

## **Application of Multiple Intelligence Theory in the Teaching-Learning Process of Secondary Schools in Dhaka**

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### **Abstract**

The Multiple Intelligence Theory (MIT), which categorizes human intelligence in a multidimensional framework, is considered one of the most influential psychological theories in education. The purpose of this study was to explore the application of different intelligence categories in secondary classrooms in Dhaka, the capital of Bangladesh. Specifically, the study aimed to determine the extent to which different MI categories are employed in teaching-learning activities, and whether gender-based differences exist among teachers regarding the use of MI categories. Using a quantitative observational design, systematic classroom observations were conducted in 20 secondary-level classrooms across 10 schools in Dhaka city. An observation checklist structured into 30-second intervals was used to record time spent on activities within each of the eight MI domains. Statistical analysis of percentage-based data revealed a predominance of traditional teaching-learning activities, primarily addressing verbal-linguistic and visual-spatial intelligences, indicating poor integration of MI categories in the secondary classroom context. Furthermore, noteworthy gender differences were observed in the preference for MI-associated teaching-learning activities between male and female teachers. The study concludes by recommending targeted teacher training programs and curriculum reforms to promote the integration of MI-based approaches in secondary education. Additionally, the study suggests further research to better understand the local educational context and to guide reform initiatives.

**Keywords:** multiple intelligence theory, intelligence, teaching-learning strategies, secondary education

## Introduction

Howard Gardner proposed the theory of Multiple Intelligence in his 1983 book *Frames of Mind*. He classified human intelligence into seven different categories: Interpersonal (appreciates group work), Intrapersonal (prefers working alone), Kinesthetic (needs movement), Verbal-Linguistic (understanding through speaking), Logical-Mathematical (uses numbers), Musical (learns through rhythm and music), and Spatial (visual understanding) (Concept to Classroom, 2004). Gardner (1999) later added naturalistic intelligence to the theory in his book *Intelligence Reframed*.

“Multiple Intelligence Theory holds that each person possesses eight intelligences, and uses them to carry out several kinds of tasks” (Great Performances, 2002; Shearer, 2004; Gardner, 2006, as cited in Heming, 2008). Dipu (2012) stated that, based on an individual’s level of strength in different intelligence areas, a profile of intelligences is composed that reflects the individual’s learning needs and styles, ways of responding to different tasks and situations, and the pace and possibilities for progressing in different domains.

## Multiple Intelligence Theory in Education

Over the last two decades, Multiple Intelligence Theory has entered education and become a modern learning theory. While receiving positive attention in classrooms, MIT presented a new perspective on intelligence and learning. Knowledge of each student’s unique intelligence profile is considered imperative for both teachers and students.

MI-based teaching-learning holds the premise that identical learning styles, methods, contents, materials, and assessment systems cannot meet the requirements of every individual. According to Darling-Hammond (2010), incorporating MIT into classrooms can be highly beneficial for ensuring effective and quality education because it can increase students’ confidence and provide multiple ways for them to demonstrate their knowledge and skills, while also furnishing teachers with a comprehensive understanding of student ability.

The MIT implementation suggests identifying students’ individual learning needs and designing classroom activities and lesson plans that engage their learning styles. Several studies (Abdulkarim, 2012; Ahmadian, 2012; Alivinia, 2012; Dailek, 2009, as cited in Mohamad & Salleh, 2017) have shown that students in MI-implemented classrooms are academically more successful than those in traditional classrooms. This claim was also supported by Yalmanci (2013), who demonstrated that using multiple-intelligence-associated strategies enhances academic achievement.

In traditional teacher-centric instruction, verbal and mathematical approaches are the most common practices. Dipu (2012) noted that language and mathematical tests can lead some students to be categorized as average or poor despite proficiency in other domains. According to CAMPE (2006), one-quarter of children who are not attending school do not understand the lessons — a consequence of content that fails to address all categories of intelligence. MIT can guide teachers and education planners to make teaching and learning more strategic and effective for everyone.

### Teaching Strategies Based on MIT

Throughout the years, many researchers have investigated teaching styles used in classrooms. Stensrud and Stensrud (1983) found that among visual, auditory, and kinesthetic teaching styles, 84.2% of teachers preferred the visual style, while 80% identified kinesthetic as their least preferred approach. Studies by Hativa and Birenbaum (2000), Carpenter (2006), and Ismail (2014) found that the lecture method was the most preferred teaching method.

Gunst (2004) stated that teachers' preferences for teaching strategies are often aligned with the intelligence domain in which they excel, and recommended that teachers move beyond their strongest intelligence to adopt a variety of classroom approaches. These findings are supported by Ghamrawi (2014), who identified an important relationship between teachers' teaching styles and their personal MI profiles (as cited in Dolati & Tahriri, 2017).

A number of studies concerning MIT and its impact on learning and achievement have been conducted in the last decade. Asci (2003) and Koksal and Yel (2007) found that MI-based teaching has a greater impact on student achievement. Goodnough (2001) documented that MI-based approaches enhanced student participation and, according to student reports, made classes more enjoyable. In an experimental study on Grade 6 students at Ankara College Primary School, Akbas (2004) revealed that MI-based instruction was more effective than traditional teaching. Kornhaber's (2004) 3.5-year study identified positive associations between MIT use and standardized test scores, student behavior, and learning improvements, including for students with learning disabilities.

Various examples of teaching and learning strategies can be generated and linked to specific MI domains. Table 1 presents the different areas of multiple intelligences, along with their characteristics, preferences, and recommended instructional strategies.

**Table 1**

*Different Areas of Multiple Intelligences and Characteristics*

Intelligence Area	Strengths	Preferences	Learns Best Through	Needs
Verbal/ Linguistic	Writing, reading, memorizing, storytelling	Reading, writing, talking, solving puzzles	Hearing and seeing words, speaking, reading, and discussing	Books, paper, diaries, dialogue, discussion, stories
Mathematical/ Logical	Math, logic, problem-solving, reasoning, patterns	Working with numbers, experimenting, and solving problems	Working with patterns, classifying, and categorizing	Science materials, manipulatives, and trips to science museums

Intelligence Area	Strengths	Preferences	Learns Best Through	Needs
Visual/Spatial	Maps, charts, drawings, puzzles, and visualization	Drawing, building, designing, daydreaming	Working with pictures and colors, visualizing, and drawing	Videos, art, imagination games, and illustrated books
Bodily/ Kinesthetic	Athletics, dancing, crafts, acting	Moving around, touching, and body language	Touching, moving, processing through bodily sensations	Role-play, drama, movement, sports, hands-on learning
Musical	Picking up sounds, melodies, rhythms, singing	Singing, playing instruments, listening to music	Rhythm, melody, music	Sing-along time, concerts, musical instruments
Interpersonal	Leading, communicating, and resolving conflicts	Talking to people, joining groups, making friends	Comparing, relating, sharing, cooperating	Group games, social gatherings, and mentors
Intrapersonal	Recognizing strengths and weaknesses, setting goals	Working alone, reflecting, pursuing interests	Working alone, having space, and self-paced projects	Private spaces, self-paced projects, personal choices
Naturalistic	Understanding nature, identifying flora and fauna	Being involved with nature, making distinctions	Working in nature, exploring living things	Real-life connections, patterns, and science issues

*Note.* Reprinted from “On the relationship between multiple intelligences and language proficiency” by Razmjoo (2008), *The Reading Matrix*, 8(2), 155–173.

Thompson and MacDougall (2002) noted that teachers turned to the MI approach out of a desire to reach the diversity of students’ individual differences. Sulaiman et al. (2011) found that primary teachers preferred naturalistic approaches involving the outdoor environment, whereas secondary teachers preferred classroom-based learning activities. This is consistent with Serin et al. (2009), who found that primary teachers tend to adopt naturalistic approaches while secondary teachers mostly favor interpersonal activities such as discussion, group work, and student interaction. Serin et al. (2009) also stated that visual-spatial, naturalistic, and interpersonal intelligence play predictive roles in teachers’ instructional strategies. Sulaiman et al. (2011) further indicated that secondary teachers emphasize discussion and group activities associated with interpersonal intelligence. In contrast, Ucak et al. (2006) suggested that teachers primarily use traditional approaches involving verbal-linguistic and logical-mathematical intelligence.

Luo and Huang (2018) found that English teachers frequently or usually employ linguistic, interpersonal, and intrapersonal intelligence in their teaching-learning activities, while musical, logical-mathematical, spatial, and bodily-kinesthetic intelligences are sometimes incorporated. Naturalistic intelligence was rarely observed. Similarly, Bolinger and Warren (2007), in their study of Bangladesh and Global Studies (BGS), reported that both primary and secondary teachers predominantly selected the lecture method (verbal-linguistic intelligence), while role-playing and debate — linked to bodily-kinesthetic intelligence — were the least preferred approaches.

### **MI Preferences Between Male and Female Teachers**

Several researchers have explored the relationship between multiple intelligences and gender. Cano et al. (1992) found significant differences in teaching style preferences between male and female teachers (as cited in Asore, 2015). Asore (2015) attributed these differences to gender-role socialization, which shapes the teaching styles of teacher educators. Ilin (2003), citing Mishutin (1992), found that male teachers use the lecture method (verbal-linguistic intelligence) more frequently than female teachers (66.3% vs. 62%), while female teachers lead in one-on-one interpersonal communication with students (38.0% vs. 33.7%). Loori (2005) reported significant differences between males and females in MI preferences: males preferred activities involving logical-mathematical intelligence, whereas females preferred activities involving intrapersonal intelligence. However, Agarwal and Suraksha (2017) reported no significant relationship between gender and MI preferences.

### **Practice of Multiple Intelligence Theory in the Education System of Bangladesh**

MIT practice in education is not entirely new in Bangladesh, as UNICEF attempted to implement it in primary education through the Multiple Ways of Teaching and Learning (MWTL) project, which ran from 1996 to 2000. Since then, plentiful research on this theory's application in education — particularly in secondary schooling — has remained scarce. It is apparent that students' individual differences and potentials grounded in MI factors have continued to be underestimated.

MIT has not yet been officially introduced at the secondary level in Bangladesh. However, it is plausible that teachers engage in MI-associated teaching and learning activities even without formal awareness of the theoretical framework. The researcher aimed to identify which of the eight intelligences are most and least frequently employed in secondary-level classrooms in Dhaka city.

### **Research Gaps**

Although MIT and its educational applications have been widely studied internationally, there is a critical scarcity of empirical research in the Bangladeshi context, particularly since the discontinuation of the UNICEF-backed MWTL project (CAMPE, 2006). The

handful of Bangladeshi studies on MIT and its educational application have mostly focused on primary education or policy-level discussion, leaving secondary education largely undocumented.

There is also insufficient evidence on the naturalistic usage of MIT in classrooms, as most MIT research has employed experimental designs focused on academic achievement outcomes (Akbas, 2004; Kornhaber, 2004; Yalmanci, 2013). While these studies confirm the effectiveness of MI-based instruction, they do not provide insight into how teachers naturally apply MI strategies in real classroom settings.

Furthermore, MIT research has yielded contradictory conclusions regarding gender-based MI preferences. Studies such as those by Loori (2005) and Ilin (2003) identified significant gender-based variation, while Agarwal and Suraksha (2017) reported no significant relationship. Evidence specifically examining gender-based usages for MI instruction in the Bangladeshi context remains absent.

The present study sought to document the current scenario of MIT in secondary-level schools in Dhaka city. The findings will assist education planners and teachers in understanding existing MI applications in secondary classrooms, and will provide evidence regarding gender-based differences in MI category usage. This study aims to contribute toward the eventual incorporation of MIT into secondary-level classrooms in Bangladesh.

### **Research Objectives**

The general objective of this study is to determine the existing practice of Multiple Intelligence Theory in the teaching-learning process of secondary-level school classrooms in Dhaka city.

The specific objectives are:

1. To determine the extent of using different categories of intelligence in the teaching-learning process of secondary-level school classrooms in Dhaka city.
2. To determine gender-based differences in teachers' use of MI Theory categories in secondary-level classrooms.

### **Method**

The purpose of this study was to investigate the practice of teaching-learning strategies based on Multiple Intelligence Theory in secondary-level schools in Dhaka City, Bangladesh. A quantitative methodology was employed to address the research objectives.

### **Participants**

The study was conducted in 20 secondary-level classrooms across 10 schools located in Dhaka city. The observed classes included English and Bangladesh and Global Studies (BGS) lessons in Grades 7, 8, and 9. In total, 20 teachers (both male and female) participated in the study by having their classroom instruction observed. Schools were selected through convenience sampling, as access to many institutions was limited owing to administrative approval requirements and practical constraints. Schools that granted permission and

were accessible to the researcher were included. To enhance contextual coverage, both government and private schools were selected from the Dhaka North and Dhaka South City Corporation areas. Although the sampling approach does not allow for statistical generalization, it enabled the collection of data from diverse institutional settings within the urban secondary education context. The distribution of sampled schools is presented in Table 2.

**Table 2**  
*Distribution of the Sample*

School Type	Dhaka North City Corporation	Dhaka South City Corporation
Government Institutions	3	3
Private Institutions	2	2

### Measures

An observation checklist was developed by the researcher to document classroom practices related to the eight domains of Multiple Intelligence Theory. The checklist was structured into consecutive 30-second time intervals covering the full duration of a one-hour class period, with corresponding indicators for each intelligence domain. This design enabled the recording of the relative time spent on teaching-learning activities for each MI category during classroom instruction. The instrument thus provided a frequency count for each intelligence domain, which was subsequently converted to time (in minutes) and to percentage scores for comparative analysis.

### Procedure

Using the observation checklist, classroom observations were conducted in 20 secondary-level classrooms across the 10 selected schools in Dhaka city. Each classroom was observed once for a complete instructional period of 1 hour to capture routine teaching practices without interruption. All observations were conducted non-participant to ensure that normal classroom activities were not disrupted. Prior permission was obtained from school authorities, and teachers were informed about the purpose of the observation. No identifying information about teachers or students was recorded, and confidentiality was maintained throughout the data collection process.

The collected data were subjected to statistical analysis. The analysis generated percentage-based representations of prevailing instructional practices and enabled comparisons across teacher gender. Overall, the statistical procedures facilitated a comprehensive understanding of the patterns of MI-related instructional practices observed across the sampled classrooms.

## Results

Data analysis examined multiple dimensions of MI-based teaching and learning practices in the sampled classrooms. The findings are representative of the overall situation and are discussed in detail below.

### MIT-Based Teaching-Learning Strategies in Secondary Classrooms

To collect data, systematic observations were conducted in one literature-based subject (English) and one social science-based subject (Bangladesh and Global Studies). Differentiated results are presented below.

#### *Teaching-Learning Strategies Based on MIT Used in Literature (English) Classes*

The calculated average usage times for MIT-based teaching-learning strategies in English classes clearly indicated that verbal-linguistic intelligence, in the form of lecture-based instruction, was the most frequently observed intelligence, with an average of 29.6 minutes. Intrapersonal intelligence was the second most used, averaging 6.33 minutes through group discussion activities. Spatial intelligence ranked third at 3.13 minutes (using picture-based materials), and interpersonal intelligence ranked fourth at 1.2 minutes (through individual task assignments). The least observed intelligence was bodily-kinesthetic, averaging only 0.8 minutes. No observable use of logical-mathematical, musical, or naturalistic intelligence was detected in English classrooms. These findings are presented in Table 3.

**Table 3**

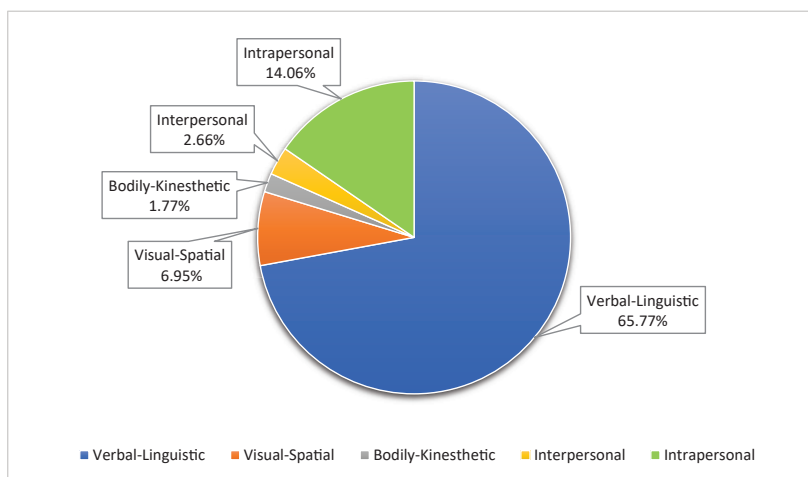
*Average Time (in Minutes) of Different Intelligence Categories Used in English Classes*

Intelligence Area	Teaching Strategy Used	Average Usage Time (minutes)
Verbal-Linguistic	Lecture	29.6
Logical-Mathematical	—	—
Visual-Spatial	Displaying illustrated materials	3.13
Bodily-Kinesthetic	Role-playing	0.8
Musical	—	—
Interpersonal	Group activity	1.2
Intrapersonal	Individual task	6.33
Naturalistic	—	—

Average usage times were converted to percentages (Figure 1). Verbal-linguistic intelligence accounted for 65.77% of class time. Intrapersonal intelligence accounted for 14.06% of the instructional time, followed by visual-spatial at 6.95%, interpersonal at 2.66%, and bodily-kinesthetic at 1.77%. No observations were made for logical-mathematical, musical, or naturalistic intelligences.

**Figure 1**

*The Percentage Distribution of MIT-based Teaching and Learning Strategies Observed in English Classes*



### Teaching-Learning Strategies Based on MIT Used in Social Science (BGS) Classes

Following the same procedure, the average time durations for the different MI categories in BGS classrooms were calculated. Results showed a pattern similar to that observed in English classes. The lecture method was the most used form of verbal-linguistic intelligence, averaging 30.43 minutes. Intrapersonal intelligence was the second most used at 7.2 minutes, primarily in the form of individual tasks. Spatial intelligence averaged 3.06 minutes using maps. Naturalistic intelligence was the least observed at 1.2 minutes, incorporated as nature-based examples supplementing other content. Logical-mathematical, musical, and interpersonal intelligences were not detected in BGS classrooms. These findings are presented in Table 4.

**Table 4**

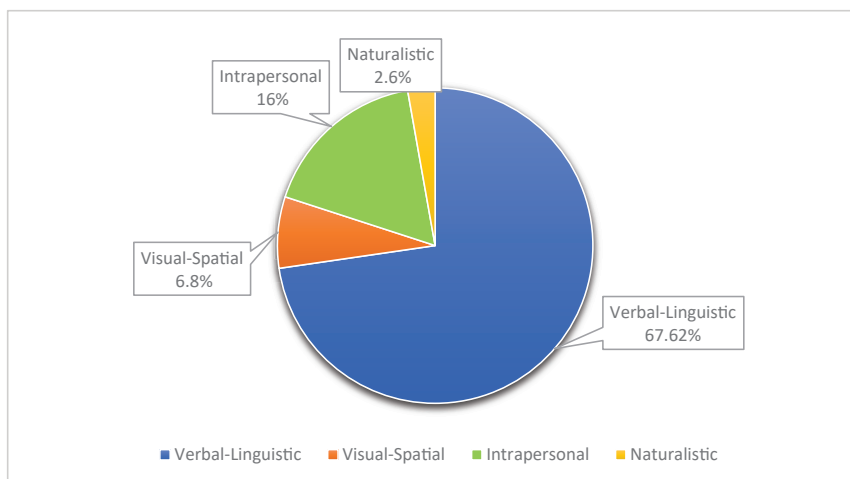
*Average Time (in Minutes) of Different Intelligence Categories Used in Social Science Classes*

Intelligence Area	Teaching Strategy Used	Average Usage Time (minutes)
Verbal-Linguistic	Lecture	30.43
Logical-Mathematical	—	—
Visual-Spatial	Displaying maps	3.06
Bodily-Kinesthetic	—	—
Musical	—	—
Interpersonal	—	—
Intrapersonal	Individual task	7.2
Naturalistic	Nature-based examples	1.2

Percentage calculations (Figure 2) showed that verbal-linguistic intelligence was used 67.62% of class time, confirming it as the most prevalent MI category. Intrapersonal intelligence accounted for 16.00%, visual-spatial for 6.80%, and naturalistic intelligence for 2.60% of instructional time.

**Figure 2**

*The Percentage Distribution of MI Category Usage in Social Science Classes*



### **Gender-Based Preferences for MIT-Associated Teaching-Learning Strategies**

Data from the observation checklists were separated and arranged by teacher gender for analysis. Both male and female teachers predominantly used lecture-based instruction, with female teachers spending slightly more time on it than their male counterparts. In a

standard class period, male teachers used verbal-linguistic intelligence for an average of 29.72 minutes, while female teachers averaged 31.08 minutes. Intrapersonal intelligence, in the form of group activities and social role-play, was the second most frequently used domain for both groups: male teachers averaged 6.33 minutes, and female teachers, 7.41 minutes.

Male teachers used visual-spatial intelligence for an average of 3.4 minutes — employing colorful maps and visual materials — while female teachers averaged 2.58 minutes, primarily using hand-drawn content. Bodily-kinesthetic intelligence was used only by male teachers, averaging 0.66 minutes in activities requiring physical engagement. Interpersonal intelligence was also used exclusively by male teachers, averaging 1.0 minutes during peer-group classroom discussions. Naturalistic intelligence was used only by female teachers, averaging 1.5 minutes through nature-based examples connected to lesson content. The full comparative data are presented in Table 5.

**Table 5**

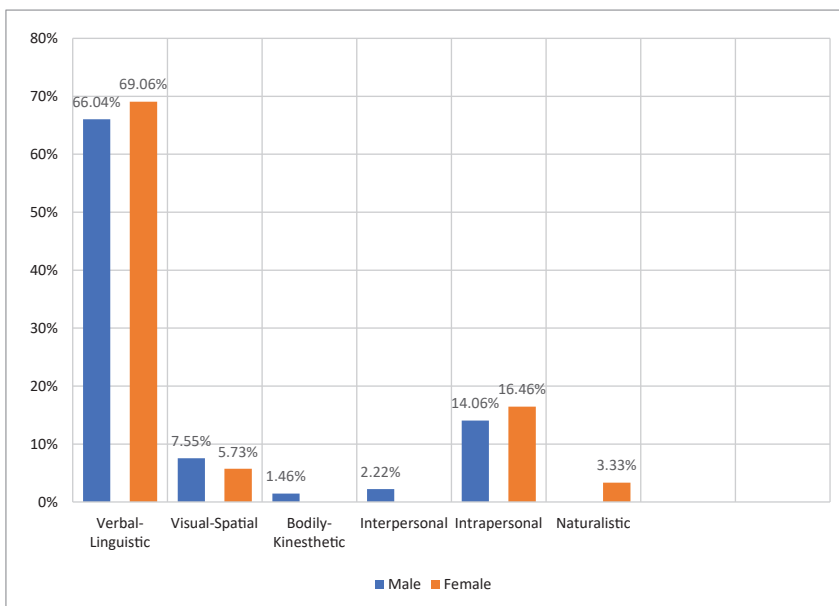
*Average Usage Time (in Minutes) of Different Intelligence Categories by Male and Female Teachers*

Intelligence Area	Male Teachers (minutes)	Female Teachers (minutes)
Verbal-Linguistic	29.72	31.08
Logical-Mathematical	—	—
Visual-Spatial	3.40	2.58
Bodily-Kinesthetic	0.66	—
Musical	—	—
Interpersonal	1.0	—
Intrapersonal	6.33	7.41
Naturalistic	—	1.5

Percentage calculations (Figure 3) showed that verbal-linguistic intelligence accounted for 66.04% of male teachers' and 69.06% of female teachers' instructional time. Visual-spatial intelligence accounted for 7.55% of male teachers' and 5.73% of female teachers' class time. Bodily-kinesthetic intelligence was observed only in male teachers' classrooms (1.46%), as was interpersonal intelligence (2.22%). Intrapersonal intelligence was the second most frequently observed for both groups: 14.06% for male teachers and 16.46% for female teachers. Naturalistic intelligence was observed solely in female teachers' classrooms, accounting for 3.33% of instructional time.

**Figure 3**

*A Comparison of MI Category Usage by Male and Female Teachers*



## Discussion

The study yielded several findings regarding the usage of MIT-based teaching strategies in secondary level schools of Dhaka city. The findings clearly demonstrate the limited and uneven application of MIT in the teaching-learning process in secondary classrooms, and also provide evidence of gender-based differences in MI category usage.

### Unequal and Inadequate Use of Different MI Categories

The usage of different MI categories in the observed classrooms was typically unequal. One or two intelligences dominated class time, while the remaining categories remained marginal. Verbal-linguistic intelligence was overwhelmingly predominant, while bodily-kinesthetic and naturalistic intelligences were rarely observed, and musical intelligence was entirely absent. Textbooks were the most frequently used instructional material, providing a basis for verbal instruction and for developing listening and speaking skills. This aligns with Begum's (2017) findings, which showed that most teachers (76.67%) placed greater importance on textbooks as a teaching aid. The predominance of lecture-based teaching also supports Maleq's (2002) finding that 100% of observed teachers used the lecture method. The integration of diverse MI categories to address students' varied learning needs was largely absent, resulting in teaching-learning activities that fail to meet every student's individual requirements.

### **Adherence to Traditional Teaching Strategies**

Kabir (2014) noted that classrooms in Bangladesh predominantly feature traditional methods involving reading and writing skills associated with verbal-linguistic intelligence. This finding is consistent with Maleq (2002). The present study similarly showed that teachers demonstrated a strong tendency to rely on traditional lecture-based activities rather than adapting to students' individual needs and learning styles. Strategies such as discussion, audio-visual materials, and experiential activities were infrequently employed, thereby depriving students who possess strengths in other intelligence domains of appropriate learning opportunities.

### **Gender-Based Differences in MI Category Usage**

The research findings reveal noteworthy differences between male and female teachers in terms of MI category usage. While verbal-linguistic intelligence remained dominant in both groups, and slight similarities were observed in visual-spatial and intrapersonal intelligence use, significant differences were found in other categories, consistent with the findings of Cano et al. (1992, as cited in Asore, 2015). Bodily-kinesthetic and interpersonal intelligences were observed exclusively in male teachers' classrooms, while naturalistic intelligence was observed solely among female teachers.

### **Implications of Limited MI Integration for Student Learning**

The limited and uneven integration of MI-based instructional strategies has substantial implications for student engagement and classroom effectiveness. Gardner (1983, 1999) emphasized that learners possess diverse intellectual strengths, and effective instruction should provide varied learning opportunities to address these differences. When classroom practices predominantly emphasize verbal-linguistic intelligence, students whose strengths lie in other domains — such as bodily-kinesthetic, visual-spatial, interpersonal, or naturalistic intelligence — are less likely to remain cognitively and emotionally engaged. Research indicates that such instructional mismatch may result in decreased motivation, lower participation, and reduced academic confidence among learners (Armstrong, 2009).

Furthermore, the dominance of traditional lecture-based instruction may create passive learning environments that restrict students' active involvement. Prince (2004) argued that active learning strategies significantly enhance student understanding, retention, and problem-solving abilities. Similarly, Tomlinson (2014) highlighted that undifferentiated instruction fails to accommodate learners' varied readiness levels, interests, and learning profiles. The absence of MI-oriented activities also reduces opportunities for experiential and collaborative learning, both of which are essential for developing higher-order thinking skills and meaningful knowledge construction. Purposeful incorporation of diverse MI-aligned activities has the potential to foster greater student engagement, promote equitable participation, and enhance classroom effectiveness.

### **Recommendations and Conclusion**

In light of the findings of the present study, several concrete, actionable measures are recommended to strengthen MIT's integration into secondary school classrooms. Priority should be given to comprehensive teacher training and professional development programs focused specifically on MI-based instructional planning and classroom implementation. These programs should equip teachers with practical skills to design lessons incorporating varied activities that address multiple intelligence domains, including visual, kinesthetic, interpersonal, and intrapersonal learning. Curriculum frameworks at the secondary level may also be reviewed and redesigned to reduce reliance on textbook-centered instruction and encourage greater flexibility in teaching approaches. Instructional materials and assessment practices should be aligned with MI principles to allow students to demonstrate learning through diverse modes. At the policy level, educational authorities can play a vital role by allocating resources, providing instructional guidelines, and ensuring institutional support for MI-oriented teaching practices. School leadership may further contribute by fostering a supportive environment that encourages instructional innovation and reflective practice.

Regarding future research, further studies are needed to explore the effectiveness of MI-based instruction across different subject areas and grade levels within secondary education. Longitudinal research designs could be employed to examine how sustained implementation of MIT influences students' academic achievement, motivation, and engagement over time. Mixed-method approaches combining quantitative measures with qualitative data, such as classroom observations, teacher reflections, and student perceptions, would provide a more comprehensive understanding of the practical challenges and benefits of MI integration. Future research may also investigate contextual factors — including teacher beliefs, institutional constraints, and resource availability — that affect the successful application of MIT. Such studies would provide policymakers, educators, and researchers with valuable insights to enhance inclusive and effective teaching and learning practices in secondary education.

### **Compliance with Ethical Standards**

Ethical Statement: The research was performed in accordance with relevant guidelines. The General Data Protection Regulation (GDPR) was followed to protect the data.

### **Informed Consent**

Informed consent was obtained from all individual participants involved in the study.

### **Financial Statement**

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### Data Availability Statement

The data presented in this study are kept confidential due to privacy restrictions and are available on request from the corresponding author.

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