hypotheses 7 (a, b, c, d, e, f, g, h, i & j) are accepted.

### 6.2.10. Null Hypothesis 4.3

There is no significant association between fathers' occupations and the Multiple Intelligence of high school students.

**Table 28:** Difference Between Fathers' Occupation and Multiple Intelligence of High School Students

| Dimensions                           | Category   | Low    | Moderate | High   | Calculated $\chi^2$ value | Remarks at 5% level |
|--------------------------------------|------------|--------|----------|--------|---------------------------|---------------------|
| a. Verbal-linguistic Intelligence    | Coolie     | 10(11) | 57(57)   | 11(10) | 1.62                      | NS                  |
|                                      | Government | 9(8)   | 43(44)   | 8(8)   |                           |                     |
|                                      | Private    | 2(3)   | 19(18)   | 3(3)   |                           |                     |
|                                      | Business   | 7(5)   | 27(28)   | 4(5)   |                           |                     |
| b. Logical-mathematical Intelligence | Coolie     | 8(11)  | 60(57)   | 10(11) | 3.59                      | NS                  |
|                                      | Government | 10(8)  | 40(44)   | 10(8)  |                           |                     |
|                                      | Private    | 2(3)   | 19(18)   | 3(3)   |                           |                     |
|                                      | Business   | 7(5)   | 27(28)   | 4(5)   |                           |                     |
| c. Visual-spatial Intelligence       | Coolie     | 10(11) | 56(55)   | 12(12) | 1.21                      | NS                  |
|                                      | Government | 9(8)   | 44(43)   | 7(9)   |                           |                     |
|                                      | Private    | 4(3)   | 16(17)   | 4(4)   |                           |                     |
|                                      | Business   | 5(5)   | 26(27)   | 7(6)   |                           |                     |
| d. Bodily-kinesthetic Intelligence   | Coolie     | 8(7)   | 59(63)   | 11(8)  | 10.21                     | NS                  |
|                                      | Government | 7(5)   | 48(49)   | 5(6)   |                           |                     |
|                                      | Private    | 2(2)   | 18(19)   | 4(3)   |                           |                     |
|                                      | Business   | 0(3)   | 37(31)   | 1(4)   |                           |                     |
| e. Musical-rhythmic Intelligence     | Coolie     | 12(12) | 53(53)   | 13(12) | 0.08                      | NS                  |
|                                      | Government | 10(10) | 39(41)   | 10(10) |                           |                     |
|                                      | Private    | 3(4)   | 17(16)   | 4(4)   |                           |                     |
|                                      | Business   | 6(6)   | 27(26)   | 5(6)   |                           |                     |

|                                  |            |        |        |        |    |      |    |
|----------------------------------|------------|--------|--------|--------|----|------|----|
| f. Intrapersonal Intelligence    | Coolie     | 11(11) | 52(54) | 15(13) | 78 | 2.30 | NS |
|                                  | Government | 7(9)   | 45(41) | 8(10)  | 60 |      |    |
|                                  | Private    | 5(3)   | 15(17) | 4(4)   | 24 |      |    |
|                                  | Business   | 6(6)   | 26(26) | 6(6)   | 38 |      |    |
| g. Interpersonal Intelligence    | Coolie     | 11(12) | 53(57) | 14(9)  | 78 | 5.53 | NS |
|                                  | Government | 10(9)  | 46(44) | 4(7)   | 60 |      |    |
|                                  | Private    | 4(4)   | 18(18) | 2(3)   | 24 |      |    |
|                                  | Business   | 5(6)   | 30(28) | 3(4)   | 38 |      |    |
| h. Naturalistic Intelligence     | Coolie     | 11(13) | 52(50) | 15(15) | 78 | 2.73 | NS |
|                                  | Government | 12(10) | 39(38) | 9(11)  | 60 |      |    |
|                                  | Private    | 3(4)   | 15(15) | 6(5)   | 24 |      |    |
|                                  | Business   | 8(6)   | 22(24) | 8(7)   | 38 |      |    |
| i. Existentialistic Intelligence | Coolie     | 12(12) | 53(55) | 13(11) | 78 | 1.69 | NS |
|                                  | Government | 11(9)  | 39(42) | 10(9)  | 60 |      |    |
|                                  | Private    | 3(4)   | 18(17) | 3(3)   | 24 |      |    |
|                                  | Business   | 5(6)   | 30(27) | 3(6)   | 38 |      |    |
| j. In toto                       | Coolie     | 13(10) | 52(57) | 13(11) | 78 | 2.78 | NS |
|                                  | Government | 7(8)   | 45(44) | 8(8)   | 60 |      |    |

|  |          |      |        |      |    |  |  |
|--|----------|------|--------|------|----|--|--|
|  | Private  | 3(3) | 15(18) | 6(3) | 24 |  |  |
|  | Business | 2(5) | 35(28) | 1(5) | 38 |  |  |

(At a 5% level of significance for 8 df, the table value of  $\chi^2$  is 15.507)

It is inferred from Table 28 above that the calculated ' $\chi^2$ ' values for 7 (a, b, c, d, e, f, g, h, i & j) are less than the table value (15.507) at a 5% level of significance. Hence the null hypotheses 7 (a, b, c, d, e, f, g, h, i & j) are accepted.

### 6.2.11. Null Hypothesis 5.1

There is no significant relationship between Multiple Intelligence and achievement in mathematics among high school students to a) sex, b) locality, c) medium of instruction d) nature of the school.

**Table 29:** Relationship Between Multiple Intelligence and Achievement in Mathematics Among the High School Students

| Category                       |                             | $\Sigma x$ | $\Sigma y$ | $\Sigma x^2$ | $\Sigma y^2$ | $\Sigma xy$ | Calculate<br>d ' $\gamma$ ' value | Remarks |
|--------------------------------|-----------------------------|------------|------------|--------------|--------------|-------------|-----------------------------------|---------|
| a. Sex                         | i. Male                     | 6203       | 46350      | 362439       | 17706074     | 2380849     | 0.480                             | S       |
|                                | ii. Female                  | 4161       | 28681      | 258935       | 11132953     | 1628868     | 0.553                             | S       |
| b. Locality                    | i. Rural                    | 1265       | 8984       | 77205        | 3418144      | 488496      | 0.621                             | S       |
|                                | ii. Urban                   | 9099       | 66047      | 544169       | 25420883     | 3521221     | 0.493                             | S       |
| c. Medium<br>of<br>instruction | i. Tamil medium             | 7871       | 56950      | 471429       | 21433974     | 4861422     | 0.62                              | S       |
|                                | ii. English<br>medium       | 2493       | 18081      | 149945       | 7405053      | 999955      | 0.31                              | S       |
| d. Nature of<br>school         | i. Boys' school             | 4549       | 33056      | 271185       | 12975340     | 1777424     | 0.416                             | S       |
|                                | ii. Girls' school           | 2334       | 17311      | 137536       | 6779037      | 923673      | 0.581                             | S       |
|                                | iii. Co-education<br>school | 3481       | 24664      | 212653       | 9084650      | 1308620     | 0.666                             | S       |

(For 198 df, at a 5% significance level, the table value of ' $\gamma$ ' is 0.138)

It is inferred from Table 29 above that the calculated ' $\gamma$ ' values for 8 (a, b, c & d) are greater than the table value (0.138) at a 5% significance level. Hence the null hypotheses 8 (a, b, c & d) are rejected.

## 7. Major Findings

The level of Multiple Intelligence of high school students in its various dimensions viz., Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto in terms of sex is moderate.

The level of Multiple Intelligence of high school students about its various dimensions Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto in terms of birth order is moderate.

The level of Multiple Intelligence of high school students in its various dimensions viz., Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto in terms of locality is moderate.

The level of Multiple Intelligence of high school students in its various dimensions viz., Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto in terms of the type of school is moderate.

The level of Multiple Intelligence of high school students in its various dimensions viz., Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto in terms of nature of the school is moderate.



The level of Multiple Intelligence of high school students in its various dimensions viz., Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto in terms of the medium of instruction is moderate.

- The level of achievement in mathematics among high school students in terms of sex is moderate.
- The level of achievement in mathematics among high school students in terms of birth order is moderate.
- The level of achievement in mathematics among high school students in terms of locality is moderate.
- The level of achievement in mathematics among high school students in terms of the type of school is moderate.
- The level of achievement in mathematics among high school students in terms of the nature of the school is moderate.
- High school pupils' math achievement is mediocre.
- There is no significant difference between male and female high school students in their level of Multiple Intelligence.

About Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto.

There is a significant difference between male and female high school students in their level of Multiple Intelligence concerning Logical-mathematical Intelligence and Interpersonal Intelligence.

There is no significant difference between rural and urban high school students in their level of Multiple Intelligence concerning Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto.

There is a significant difference between rural and urban high school students in their level of Multiple Intelligence, Verbal-linguistic Intelligence, and Musical-rhythmic Intelligence.

There is no significant difference between Tamil and English medium high school students in their level of Multiple Intelligence about Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto.

There is no significant difference between annual family income and Multiple Intelligence of high school students in Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto.

There is no significant difference among aided, un-aided and government high school students in their level of Multiple Intelligence about Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto.

There is no significant difference among boys', girls' and co-education high school students in their level of Multiple Intelligence about Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Interpersonal Intelligence, Existentialistic Intelligence and In toto.

There is a significant difference among boys', girls' and co-education high school students in their level of Multiple Intelligence about Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Intrapersonal Intelligence and Naturalistic Intelligence.

There is a significant difference among mothers' occupations and Multiple Intelligence of high school students in Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto. No significant difference exists between mothers' occupations and the Multiple Intelligence of high school students' Bodily-kinesthetic Intelligence.

There is no significant association between fathers' education and Multiple Intelligence of high school students in Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-

rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto.

There is no significant association between mothers' education and Multiple Intelligence of high school students in Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto.

There is no significant association between fathers' occupation and Multiple Intelligence of high school students concerning Verbal-linguistic Intelligence, Logical-mathematical Intelligence, Visual-spatial Intelligence, Bodily-kinesthetic Intelligence, Musical-rhythmic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, Naturalistic Intelligence, Existentialistic Intelligence and In toto. There is no significant relationship between Multiple Intelligence and achievement in mathematics among high school students to a) sex, b) locality, c) medium of instruction and d) nature of the school.

## **8. Interpretations**

### **8.1. According to the percentage analysis**

The level of Multiple Intelligence of high school students is moderate. It may be because, depending upon the individual, the Intelligence varies. Besides high school stage is the period of the beginning of intellectual growth. The level of academic achievement of high school students is moderate. This may be because the teaching method and curriculum construction may not be appropriate for the students.

### **8.2. According to the 't-test results**

When comparing the Multiple Intelligence scores of male and female students, there is little to no difference. Perhaps this is attributable to the fact that modern-day boys and girls have access to quality education, which broadens their opportunities and encourages them to strike out on their own. In Tamil Nadu especially, both young men and women have access to quality education and are informed about crucial developments in modern society. Girls today are just as smart as boys because they have the same access to the outside world as boys do. High school pupils in rural areas had the same level of Multiple Intelligence as their urban counterparts. This could be because most boys from rural areas can attend schools in cities. So they have a lot of chances to learn new things and expand their minds. When comparing Tamil and English medium high school pupils, there is no discernible difference in their proficiency in Multiple Intelligences. This may be the result of the improved curriculum and innovative teaching approach implemented by the Tamil Nadu Ministry of Education, bringing pupils of the Tamil medium up to speed with their English medium counterparts. High school students' annual family income and their Multiple Intelligences do not differ significantly. This could be because the government is making it possible for students from low-income families to attend college.

### **8.3. According to the 'F' test results**

Students at private, public, and government schools all score similarly on the Multiple Intelligences tests. It's possible that this is the result of increased access to opportunities for students to develop their Multiple Intelligences outside of the classroom. The Multiple Intelligence scores of high school boys, girls, and co-ed students do not differ significantly from one another. This could result from educators' adoption of novel approaches to instruction. Both formal education and everyday life expose students to a wide range of contexts. Mothers' professions and their children's Multiple Intelligences are highly dissimilar. A stay-at-home mom has more time and flexibility to raise and nurture her kids. It's commonly accepted that mothers are a child's first and most influential educators. A student's mother is her primary source of inspiration and encouragement throughout their academic career.

### **8.4. According to $\chi^2$ the test results**

There is no significant association between fathers' education and Multiple Intelligence of high school students. This may be because most fathers are engaged in household and office work. Even though their educated, they could not spend much time with their wards. There is no significant association between mothers' education and Multiple Intelligence of high school students. This may be because when the mother is well educated, she usually could spend very little time because of her other officials' work. There is no significant association between fathers' occupations and the Multiple Intelligence of high school students. This may be because usually, the father takes less care about the student's progress in studies. Also, it is a fact that fathers find it difficult to spend sufficient time with their children.

### **8.5. According to $\gamma$ the results**

High school pupils who score higher on the Multiple Intelligences tests tend to do better in mathematics. This may be due to the correlation between high school students' Multiple Intelligence scores and their mathematical performance. Students who

score highly on the Multiple Intelligences tests tend to do well in mathematics. Therefore, the success of high school students is profoundly impacted by their level of Multiple Intelligence. The study's author concludes that factors such as gender, geography, teaching medium, and kind of institution play significant roles in how much high school pupils learn and succeed.

## 8.6. Recommendations

- Based on the results obtained from the analysis, the following recommendations are given below.
- Certain improvement programmes and awareness about their future should be given to improve students' achievement.
- Opportunities for participation in extra-curricular and co-curricular activities like quizzes, drama etc., should be given.
- The teacher can follow the understanding and reflective levels of teaching rather than the knowledge levels.
- The head of the schools can meet with teachers and parents to analyze students' achievements.
- Special attention should be shown towards the weaker students.
- Students can be encouraged to group learning.
- Students can be encouraged to actively participate in cultural competitions to develop their various intelligences.
- Students can be taken to nearby hiking places.
- Students can be asked to do mini-project to improve their interpersonal intelligence.
- Awareness programmes on Multiple Intelligence and their characteristics can be organized.

## 9. Conclusion

Even though this study has a few shortcomings, it is clear that both the degree of multiple intelligences and the academic achievement of high school students are on the moderate end of the spectrum. According to the Kothari [6] Commission, the classroom is where India's future would be moulded the most. If this is the case, then teachers play a more significant part in the growth of multiple intelligences among high school pupils, which in turn leads to improved academic performance. It is also clear that there is a positive connection between Multiple Intelligence and scholastic achievement in mathematics among kids in high school. The investigator offered some suggestions, all of which have a good chance of being of great use in elevating the level of multiple intelligences possessed by high school kids. This investigation will produce more useful results if the investigator's recommendations are implemented in subsequent research, and it will be of great assistance to individuals who are interested in conducting additional research in this area.

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