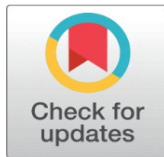
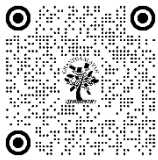


GENDER DIFFERENCES IN MULTIPLE INTELLIGENCES AMONG SECONDARY SCHOOL STUDENTS: A COMPARATIVE STUDY

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ABSTRACT

This paper examined gender differences in multiple intelligences among secondary school students. 400 students (200 males, 200 females) studying in standard IX and X from Gujarati medium secondary schools of urban and rural areas of Central Gujarat were selected by a stratified random sampling method, out of which 200 students were from urban areas and 200 students were from rural areas. The present study employed the descriptive survey method to collect data. A Multiple Intelligences Assessment Scale (MIAS) (80 items, 3-point Likert scale), based on Gardner's theory, was constructed and standardized by the researcher as a data collection tool to assess the multiple intelligences of secondary school students. The MIAS showed high reliability and validity. The t-test was used for the analysis of data. Results revealed significant gender differences in five intelligence types. Female students demonstrated significantly higher levels of linguistic, logical-mathematical, interpersonal, and intrapersonal intelligences compared to male students. Conversely, male students exhibited significantly higher naturalist intelligence. No significant gender differences were found in spatial, bodily-kinesthetic, and musical intelligences. These findings partially support some earlier studies but contradict others, demonstrating that cultural and contextual influences may shape different intelligence types. Schools should focus on specialized teaching approaches to improve males' language, math, social skills, and self-awareness, as well as girls' nature awareness. The study suggests multiple intelligences-based instruction, specialized teacher and student workshops, and field visits to build naturalist intelligence. This research helps educators, parents, and educational administrators recognize and foster secondary school students' unique intellectual strengths.

Keywords: Multiple Intelligences, Gender Difference, Secondary School, Students, MIAS

1. INTRODUCTION

The variability of student achievement poses a barrier in the educational area. Nobody is the same in the cosmos. The intelligence of students varies greatly. Intelligence is defined as the ability to learn quickly and accurately, solve issues, and adjust in society. Intelligence theories abound in educational and psychological literature. In 1983, Dr. Howard Gardner introduced the Theory of Multiple Intelligences. According to this theory, the previous IQ grading system, which was mostly centered on language and logical-mathematical intelligence, was excessively narrow. Gardner, on the other hand, suggests eight distinct categories of intelligence to allow for a broader grade system of human intellect. Furthermore, he proposes that each domain of intelligence has no relationship with the others. Gardner's eight different intelligences include linguistic intelligence, logical-mathematical intelligence, spatial intelligence, bodily-kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalist intelligence. It provides insights into strengths and weaknesses in our own learning processes (Connell, 2005, p. 65). The researcher demonstrates that, in the context of gender, if we are able to pinpoint each student's unique capabilities within these

intelligences, we can more successfully accommodate various students based on how they want to learn. All of these factors inspired the researcher to attempt this study and encouraged him to do so.

1.1. STATEMENT OF THE PROBLEM

Gender Differences in Multiple Intelligences among Secondary School Students: A Comparative Study

1.2. IMPORTANCE OF THE STUDY

The significance of the study is revealed in the next details.

- 1) The findings of the present study may generate useful knowledge and understanding on multiple intelligences of secondary school students.
- 2) The findings of the study will help in understanding the gender differences in multiple intelligences of the students.
- 3) The present study's findings will assist secondary school teachers in developing teaching strategies based on the multiple intelligences of students with regard to gender.
- 4) The present study will serve as a foundation for future MI Theory-based research.

1.3. OBJECTIVES OF THE STUDY

- 1) To study the multiple intelligences of secondary school students with reference to gender.

1.4. HYPOTHESES

The following null hypotheses were developed for the study's objective.

Ho1. There is no significant difference between mean scores on multiple intelligences of male and female secondary school students.

Ho1.1. There is no significant difference between mean scores on the linguistic intelligence of male and female secondary school students.

Ho1.2. There is no significant difference between mean scores on the logical-mathematical intelligence of male and female secondary school students.

Ho1.3. There is no significant difference between mean scores on the spatial intelligence of male and female secondary school students.

Ho1.4. There is no significant difference between mean scores on the bodily-kinesthetic intelligence of male and female secondary school students.

Ho1.5. There is no significant difference between mean scores on the musical intelligence of male and female secondary school students.

Ho1.6. There is no significant difference between mean scores on the interpersonal intelligence of male and female secondary school students.

Ho1.7. There is no significant difference between mean scores on the intrapersonal intelligence of male and female secondary school students.

Ho1.8. There is no significant difference between mean scores on the naturalist intelligence of male and female secondary school students.

1.5. DELIMITATIONS OF THE STUDY

Some delimitations of the present study are given below.

- 1) The present study is delimited to the Gujarati medium secondary schools (Affiliated by Gujarat Secondary and Higher Secondary Education Board) of Central Gujarat.

- 2) The study is restricted to standard IX (9) & X (10) students only.
- 3) The limitations of the tool are limitations of the study.

1.6. VARIABLES OF THE STUDY

The following variables are included in the study.

Variables of the Study and Their Levels

Types of Variable	Variables	Levels of Variable
1. Independent Variables	Gender	(a) Male
		(b) Female
2. Dependent Variables	Multiple Intelligences	(a) Linguistic Intelligence
		(b) Logical-Mathematical Intelligence
		(c) Spatial intelligence
		(d) Bodily-Kinesthetic Intelligence
		(e) Musical Intelligence
		(f) Interpersonal Intelligence
		(g) Intrapersonal Intelligence
		(h) Naturalist Intelligence
3. Control Variables	Types of School	-
	Standard of Study	

2. REVIEW OF LITERATURE

Loori (2005) examined gender differences in multiple intelligence preferences among 90 ESL learners (45 males, 45 females) from three higher education institutions in the USA. The study employed descriptive comparative methodology with statistical analysis using Mean, S.D., and t-test to analyze the data collected from Yale University, Texas Technical University, and Gateway Community College participants. Using the Teele Inventory for Multiple Intelligences (TIMI), the study revealed significant gender differences in only two of Gardner's seven intelligence types: males showed a stronger preference for Logical/Mathematical intelligence, while females favored Intrapersonal intelligence. No significant gender differences were found in preferences for Linguistic, Spatial, Musical, Bodily-Kinesthetic, and Interpersonal intelligence types.

The study by Razmjoo (2008) investigated the relationship between multiple intelligences and English language proficiency among Iranian Ph.D. candidates. The study examined whether individual intelligence types or combinations could predict language proficiency, and whether gender differences existed in either language proficiency or intelligence types. From an initial pool of 500 participants, the final sample consisted of 278 individuals (178 males, 99 females) aged 25-49. Using a 90-item Multiple Intelligences Questionnaire and a 100-item Language Proficiency Test, the data was analyzed through descriptive statistics, correlation, regression analysis, and independent t-test. The findings revealed no significant relationship between language proficiency and multiple intelligences, either as individual types or as a whole factor. Additionally, no intelligence type emerged as a predictor of language proficiency, and no significant gender differences were found regarding either language proficiency or intelligence types, suggesting that, in the Iranian context, multiple intelligences theory may not be directly linked to English language proficiency.

Tirri and Nokelainen (2008) introduced and tested the third version of the Multiple Intelligences Profiling Questionnaire (MIPQ III), which added a new type of intelligence called Environmental Intelligence to Gardner's original eight intelligences. Using a non-probability sample of 410 Finnish participants (183 preadolescents and 227 adults), the researchers employed a 35 items Likert-scale questionnaire to measure nine intelligence dimensions. Statistical analyses included Cronbach's alpha for internal consistency, Spearman correlations, and confirmatory factor analysis. The findings revealed satisfactory reliability coefficients for all nine dimensions and several significant correlations between

intelligence types: Logical-mathematical intelligence correlated positively with Spatial intelligence; Linguistic intelligence correlated positively with Intrapersonal intelligence; and both Linguistic and Intrapersonal scales correlated positively with Spiritual and Environmental intelligences. Gender differences were also observed, with males self-reporting higher Logical-mathematical intelligence and females rating their Linguistic abilities higher, while the confirmatory factor analysis demonstrated good generalizability characteristics of the MIPQ III scales.

The study by Saricaoglu and Arikan (2009) examined relationships between multiple intelligences, foreign language success, gender, and parental education among 144 intermediate-level English students (78 females, 66 males, aged 18-22) at Erciyes University in Turkey. Using Armstrong's MI Inventory for Adults, a 70 items Likert-scale measuring seven intelligence types, and analyzing data through descriptive statistics, t-test, correlation analysis, and ANOVA, the researchers found logical-mathematical intelligence to be predominant among participants, followed by spatial, bodily-kinesthetic, interpersonal, intrapersonal, linguistic, and musical intelligence. The study revealed only one significant gender difference: females scored higher in linguistic intelligence. Regarding academic performance, negative but significant relationships were identified between grammar test scores and bodily-kinesthetic, spatial, and intrapersonal intelligences, while musical intelligence showed a significant positive relationship with writing skills. No significant relationship was found between parental education levels and students' intelligence types.

Xie and Lin (2009) investigated the impact of integrating multiple intelligences (MI) teaching with color theory instruction on student learning outcomes. Using a semi-experimental design with unequal groups, the researchers assigned 36 students to an experimental group receiving MI-enhanced instruction and 35 students to a control group receiving traditional teaching at a polytechnic university in central Taiwan. The experimental group received 36 hours of instruction over 18 weeks using regular textbooks supplemented with MI-based materials. Data collection tools included a background questionnaire, an MI test adapted for Taiwan's educational context, design project topics, and a scoring chart. Analysis through Mean, S.D. and Independent Sample t-test revealed that the teacher demonstrated strong musical intelligence but weak logical-mathematical intelligence; female students generally scored higher than males in most intelligence types (with musical intelligence being the exception); females showed significantly higher naturalist intelligence than males; experimental group students showed significant improvement in their MI profiles from pre-test to post-test; and the experimental group demonstrated greater overall learning effectiveness compared to the control group, suggesting that MI-enhanced instruction positively influenced student learning outcomes.

Shahzada et al. (2011) investigated gender differences in self-perceived multiple intelligences among college students. Using a translated version of Armstrong's Multiple Intelligence Inventory (containing 40 items with five statements per intelligence type), researchers surveyed 714 first-year students (379 males and 335 females) from seven randomly selected government degree colleges in Bannu district. After pilot testing with 50 students to ensure reliability (Cronbach's alpha of 0.784), data was analyzed using Mean, SD, and Independent Samples t-test. The findings revealed significant gender differences in several intelligence domains: females rated themselves higher in verbal/linguistic, visual/spatial, interpersonal, and intrapersonal intelligences, while males estimated themselves higher in logical/mathematical intelligence. No significant gender differences were found in musical, bodily/kinesthetic, and naturalistic intelligences.

The study by Mustafa et al. (2014) examined multiple intelligences (MI) among undergraduate students at Yarmouk University, Jordan, using Gardner's theory. Employing a descriptive survey method, the researchers administered the Multiple Intelligences Test (MIT) to a stratified random sample of 759 students, assessing eight intelligences. The study utilized MANCOVA and correlation analyses, confirming the MIT's reliability ($\alpha = 0.73-0.84$). Results indicated that linguistic intelligence ranked highest, while spatial intelligence ranked lowest. Gender-based differences were significant, with males scoring higher in logical-mathematical, visual-spatial, bodily-kinesthetic, and naturalistic intelligences, whereas females outperformed in linguistic, interpersonal, and musical intelligences. Faculty-based variations favored scientific disciplines in logical, spatial, and naturalist intelligences, while humanities students excelled in others. Additionally, third- and fourth-year students showed higher linguistic, logical, and spatial intelligences compared to lower-level students.

The study by Shahzada et al. (2015) explored gender differences in self-estimated multiple intelligences (MI) among secondary school students in Pakistan's Khyber Pakhtunkhwa province. Using a descriptive survey method, the researchers sampled 905 students (542 males, 363 females) aged 14-16 through stratified random sampling, administering a 45 items MI scale combining Armstrong's (1994) inventory and McKenzie's (1999) existential intelligence measure. Statistical analysis was conducted using SPSS, with Mean, SD, and Independent Sample t-test.

Results revealed that females self-rated significantly higher in verbal/linguistic, interpersonal, and intrapersonal intelligences, while males scored higher in bodily/kinesthetic and naturalistic intelligences. No significant gender differences were found in logical/mathematical, visual/spatial, musical, and existential intelligences.

Kaur and Chhikara (2008) assessed multiple intelligence (MI) levels among 200 rural adolescents (aged 12–14) in Hisar, Haryana, using a descriptive survey method. The researchers employed their standardized Multiple Intelligence Assessment Tool (2006), measuring nine MI components, which demonstrated high test-retest reliability, inter-observer agreement, and content validity. Results indicated that most participants exhibited average levels across all intelligences. Gender-based analysis using z-test revealed significant differences, with girls scoring higher in linguistic and musical intelligences, while boys outperformed in logical-mathematical and bodily-kinesthetic intelligences.

Anitha et al. (2013) examined multiple intelligence (MI) levels among 9th class students from government and private schools in Secunderabad, using a descriptive survey method. A sample of 240 students (120 boys, 120 girls) was assessed using Tirri and Nokelainen's Multiple Intelligence Profiling Questionnaire, which measured eight intelligences via a 5-point Likert scale. Statistical analysis was done using Mean, SD, and t-test computations. Results indicated that government school students exhibited higher overall MI levels than private school students, and girls outperformed boys in logical, interpersonal, and intrapersonal intelligences, while boys scored higher in spiritual/naturalistic intelligence.

The study by Gupta (2016) examined multiple intelligences (MI) among 4,417 secondary school students (2,688 boys, 1,729 girls) across 15 districts in Gujarat, using a descriptive survey method. A self-constructed Multiple Intelligences Scale (Likert-type, 5-point) assessed eight intelligences, revealing that interpersonal, bodily-kinesthetic, and spatial intelligences were most dominant, while linguistic and intrapersonal intelligences were least developed. Statistical analysis employed Percentage, Mean, SD, and C.R. (t-test). Gender comparisons showed boys scored significantly higher in interpersonal and logical-mathematical intelligences, whereas girls outperformed in intrapersonal, linguistic, and musical intelligences. No significant gender differences were found in naturalist, spatial, and bodily-kinesthetic intelligences.

Joshi (2016) investigated gender differences in multiple intelligences (MI) among 387 Gujarati-medium higher secondary students (205 males, 182 females) in Gandhinagar, Gujarat, using a descriptive survey method. A researcher-developed Multiple Intelligences Inventory (48 items Likert scale) assessed eight intelligences, revealing that logical and interpersonal intelligences were most dominant, while musical and intrapersonal intelligences were least developed. Statistical analysis was done using Mean, S.D., and Critical Ratio. Gender analysis showed females scored significantly higher in musical intelligence, whereas males outperformed in naturalistic intelligence. No significant gender differences were found in logical, linguistic, spatial, bodily-kinesthetic, interpersonal, and intrapersonal intelligences.

Panchal (2017) conducted a study on the Construction and Standardization of Multiple Intelligences Assessment Scale (MIAS) for the Secondary School Students of Gujarat state. The study involved a sample of 5702 students (3113 boys, 2589 girls) from 66 Gujarati medium secondary schools of Gujarat, selected by stratified random sampling and cluster sampling methods. The study employed the descriptive survey method. A self-constructed Multiple Intelligences Assessment Scale (80 items, 3-point Likert scale), based on Gardner's theory assessed eight intelligences. The collected data was analyzed using descriptive and inferential statistical techniques, namely, Mean, Median, S.D., Correlation, Factor Analysis, Percentile Rank (PR), T-Score, 't' ratio, and One-way ANOVA. The study established the high Reliability of the MIAS using Test-Retest (coefficients: 0.77–0.89), Split-Half (Spearman-Brown: 0.75–0.88; Rulon: 0.76–0.89; Flanagan: 0.75–0.86), and Cronbach's α (0.78–0.89), alongside strong Validity (Face Validity, Construct Validity-Factorial Validity factor: 0.82). Gender analysis revealed girls outperformed boys across all intelligences except logical-mathematical, where no difference was found. Comparing urban and rural students showed that rural students did better in linguistic, bodily-kinesthetic, musical, and naturalist intelligences, while urban students scored higher in logical-mathematical and intrapersonal intelligences, with no differences in spatial or interpersonal intelligences. Age-based trends showed that 16 years olds students consistently did better than 15, 14 and 13 years old students in linguistic, logical-mathematical, spatial, interpersonal, intrapersonal, and naturalist intelligences, but there were no age differences in bodily-kinesthetic and musical intelligences. The study established Percentile Rank (PR) and T-score norms.

2.1. RESEARCH GAP

While multiple studies have examined gender differences in multiple intelligences across various contexts, there appear to be inconsistent findings regarding which specific intelligence types show gender differences. For example,

some studies found females scoring higher in linguistic and interpersonal intelligences (Shahzada et al., 2011; Tirri & Nokelainen, 2008), while others showed males outperforming in logical-mathematical intelligence (Loori, 2005; Shahzada et al., 2011). However, these studies were conducted in different cultural contexts (USA, Pakistan, Finland, etc.) with varying age groups and using different MI assessment tools. This discrepancy points to cultural or contextual variables that call for more research. The need for a contemporary assessment of gender differences in multiple intelligences, specifically among secondary school students, is evident, as most studies have either focused on different age groups or were conducted over a decade ago. Addressing these gaps would contribute valuable insights to the existing body of knowledge on gender differences in multiple intelligences among secondary school students.

3. METHODOLOGY

3.1. POPULATION AND SAMPLING

The population of the present study consisted of all the standard IX (9) & X (10) students of Gujarati medium secondary schools (affiliated by G.S.H.S.E.B.) located in Central Gujarat during the academic year 2022-2023.

Total 400 students studying in standard IX (9) and X (10) were selected randomly for the present study, out of which, 200 were male and 200 female students. The sample included 200 students from urban and 200 students from rural areas.

The present study was conducted using stratified random sampling method.

3.2. RESEARCH METHOD

The descriptive survey method was employed in the present study to collect data.

3.3. TOOL USED

The researcher constructed and standardized a Multiple Intelligences Assessment Scale (MIAS) on the basis of Howard Gardner's Theory of Multiple Intelligences on a total sample of 5702 students studying in standard IX (9) and X (10) of Gujarat state to assess multiple intelligences of Gujarati medium's secondary school students. Experts' suggestions were taken on this scale. A pilot study of MIAS was conducted on 400 secondary school students. The final scale consisted of 80 statements of eight Multiple Intelligences; each statement refers to each specific intelligence type, in which, 10 statements were of each intelligence type. This was a three-point likert self rating scale. Each statement had three responses. Students were asked to draw a circle around the provided number with the alternatives 'Always Applicable (2)', 'Sometimes Applicable (1)', and 'Never Applicable (0)'. For scoring, a score of 2 was assigned to the 'Always Applicable' option, a score of 1 to the 'Sometimes Applicable' option, and a score of 0 to the 'Never Applicable' option. For each statement, the response was made mandatory.

Three techniques were used to determine the MIAS's reliability: (1) the Test-Retest Method-one month (N=100), (2) the Split-Half Method (N=400), which used the Spearman and Brown Formula, Rulon Formula and Flanagan Formula, and (3) Cronbach's Alpha (N=5702). As a result, it was determined that the MIAS was highly reliable using these methods. Two techniques were used to gauge the validity of the MIAS: (1) Face Validity, and (2) Construct Validity: Factorial Validity (N=5702). As a result, the MIAS's validity according to these methods was fairly good. Percentile Rank (PR) and T-score norms for MIAS were established for gender, area, and age groups.

3.4. DATA COLLECTION

The data for this study was collected in the second session during the academic year 2022-2023. Permission to collect data was sought from the principal of the selected secondary schools of Central Gujarat. The research volunteers visited different secondary schools and administered the tool to the students by giving proper instructions. Thus, the necessary data was collected from students.

3.5. DATA ANALYSIS

The data was analyzed using Mean, Standard Deviation and 't' ratio. The MS-Office Excel computer program was used for data analysis.

4. RESULTS

According to each component of the eight multiple intelligences, the score of each student was calculated. Then the scores were classified into variable viz Gender. For each component, the mean scores of the male and female students were calculated. The significance of difference between the means was assessed by calculating the 't' ratio to determine the difference between male and female secondary school students in their multiple intelligences.

Table 1

Significance of Difference between the Mean Scores on Multiple Intelligences of Male and Female Secondary School Students

Hypothesis	Multiple Intelligences	Gender	N	Mean	S.D.	't' value
Ho _{1.1}	Linguistic	Male	200	14.03	2.87	2.71*
		Female	200	14.81	2.88	
Ho _{1.2}	Logical-Mathematical	Male	200	14.02	3.28	2.63*
		Female	200	14.85	3.02	
Ho _{1.3}	Spatial	Male	200	14.54	3.01	1.20
		Female	200	14.18	2.98	
Ho _{1.4}	Bodily-Kinesthetic	Male	200	13.20	3.06	0.38
		Female	200	13.09	2.71	
Ho _{1.5}	Musical	Male	200	11.97	4.63	0.35
		Female	200	12.12	3.81	
Ho _{1.6}	Interpersonal	Male	200	13.91	3.34	3.21*
		Female	200	14.89	2.74	
Ho _{1.7}	Intrapersonal	Male	200	13.88	3.28	3.74*
		Female	200	15.02	2.79	
Ho _{1.8}	Naturalist	Male	200	14.69	3.21	2.82*
		Female	200	13.79	3.16	

*Significant at 0.01 level

From table 1, for the linguistic, logical-mathematical, interpersonal, intrapersonal and naturalist intelligence, calculated 't' values are significant at 0.01 level. Thus, the null hypotheses Ho_{1.1}, Ho_{1.2}, Ho_{1.6}, Ho_{1.7}, and Ho_{1.8} are rejected. Hence the study reveals that there is significant difference between mean scores on the linguistic, logical-mathematical, interpersonal, intrapersonal and naturalist intelligence of male and female secondary school students.

Whereas, calculated 't' values for spatial, bodily-kinesthetic, and musical intelligence are not significant at both 0.01 and 0.05 levels. Thus, the null hypotheses Ho_{1.3}, Ho_{1.4}, and Ho_{1.5} not rejected. Hence the study reveals that there is no

significant difference between mean scores on the spatial, bodily-kinesthetic, and musical intelligence of male and female secondary school students.

4.1. MAJOR FINDINGS

The following major findings are reported based on the study objectives, hypotheses, and data analysis.

- 1) Female secondary school students were found better than that of the male students in their linguistic, logical-mathematical, interpersonal, and intrapersonal intelligence.
- 2) Male secondary school students were found better than that of the female students in their naturalist intelligence.
- 3) No difference was found between male and female secondary school students in their spatial, bodily-kinesthetic, and musical intelligence.

5. DISCUSSION

The findings of this study are discussed in context of some relevant research. This study found that female secondary school students have better Linguistic intelligence than male students. This finding is supported by the findings of Gupta (2016) and Panchal (2018). Kaur and Chhikara (2008), Tirri and Nokelainen (2008), Saricaoglu and Arikan (2009), Shahzada et al. (2011), Mustafa et al. (2014), and Shahzada et al. (2015) all corroborate this finding. However, the result contradicts the findings of Loori (2005), Razmjoo (2008), Xie and Lin (2009), and Joshi (2016), who found no significant difference in Linguistic intelligence between male and female students.

Another outcome of this study is that female secondary school students were shown to have higher Logical-Mathematical intelligence than male students. This finding is corroborated by the findings of Anitha et al. (2013). The results of Loori (2005), Kaur and Chhikara (2008), Tirri and Nokelainen (2008), Shahzada et al. (2011), Mustafa et al. (2014), and Gupta (2016) are in conflict with this finding. In contrast, Razmjoo (2008), Saricaoglu and Arikan (2009), Xie and Lin (2009), Shahzada et al. (2015), Joshi (2016), and Panchal (2018) discovered no significant gender difference in Logical-Mathematical intelligence.

This study discovered that female secondary school students have better Interpersonal intelligence than male students. This finding is supported by Shahzada et al. (2011), Anitha et al. (2013), Mustafa et al. (2014), and Shahzada et al. (2015) findings. But this result runs counter to Gupta's (2016) finding. This finding, on the other hand, contradicts the findings of Loori (2005), Razmjoo (2008), Saricaoglu and Arikan (2009), Xie and Lin (2009), and Joshi (2016), who found no significant gender difference in Interpersonal intelligence.

One of the study's findings is that female secondary school students exhibited higher Intrapersonal intelligence than male students. The findings of Loori (2005), Shahzada et al. (2011), Anitha et al. (2013), Shahzada et al. (2015), and Gupta (2016) are consistent with this result. This finding, however, is in contrast to those of Razmjoo (2008), Saricaoglu and Arikan (2009), Xie and Lin (2009), Mustafa et al. (2014), and Joshi (2016), who found no evidence of a significant gender difference in Intrapersonal intelligence.

The finding of this study demonstrates that male secondary school students were found to have higher Naturalist intelligence than female students. This finding is supported by research conducted by Anitha et al. (2013), Mustafa et al. (2014), Shahzada et al. (2015), and Joshi (2016). But this finding runs counter to what Xie and Lin (2009) found. This finding conflicts with those of Razmjoo (2008), Saricaoglu and Arikan (2009), Shahzada et al. (2011), and Gupta (2016), who found no significant difference between male and female students in terms of Naturalistic intelligence.

According to the study's other findings, there were no differences between male and female secondary school students in terms of their Spatial, Bodily-Kinesthetic, and Musical intelligence. These findings are confirmed by those of Loori (2005), Razmjoo (2008), Saricaoglu and Arikan (2009), and Xie and Lin (2009). The finding, however, contradicts the findings of, Shahzada et al. (2011), who discovered that female students ranked themselves higher than male students in terms of perceived Visual/Spatial intelligence; Kaur and Chhikara (2008), Mustafa et al. (2014) and Shahzada et al. (2015) who stated that male students assessed their Bodily-Kinesthetic intelligence higher than female students; Kaur and Chhikara (2008), Mustafa et al. (2014), Gupta (2016), and Joshi (2016) who showed that female students had higher levels of Musical intelligence than male students.

Given these findings, a number of arguments might be offered as to why male and female secondary school students were discovered to vary in their various sorts of intelligences. Different multiple intelligences between male and female students may be due to a variety of factors. It is clear that both male and female students' emotions, attitudes, stress, abilities, strengths, self-confidence, mental health, etc., as well as surroundings, have an impact on their various types of intelligences. The development of the mind, logical thinking, social skills, and personality are impeded by factors such as male students' larger circle of friends than female students, adoption of their positive or negative behaviors, parental provision of greater amenities for male students, and parents' lax attitude towards male students.

5.1. EDUCATIONAL IMPLICATIONS

The following implications are provided in light of the findings.

- 1) The findings of the present study point to the need for parents and teachers of male secondary school students to pay even closer attention to the improvement of their children's/students' level of Linguistic, Logical-Mathematical, Interpersonal, and Intrapersonal intelligence.
- 2) In order to meet the needs of students with varying potential, teachers should recognize the learners' innate intellectual inclinations and provide a diversity of teaching and learning experiences. To improve the level of various intelligences of male secondary school students, schools and teachers should plan engaging lessons and activities based on MI Theory. Male students should have their Linguistic, Logical-Mathematical, Interpersonal, and Intrapersonal intelligences enhanced via Multiple Intelligences based intervention programmes that are designed specifically for them.
- 3) Parents and teachers should take female secondary school students on field trips to the outside world in order to raise their level of Naturalist intelligence. On a nice day, teachers should conduct class activities in the garden or outside of the classroom. They ought to have access to resources for reading about nature and the environment as well as opportunities to compete in essay and oratory contests. The school garden should be maintained with their assistance.
- 4) The topic of Multiple Intelligences (MI) Theory should be covered in specialized workshops and seminars taught by subject-matter specialists for students and teachers in secondary schools. Additionally, parents need to be aware of the dominating intelligences and inclinations of their children.

5.2. SUGGESTIONS FOR FURTHER RESEARCH

The researcher offers the following suggestions to get over the present study's limitations after gaining some experience with it. Research in the areas connected to this topic may be aided by these suggestions.

- 1) Multiple Intelligences of secondary school students with regard to gender was studied in the present study. The effects of socioeconomic situation, parents' employment status, the kind of family, academic accomplishment, school type, standard of study, cast, etc., on Multiple Intelligences may also be examined.
- 2) The relationship between multiple intelligences and many variables such as learning style, self-concept, adaptability, personality traits, value patterns, students' attitude towards education, study habits, sociometry, and so on may be examined to gain a better knowledge of students' Multiple Intelligences.

6. CONCLUSION

Young people today have greater psychological issues than previous generations had in the age of materialism and modernity. Adolescence is a time when Multiple Intelligences are quite useful. Adult learning and development are significantly impacted by Multiple Intelligences. The goal of the present study is to investigate how gender affects Multiple Intelligences in order to understand and evaluate the function of this characteristic. This survey research is intriguing and enticing. Parents of the students, secondary school teachers, students themselves, school staff, guidance counsellors, educational administrators, and decision-makers in the field of education will all find this study to be helpful.

CONFLICT OF INTERESTS

None.

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None.

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