



EXPLORING MULTIPLE INTELLIGENCES AMONG HIGHER SECONDARY SCHOOL STUDENTS

Education

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ABSTRACT

The present study explored the multiple intelligences of higher secondary school students and examined differences based on gender and locality. A normative survey method was adopted, and data were collected from 321 higher secondary school students selected through stratified random sampling from schools in Chennai and Tiruvallur districts of Tamil Nadu. The Multiple Intelligence Inventory (MII) developed by Antony Raj and Philomine Bala (2009) was used for data collection. The data were analyzed using percentage analysis, mean, standard deviation, independent samples t-test, and one-way ANOVA. The findings revealed that 58.88% of the students possessed a moderate level of multiple intelligence, while 26.17% and 14.95% had high and low levels, respectively. Significant gender differences were observed in verbal/linguistic, logical/mathematical, interpersonal, existentialistic and overall multiple intelligence. Urban students scored significantly higher than rural students in verbal/linguistic, visual/spatial, bodily-kinesthetic, naturalistic and overall multiple intelligence. The study highlights the need for educational practices that recognize and nurture diverse intelligence profiles among higher secondary school students.

KEYWORDS

Multiple Intelligence, Higher Secondary School Students, Gender, Locality, Normative Survey, Verbal-Linguistic, Logical-Mathematical, Musical-Rhythmic, Bodily-Kinesthetic, Visual-Spatial, Interpersonal, Naturalistic, Existentialistic Intelligences.

INTRODUCTION

The concept of Multiple Intelligences (MI), proposed by Howard Gardner, has transformed the traditional understanding of intelligence by suggesting that human abilities extend beyond linguistic and logical-mathematical skills. Gardner identified several distinct intelligences, including verbal/linguistic, logical/mathematical, visual/spatial, bodily-kinesthetic, musical/rhythmic, interpersonal, intrapersonal, naturalistic and existentialistic intelligence. Each individual possesses these intelligences in varying degrees and together they influence learning, problem-solving, creativity and personal development. The theory of multiple intelligences emphasizes that every learner has unique strengths and that education should provide opportunities to recognize and develop these diverse abilities rather than relying solely on conventional measures of academic achievement.

Higher secondary education is a crucial stage in students' academic and personal development, as it prepares them for higher education, career choices, and lifelong learning. Understanding the multiple intelligence profiles of higher secondary school students can help teachers adopt learner-centered instructional strategies, design inclusive classroom activities and provide appropriate guidance based on students' strengths. Furthermore, examining differences in multiple intelligence with respect to demographic variables such as gender and locality provides valuable insights into the diverse learning characteristics of students. In this context, the present study explores the level of multiple intelligences among higher secondary school students and investigates whether significant differences exist in their multiple intelligence profiles based on gender and locality.

Review of Literature

Maurya and Agarwal (2024) examined the relationship between multiple intelligences and academic achievement among 462 secondary school students in Uttar Pradesh. The study found a significant positive relationship between academic achievement and most dimensions of multiple intelligence, except musical intelligence. The authors recommended integrating multiple intelligence-based pedagogical approaches into classroom instruction. Panchal (2023) investigated gender differences in multiple intelligences among 400 secondary school students in Gujarat using a descriptive survey design. The findings revealed significant gender differences in verbal-linguistic, interpersonal, and intrapersonal intelligences, while no significant differences were found in several other intelligence domains. The study emphasized the importance of incorporating gender-responsive instructional strategies in schools. Vadivukarasi and Gnanadevan (2022) explored the influence of multiple intelligences on the academic achievement of 679 higher secondary school students. The results indicated that various dimensions of multiple intelligence significantly predicted students' academic

achievement, accounting for a substantial proportion of variance in performance. Pachaiyappan, P and Ushalaya Raj, D (2014) explored the multiple intelligences of secondary and higher secondary school teachers with respect to gender, locale, classes handled and academic streams. Survey method of research has been used in the present study. To measure the multiple intelligence of school teachers, Multiple Intelligence Inventory (MII) was developed by the investigators. The investigator randomly selected one hundred and thirty secondary and higher secondary school teachers in and around Chennai and Thiruvannamalai Districts of Tamilnadu. The data was analyzed using mean, standard deviation and 't'-test. The major findings of the study reveals that there is no significant difference between male and female school teachers with respect to multiple intelligence and its dimensions. The urban school teachers have higher in verbal, logical, interpersonal, intrapersonal, naturalistic and overall multiple intelligence than compared to rural teachers. The higher secondary school teachers have better in verbal, spatial, musical, interpersonal, intrapersonal, and overall multiple intelligence than compared to secondary school teachers. The science teachers have higher in verbal, logical, spatial, interpersonal, intrapersonal, naturalistic and overall multiple intelligence than compared to arts teachers.

Keates and Pearson (2024) discussed the application of Gardner's Multiple Intelligence Theory in counselling adolescents experiencing anxiety. The authors argued that multiple intelligence-informed expressive therapies provide more personalized interventions and improve students' emotional well-being and school adjustment. Lacida et al. (2024) investigated multiple intelligence and emotional intelligence as predictors of student engagement among senior high school students in the Philippines. The findings showed that multiple intelligence significantly predicted students' engagement and recommended learner-centred instructional practices that recognize diverse intelligence profiles. Boruah and Kalita (2026) examined the relationship between multiple intelligences and academic engagement among secondary school students. The study reported a positive association between several dimensions of multiple intelligence and students' academic engagement, highlighting the educational value of identifying learners' intelligence profiles.

Need and Significance of the Study

Multiple intelligence plays a vital role in shaping students' learning abilities, academic performance, creativity and overall personality development. Although conventional education primarily emphasizes linguistic and logical-mathematical abilities, students possess diverse intelligence profiles that influence their learning preferences and achievements. Identifying these multiple intelligences at the higher secondary level is particularly important, as this stage marks a critical period for academic specialization, career planning and personal growth. Understanding students' strengths across different intelligence

domains enables educators to adopt learner-centered teaching approaches, promote inclusive classroom practices, and create meaningful learning experiences that cater to individual differences.

The findings of the present study are expected to benefit teachers, school administrators, curriculum planners, counsellors and policymakers by providing insights into the multiple intelligence profiles of higher secondary school students. Examining variations in multiple intelligence based on gender and locality will help educational stakeholders design appropriate instructional strategies, enrichment programmes and guidance services that address the diverse needs of learners. Furthermore, the study contributes to the growing body of educational research on Gardner's Multiple Intelligence Theory and provides empirical evidence that can support curriculum development, educational planning, and future research aimed at fostering the holistic development of higher secondary school students.

Objectives

1. To find out the level of multiple intelligence among higher secondary school students.
2. To find out whether there is any significant difference in multiple intelligence and its dimensions of higher secondary school students with reference to Gender.
3. To find out whether there is any significant difference in multiple intelligence and its dimensions of higher secondary school students with reference to Locality.

Hypotheses

1. There is no significant difference in multiple intelligence and its dimensions of higher secondary school students with reference to Gender.
2. There is no significant difference in multiple intelligence and its dimensions of higher secondary school students with reference to Locality.

Methodology of the Study

Research Design

The study adopted a normative survey method, appropriate for describing existing conditions and examining relationships among variables in a large population.

Population and Sample

The population consisted of higher secondary students studying in the Government, Government Aided and Private Schools located in Chennai and Tiruvallur districts of Tamil Nadu. A sample of 321 higher secondary students was selected through stratified random sampling.

Instrumentation

Data were collected using the Multiple Intelligence Inventory constructed and validated by Antony Raj and Philomine Bala (2009). The Multiple Intelligence Inventory (MII) consists of following nine dimensions:

1. **Verbal-Linguistic Intelligence** – Sensitivity to spoken and written language and the ability to use language effectively.
2. **Logical-Mathematical Intelligence** – Ability to think logically and solve mathematical problems.
3. **Musical-Rhythmic Intelligence** – Ability to recognize and create musical patterns and rhythms.
4. **Bodily-Kinesthetic Intelligence** – Ability to use body movements skillfully.
5. **Visual-Spatial Intelligence** – Ability to recognize patterns, visualize objects and create mental images.
6. **Interpersonal Intelligence** – Ability to understand and interact effectively with others.
7. **Intrapersonal Intelligence** – Ability to understand oneself and regulate one's life.
8. **Naturalistic Intelligence** – Ability to understand and work effectively in nature.
9. **Existentialistic Intelligence** – Ability to think about philosophical and existential issues related to human life.

Statistical Techniques Used

The collected data were analyzed using: Mean and Standard Deviation, Independent sample t-test and One-way ANOVA.

Data Analysis and Interpretation

Table 1: The Level of Multiple Intelligence Among Higher Secondary Students

Level of Multiple Intelligence	Frequency	Percentage
Low	48	14.95
Moderate	189	58.88
High	84	26.17

From the above table 1, results reveals that 14.95% and 26.17% Higher Secondary Students have low and high level of Multiple Intelligence respectively and most of the higher secondary students have moderate level (58.88%) of Digital Intelligence.

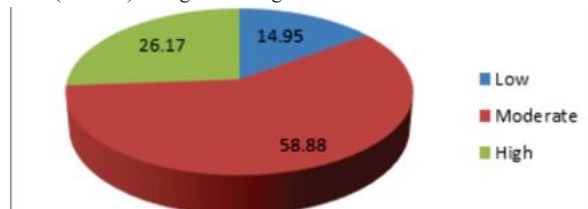


Figure 1: Shows the Level of Multiple Intelligence Among Higher Secondary Students

Table 2: Differences in Multiple Intelligence and its Dimensions Among Higher Secondary Students Based on Gender

Dimensions	Male (N=110) Mean	SD	Female (N=211) Mean	SD	t - value	Remarks at 5% Level
Verbal/Linguistic Intelligence	20.84	2.58	22.13	2.81	2.41	S
Logical/Mathematical Intelligence	23.48	3.42	22.37	3.56	2.16	S
Visual/Spatial Intelligence	22.44	2.71	21.66	3.28	1.54	NS
Bodily-Kinesthetic Intelligence	23.56	3.09	23.18	3.21	0.82	NS
Musical/Rhythmic Intelligence	19.84	4.38	20.62	4.19	1.26	NS
Interpersonal Intelligence	21.71	3.04	22.42	3.39	2.08	S
Intrapersonal Intelligence	23.79	3.01	24.46	3.18	1.68	NS
Naturalistic Intelligence	23.31	3.09	23.88	3.35	1.34	NS
Existentialistic Intelligence	23.19	3.72	24.58	3.21	2.67	S
Overall Multiple Intelligence	205.90	18.62	212.84	19.11	2.31	S

The above table 2, presents the comparison of multiple intelligence and its dimensions between male and female higher secondary school students using the independent samples t-test. The results reveal that female students scored significantly higher than male students in Verbal/Linguistic Intelligence ($t = 2.41, p < .05$). This indicates that female students demonstrate stronger verbal communication and language-related abilities than their male counterparts. In Logical/Mathematical Intelligence, male students obtained significantly higher mean scores than female students ($t = 2.16, p < .05$), suggesting better performance in logical reasoning and mathematical problem-solving among male students. For Visual/Spatial Intelligence, the difference between male and female students was not statistically significant ($t = 1.54, p > .05$). Similarly, no significant gender differences were observed in Bodily-Kinesthetic Intelligence, Musical/Rhythmic Intelligence, Intrapersonal Intelligence and Naturalistic Intelligence. These findings suggest that male and female students possess comparable abilities in these dimensions.

A significant gender difference was found in Interpersonal Intelligence, where female students scored significantly higher than male students ($t = 2.08, p < .05$). This indicates that female students exhibit stronger social interaction, empathy, and relationship-building skills. Likewise, Existentialistic Intelligence showed a significant gender difference, with female students outperforming male students ($t = 2.67, p < .05$). This suggests that female students tend to engage more deeply with philosophical and existential questions. Regarding Overall Multiple Intelligence, female students scored significantly higher than male students ($t = 2.31, p < .05$). Therefore, the null hypothesis stating that there is no significant gender differences in the

overall multiple intelligence of higher secondary school students is rejected.

Table 3: Differences in Multiple Intelligence and its Dimensions Among Higher Secondary Students Based on Locality

Dimensions	Urban (N = 196) Mean	SD	Rural (N = 125) Mean	SD	t - value	Remarks at 5% Level
Verbal/Linguistic Intelligence	22.42	2.81	21.05	2.88	2.35	S
Logical/Mathematical Intelligence	22.76	3.41	22.38	3.36	0.91	NS
Visual/Spatial Intelligence	22.11	3.18	21.14	3.42	2.08	S
Bodily-Kinesthetic Intelligence	23.54	3.07	22.74	3.18	2.04	S
Musical/Rhythmic Intelligence	20.63	4.15	20.18	4.51	0.86	NS
Interpersonal Intelligence	22.31	3.42	21.86	3.55	1.02	NS
Intrapersonal Intelligence	24.42	3.08	23.86	3.47	1.39	NS
Naturalistic Intelligence	23.71	3.18	22.96	3.69	1.99	S
Existentialistic Intelligence	24.38	3.14	23.76	3.61	1.42	NS
Overall Multiple Intelligence	208.28	18.76	200.93	19.54	2.27	S

The table 3, presents the comparison of multiple intelligence and its dimensions between urban and rural higher secondary school students using the independent samples t-test. The results indicate that urban students scored significantly higher than rural students in Verbal/Linguistic Intelligence ($t = 2.35, p < .05$). This finding suggests that urban students demonstrate comparatively stronger language and communication abilities. In Logical/Mathematical Intelligence, the mean scores of urban students and rural students did not differ significantly ($t = 0.91, p > .05$). Hence, locality does not appear to influence students' logical reasoning and mathematical abilities. A statistically significant difference was observed in Visual/Spatial Intelligence ($t = 2.08, p < .05$), with urban students obtaining higher mean scores than rural students. Likewise, Bodily-Kinesthetic Intelligence showed a significant difference ($t = 2.04, p < .05$), where urban students outperformed rural students. These findings indicate that urban students exhibit relatively stronger visual-spatial and physical coordination abilities. No significant differences were found between urban and rural students in Musical/Rhythmic Intelligence ($t = 0.86, p > .05$), Interpersonal Intelligence ($t = 1.02, p > .05$), Intrapersonal Intelligence ($t = 1.39, p > .05$) and Existentialistic Intelligence ($t = 1.42, p > .05$). This suggests that students from both localities possess similar levels of intelligence in these dimensions. The analysis also revealed a significant difference in Naturalistic Intelligence ($t = 1.99, p < .05$). Urban students scored significantly higher than rural students indicating better awareness and understanding of the natural environment among urban students in the present sample. Regarding Overall Multiple Intelligence, a statistically significant difference was found between urban and rural students ($t = 2.27, p < .05$). Urban students obtained a higher overall mean score than rural students. Therefore, the null hypothesis stating that there is no significant difference in overall multiple intelligence based on locality is rejected.

RESULTS OF THE STUDY

The findings reveal that the majority of higher secondary students possess a moderate level of multiple intelligence and the results indicate significant gender differences in Verbal/Linguistic, Logical/Mathematical, Interpersonal, Existentialistic and Overall Multiple Intelligence. Female students demonstrated higher levels of verbal, interpersonal, existentialistic and overall multiple intelligence, whereas male students performed better in logical/mathematical intelligence. No significant gender differences were found in visual/spatial, bodily-kinesthetic, musical/rhythmic, intrapersonal and naturalistic intelligence. These results suggest that gender influences certain dimensions of multiple intelligence while other dimensions remain comparable across male and female higher secondary school students.

The results reveal that urban higher secondary school students scored

significantly higher than rural students in Verbal/Linguistic, Visual/Spatial, Bodily-Kinesthetic, Naturalistic, and Overall Multiple Intelligence. However, no significant differences were observed in Logical/Mathematical, Musical/Rhythmic, Interpersonal, Intrapersonal and Existentialistic Intelligence. These results suggest that locality is associated with differences in selected dimensions of multiple intelligence, while several other intelligence domains remain comparable across urban and rural students.

Educational Implications

The findings of the study have several important implications for educational practice. The majority of higher secondary students possess a moderate level of multiple intelligence and the observed gender differences in specific dimensions of multiple intelligence indicate the need for teachers to recognize and appreciate the diverse intelligence profiles of male and female students. Since female students demonstrated higher levels of verbal/linguistic, interpersonal, existentialistic and overall multiple intelligence, teachers may provide more opportunities for discussions, collaborative learning, communication-based activities and reflective tasks that strengthen these abilities. Similarly, the higher performance of male students in logical/mathematical intelligence suggests the importance of encouraging analytical thinking, problem-solving activities and mathematical reasoning among all learners without gender-based assumptions. Teachers should adopt differentiated instructional strategies that address individual strengths rather than relying on traditional uniform teaching methods.

The locality-based differences in multiple intelligence highlight the importance of providing equal learning opportunities for students from both urban and rural backgrounds. Since urban students showed higher levels in verbal/linguistic, visual/spatial, bodily-kinesthetic, naturalistic and overall multiple intelligence, schools in rural areas may focus on enriching learning environments through activity-based teaching, technology-supported learning, creative exposure, and extracurricular programmes. At the same time, the comparable levels observed in several intelligence dimensions suggest that students from both localities possess diverse capabilities that can be developed through appropriate educational interventions. School administrators and curriculum planners should incorporate multiple intelligence-based approaches, such as project-based learning, arts and sports activities, environmental learning, peer interaction and self-reflection practices, to promote holistic development among higher secondary school students. The study emphasizes the need for learner-centered education that identifies nurtures and utilizes the unique intelligence strengths of every student.

CONCLUSION

The present study concludes that higher secondary school students possess varied levels of multiple intelligence, with the majority demonstrating a moderate level of intelligence across different domains. The findings reveal that gender and locality significantly influence certain dimensions of multiple intelligence, while several other dimensions remain unaffected. Female students showed higher levels of verbal/linguistic, interpersonal, existentialistic and overall multiple intelligence, whereas male students demonstrated better logical/mathematical intelligence. Similarly, urban students exhibited higher levels of selected intelligence dimensions compared to rural students. These findings highlight the importance of recognizing individual differences and implementing multiple intelligence-based teaching strategies to provide diverse learning opportunities. By identifying and nurturing students' unique abilities, educational institutions can promote holistic development, enhance learning outcomes and support the overall growth of higher secondary school students.

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