

Implementing a Multiple Intelligence - Differentiated Instruction Model for Teaching Reading to Pre-Primary Students in the English as a Second Language Classroom in Sri Lanka

Dinithi Lorensuhewa^{1*}

¹*Department of Industrial Management, University of Kelaniya, 11600, Sri Lanka*

Corresponding author* : dlorensuhewa88@gmail.com

Abstract

This research addresses the growing interest in catering to diverse learning needs, focusing on integrating Multiple Intelligences (MI) theory and differentiated instruction (DI) in pre-primary bilingual ESL classrooms. The study aims to explore how the MI-DI model can enhance the development of reading skills among pre-primary ESL learners, offering insights into its benefits and limitations. The research problem is rooted in the lack of empirical studies on the combined MI-DI model's application and impact, particularly in pre-primary ESL reading development. The study's significance lies in its potential to create more inclusive and effective learning environments by catering to individual learning styles and intelligence. This research's methodology involves several phases: initial assessment, model development, and application, with data collected through quantitative and qualitative measures. The study includes thirty pre-primary ESL students at a nursery in the Galle district known for its English-focused nursery education. Quantitative data were subjected to statistical analysis using SPSS, while qualitative data were thematically analyzed to capture the nuances of teachers' ideologies through transcriptions of teacher interviews by adhering to ethical considerations, ensuring comprehensive understanding of the MI-DI model's effectiveness in improving reading skills. The findings can be used to contribute to enhancing language education practices in bilingual settings, empowering both teachers and learners in the process. Furthermore, the study guides teachers by providing a universal strategy applicable to any ESL classroom. This strategy supports the diverse needs of learners by identifying different intelligences and framing them as assets rather than hindrances, thereby fostering more inclusive and effective learning environments.

Keywords: Differentiated Instruction; Multiple Intelligence Theory; Reading Skills; Strategy; Teacher

Introduction

In today's increasingly diverse classrooms, teachers are challenged to face the challenge of catering to students' varying learning styles, backgrounds, and abilities, particularly in English as a Second Language (ESL) contexts. Traditional teacher-centered methods, often reliant on uniform instruction, have been criticized for neglecting learner diversity and limiting student engagement (Dryden & Vos, 2005; Rodriguez, 2012). To address this, Howard Gardner's Multiple Intelligences (MI) theory (1975)

and Tomlinson's Differentiated Instruction (DI) framework (2001, 2006) have been widely applied to create more inclusive and responsive pedagogy. These approaches acknowledge that learners possess distinct strengths and require varied instructional strategies. However, research has typically examined MI and DI separately, with a strong focus on teachers' perspectives (Hettiarachchi & Das, 2012; Hettiarachchi & Ranaweera, 2013), leaving a gap in understanding how the integration of MI and DI can enhance specific skills, particularly reading, among young ESL learners.

The academic importance of this study lies in addressing this gap by combining MI and DI into a unified pedagogical model (MI-DI) for teaching reading. While studies highlight the effectiveness of scaffolded and differentiated strategies in ESL reading instruction (McBride, 2004; Tomlinson, 2006), there has been limited empirical focus on pre-primary learners' experiences in bilingual contexts such as Sri Lanka. Practically, this research holds promise for improving inclusivity, engagement, and learning outcomes in early language classrooms, where reading serves as a foundation for long-term educational success.

Accordingly, this study aims to: (1) identify and assess students' dominant intelligences; (2) apply a differentiated instruction approach focused on their dominant intelligences through the MI-DI model, which combines the Multiple Intelligences theory with the differentiated instruction approach for reading instruction; and (3) evaluate the model's impact on learners' reading skills and overall classroom engagement. To achieve these aims, the study seeks to answer the following research questions:

- What is the dominant intelligence among pre-primary ESL learners?
- How does the MI-DI model enhance the reading skills of pre-primary ESL learners?
- What are the benefits and challenges of applying the MI-DI model in a real classroom context?

Materials and Methods

This study employed an exploratory sequential mixed methods action research design to explore how the MI-DI model can enhance the reading skills of pre-primary ESL learners. The approach was chosen because it allowed the researcher to implement and evaluate instructional strategies in the natural classroom setting while collecting both quantitative and qualitative data. The quantitative component measured learners' reading progress through diagnostic assessments, while the qualitative component captured insights from teachers and parents regarding classroom practices and learners' engagement.

The study involved 30 pre-primary learners (ages 4-5) from a private preschool in Galle, Sri Lanka. The participants represented mixed language backgrounds, with English as a second language, and were at an early stage of literacy development. In addition, two pre-primary teachers participated in the study as adult interviewees. Informed consent was obtained from all participants, and approval for conducting the study during school hours was granted by the school administration, ensuring compliance with ethical standards.

Data were collected using multiple instruments to capture both quantitative and qualitative dimensions:

Diagnostic Reading Assessments

These were designed specifically for this study and aligned with pre-primary literacy benchmarks. They measured learners' initial reading abilities and progress post-intervention. The assessments included letter-sound recognition, word identification, and picture-word matching to evaluate early decoding and comprehension skills.

MI Profiling Activities

A two-step process was used to identify learners' dominant intelligences. In Phase 1, the two pre-primary teachers were provided with an Intelligence Ranking-Point System Chart containing the names of all 30 students. They evaluated each student's multiple intelligence areas by allocating points based on observed behaviors and skills. In Phase 2, the TIMI Multiple Intelligence Inventory (Teele, 1995), a standardized MI tool adapted for this context, was applied. The teachers' evaluations and the TIMI Inventory were compared to determine each child's dominant intelligence area and to ensure consistency between the two measures.

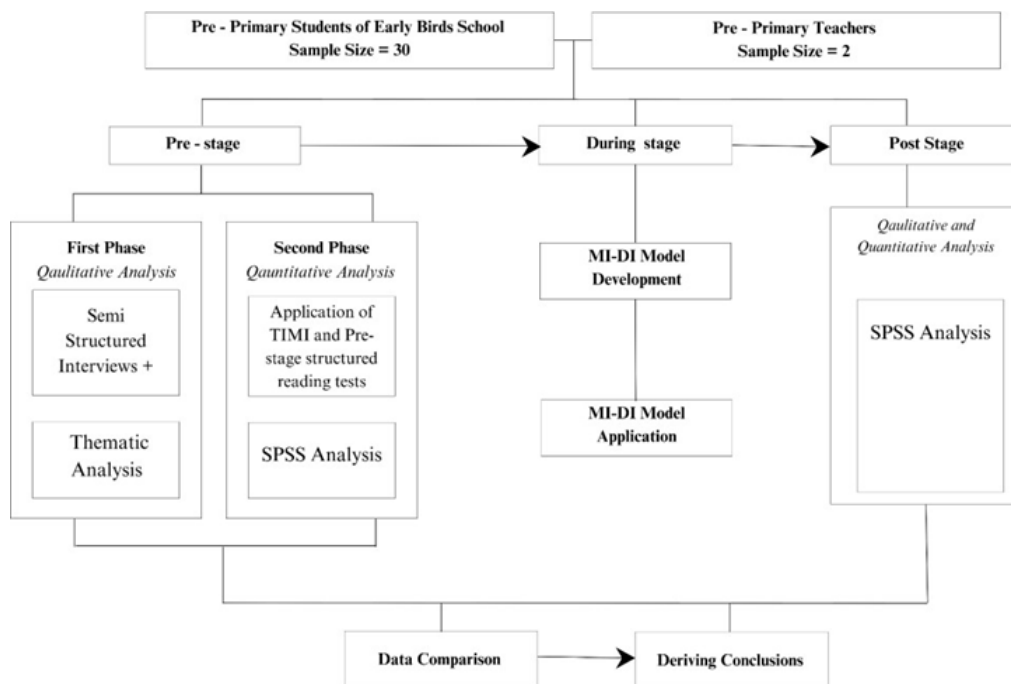
Classroom Observations & Field Notes

These documented learners' engagement, behaviors, and responses to MI-DI-based instruction during the intervention phase.

Semi-structured Interviews with Teachers

To complement the quantitative data and classroom observations, semi-structured interviews were conducted with the two pre-primary ESL teachers who participated in the study. These interviews were designed to explore the teachers' perspectives on implementing the MI-DI model, including their experiences of tailoring instruction, perceived benefits and challenges, and their views on how multiple intelligences could be addressed in early reading instruction. Open-ended questions allowed teachers to elaborate on issues such as the feasibility of differentiating tasks, classroom conditions, and the potential of the MI-DI framework to support reading development. Interview transcripts were later coded and thematically analysed alongside other qualitative data.

Figure 1: Exploratory sequential mixed method design in the present study: Author's Construct



Procedure

The intervention was conducted over six weeks and involved three stages:

- Pre-assessment - Learners' reading skills and dominant intelligence were assessed using the diagnostic reading assessments, the Intelligence Ranking-Point System Chart completed by the two pre-primary teachers, and the TIMI Multiple Intelligence Inventory. This established the baseline for measuring growth.

- Intervention - Differentiated reading activities were designed and delivered according to learners' MI profiles. For example, musical learners practiced phonics through songs, while visual learners engaged with picture-based storytelling. Classroom observations were recorded throughout the interventions, and the two teachers and parents provided supplementary insights via interviews.
- Post-assessment - Reading progress was evaluated using the same diagnostic tools applied in the pre-assessment, and results were compared to measure the impact of the MI-DI model on reading development and classroom engagement.

Data Analysis

Quantitative data from diagnostic reading assessments were analyzed descriptively using mean scores and comparisons between pre- and post-intervention performance. Qualitative data from classroom observations, field notes, and teacher interviews were thematically coded to identify patterns of improvement, engagement, and challenges in implementing the MI-DI model. Integration of both data types provided a comprehensive understanding of the model's effectiveness in enhancing reading skills.

Results

Semi-Structured Interviews with Teachers

The interviews with two pre-primary ESL teachers revealed consistent themes regarding using the MI-DI model. Both teachers emphasized the importance of supportive, engaging learning environments and tailoring instruction to students' needs. Teachers reported awareness of multiple intelligences but cited time constraints and workload as barriers to fully differentiating activities. They highlighted that even partial integration of MI elements boosted student engagement and confidence. Key challenges included difficulty catering to all intelligences simultaneously and limited time for planning and implementing differentiated tasks.

Overall, both teachers believed that the MI-DI framework had the potential to understand individual learner needs and cater to their needs, creating a more efficient and approachable learning environment.

Identification of Dominant Intelligences

Teachers completed an intelligence ranking-point chart, which was compared against each child's TIMI Multiple Intelligence Inventory (N=30). Results showed overlap between teacher evaluations and TIMI findings for several students, though not consistently.

Table 1. Example of teacher vs. TIMI assessment of dominant intelligences (excerpt).

Child	Teacher Dominant Intelligence	TIMI Dominant Intelligence	Match
A	Verbal/Linguistic	Verbal/Linguistic	✓
B	Interpersonal	Visual/Spatial	✗
D	Kinesthetic/Bodily	Kinesthetic/Bodily	✓

Overall, results indicated that while both methods provided valuable insights, complete agreement was limited. As Danaci (2022) notes, intelligence is shaped by hereditary, experiential, and environmental factors, complicating singular conclusions about each child's dominant intelligence.

Table 2. Distribution of dominant intelligence across the sample (N=30).

		V/S	V/L	K/B	M/R	I/S	L/M	P/I	Dominant Area	Percentage of Dominant Area.	Overall Dominant Area
Child A	Teacher	3	6	2	4	4	4	3	V/L	21.4	V/L
	TIMI	4	6	1	5	2	3	2	V/L	21.4	
Child B	Teacher	4	3	4	2	3	1	5	P/I	17.8	V/S
	TIMI	6	2	3	4	3	3	4	V/S	21.4	
Child C	Teacher	3	3	5	6	2	4	4	M/R	21.4	M/R
	TIMI	3	5	2	3	3	4	2	V/L	17.8	
Child D	Teacher	4	2	5	3	2	2	4	K/B	17.8	K/B
	TIMI	4	3	5	2	4	1	2	K/B	17.8	
Child E	Teacher	6	3	1	2	5	3	5	V/L	17.8	I/S
	TIMI	3	2	3	4	7	5	4	I/S	25	
Child F	Teacher	6	2	4	3	4	3	3	V/S	21.4	P/I
	TIMI	4	5	2	2	4	2	7	P/I	25	
Child G	Teacher	4	2	1	3	4	2	2	V/S - I/S	14.2	L/M
	TIMI	3	3	2	2	2	7	4	L/M	25	
Child H	Teacher	5	3	4	2	3	2	4	V/S	17.8	V/S
	TIMI	6	4	4	1	2	4	3	V/S	21.4	
Child I	Teacher	5	2	6	2	3	3	2	K/B	17.8	K/B
	TIMI	5	1	7	3	2	4	3	K/B	17.8	
Child J	Teacher	4	3	5	3	2	2	4	K/B	17.8	V/L
J	TIMI	4	6	4	2	1	1	2	V/L	21.4	
Child K	Teacher	3	2	3	3	7	4	5	I/S	17.8	I/S
K	TIMI	6	4	4	4	5	3	4	V/S	21.4	
Child L	Teacher	4	6	3	5	2	3	3	V/L	21.4	M/R
	TIMI	3	4	5	7	4	5	3	M/R	25	
Child M	Teacher	7	3	3	6	3	4	4	M/R	25	M/R
	TIMI	4	5	4	6	4	2	4	M/R	21.4	
Child N	Teacher	5	3	4	6	5	5	3	M/R	21.4	V/S
	TIMI	7	6	5	3	3	4	4	V/S	25	
Child O	Teacher	5	3	3	4	6	5	3	I/S	21.4	I/S
	TIMI	2	4	4	2	6	3	5	I/S	21.4	
Child P	Teacher	6	4	7	4	3	5	3	K/B	25	K/B

	TIMI	2	4	7	04	2	4	4	K/B	25	
Child Q	Teacher	6	5	3	2	1	3	5	V/S	21.4	P/I
	TIMI	5	4	2	2	3	2	7	P/I	25	
Child R	Teacher	4	3	4	6	5	3	3	M-R	21.4	M/R - I/S
	TIMI	3	5	5	5	6	4	4	I/S	21.4	
Child S	Teacher	4	6	2	3	4	4	5	V/L	21.4	V/L
	TIMI	4	5	3	4	3	4	4	V/L	17.8	
Child T	Teacher	5	4	3	4	3	4	2	V/S	17.8	L/M
	TIMI	6	5	3	5	2	7	4	L/M	21.4	

Child U	Teacher	3	3	3	2	4	6	3	L/M	21.4	L/M
	TIMI	2	2	5	1	1	4	2	K/B	17.8	
Child V	Teacher	3	3	5	4	3	4		K/B	17.8	V/S
	TIMI	6	5	3	2	3	3		V/S	21.4	
Child	Teacher	5	6	5	3	4	4		V/L	21.4	K/B

W	TIMI	4	3	7	3	3	2		K/B	25	
Child X	Teacher	5	6	5	4	3	2	2	V/L	21.4	V/L
	TIMI	5	4	5	3	2	4	3	V/S-K/B	17.8	
Child Y	Teacher	4	2	3	3	4	2	6	P/I	21.4	P/I
	TIMI	4	5	4	2	2	3	4	V/L	17.8	
Child Z	Teacher	5	3	3	6	3	2	3	M/R	21.4	M/R
	TIMI	3	2	4	5	4	3	2	M/R	17.8	
Child A2	Teacher	6	5	2	2	3	4	4	V/S	21.4	V/L
	TIMI	4	7	4	5	5	2	2	V/L	25	
Child B2	Teacher	4	4	3	2	5	6	2	L/M	21.4	L/M
	TIMI	5	4	4	3	4	6	3	L/M	21.4	
Child C2	Teacher	4	5	4	3	3	4	5	V/L-P/I	17.8	K/B
	TIMI	5	3	7	2	2	3	4	K/B	25	
Child D2	Teacher	4	3	2	4	5	3	4	I/S	17.8	V/S
	TIMI	6	4	3	2	3	4	5	V/S	21.4	

Pre-Test Reading Performance

A diagnostic reading test was administered before the MI-DI intervention. The average score was 56.37 (SD = 20.99). Most learners fell within Grade C, indicating below-average reading proficiency before the intervention

Post-Test Reading Performance

Following six weeks of MI-DI intervention, a post-test was administered. The average score rose to 61.93, indicating an overall improvement. The score distribution shifted slightly left (negatively skewed), showing that more students achieved higher scores compared to the pre-test.

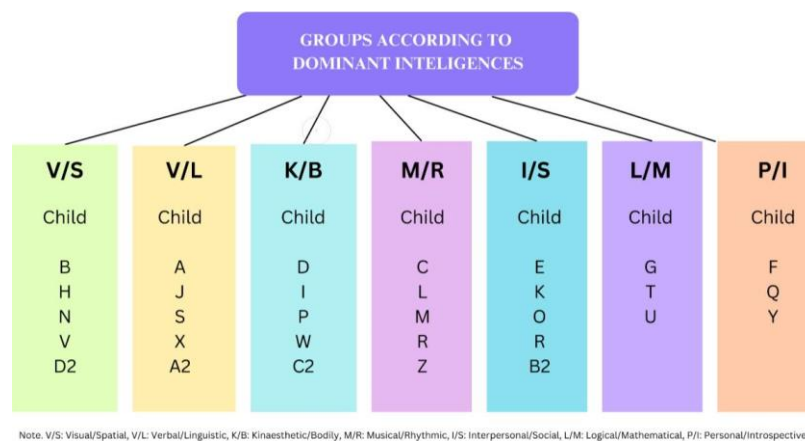
Group-Wise Analysis by Intelligence Type

Performance gains were further analyzed by MI group.

- Visual/Spatial: Mean increased from 42.40 → 50.20.
- Verbal/Linguistic: Mean increased from 58.80 → 66.20.
- Kinesthetic/Bodily: Mean increased from 67.00 → 72.40.
- Musical/Rhythmic: Mean increased from 50.00 → 53.00.
- Interpersonal: Mean increased from 67.00 → 71.25.
- Logical/Mathematical: Slight decrease from 62.00 → 61.67.
- Intrapersonal: Significant increase from 48.67 → 59.67.

Overall, six out of seven MI groups showed improvement, suggesting that the MI-DI model had a generally positive effect on reading development.

Figure 2: Categorization according to the Child’s activity preferences according to the teacher and TIMI scores, Source: Author’s Construct



Discussion

Dominant Intelligences in Pre-Primary ESL Students

The analysis of dominant intelligence among pre-primary ESL learners highlighted the diverse learning profiles in the classroom. Consistent with Gardner’s (1975) theory, students exhibited varying strengths across visual/spatial, verbal/linguistic, kinesthetic, musical/rhythmic, interpersonal/social, logical/mathematical, and personal/introspective domains. Understanding these dominant intelligences allowed educators to tailor instruction to students’ strengths, enhancing engagement and motivation. Identifying and developing dominant intelligence areas early is crucial, as it influences academic performance and overall learning outcomes (Batdi, 2017; Goodnough, 2001). In this study, leveraging teachers’ intuitive knowledge and point-system assessments proved effective for recognizing these diverse profiles.

Impact of the MI-DI Model on Reading Skills

The MI-DI model’s personalized approach led to measurable improvements in students’ reading abilities. Post-test results demonstrated that most students scored higher after lessons structured around their dominant intelligence, reflecting deeper comprehension and retention. By alternating whole-class instruction with intelligence-specific group activities, the model accommodated individual learning preferences without isolating students from the broader lesson. These findings align with Mehta (2002), who emphasized that understanding and supporting individual strengths enhances learning outcomes, particularly for younger ESL learners with diverse needs.

Benefits of the MI-DI Model

The study confirms several advantages of the MI-DI model for pre-primary ESL classrooms. By addressing multiple learning styles, it fosters a more inclusive and engaging environment (Gardner, 1999; Armstrong, 2012). Students showed increased motivation, deeper conceptual understanding, and a positive attitude toward learning, supporting the notion that intelligence-focused instruction can promote long-term academic growth. Additionally, the model encouraged creativity in teaching, as educators designed activities to align with varying intelligence, enhancing both student engagement and instructional effectiveness.

Limitations and Challenges

Despite its benefits, implementing the MI-DI model posed practical challenges. Time constraints, resource demands, and the need for ongoing professional development were notable barriers (Tomlinson, 2001). Some students accustomed to traditional methods required additional support to adapt to the differentiated approach. Moreover, identifying dominant intelligence with complete precision remains challenging due to the complex interplay of heredity, experience, and environment (Danaci, 2022). These limitations highlight the need for careful planning and support when applying the model in real classrooms.

Implications for Practice

The findings underscore the value of integrating MI-DI strategies into pre-primary ESL instruction. By recognizing diverse intelligence and aligning teaching methods accordingly, educators can enhance reading outcomes, engagement, and student confidence. While challenges exist, the model offers a practical framework for differentiated instruction that is adaptable to diverse classroom contexts.

Conclusion

This study demonstrates that the tailored Multiple Intelligence Differentiated Instruction (MI-DI) model effectively develops pre-primary ESL learners' reading skills. By identifying students' dominant intelligence and aligning instruction accordingly, the model fostered a more engaging, inclusive, and productive bilingual learning environment. Despite limitations such as the small sample size and context-specific scope, the findings provide valuable insights for ESL pedagogy, emphasizing the potential of intelligence-focused, student-centered approaches to enhance early literacy. The study contributes to improving language education practices and offers a foundation for further research across diverse age groups and educational settings.

Acknowledgement

Gratitude is extended to the Department of English Language Teaching at the University of Kelaniya for their guidance and support throughout the study. Appreciation is also extended to the lecturers and professors who contributed to the academic development of the researcher, as well as to the participants and academic staff at Early Birds School, Galle, for their cooperation and assistance.

References

- Armstrong, T. (2012). *Multiple intelligences in the classroom*. Association for Supervision and Curriculum Development.
- Bus, A. G., & van IJzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology, 91*(3), 403–414. <https://doi.org/10.1037/0022-0663.91.3.403>
- Cummins, J. (1991). Interdependence of first-and second-language proficiency in bilingual children. *Language processing in bilingual children, 70*, 89.

- Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. Basic Books.
- Hettiarachchi, S., & Ranaweera, M. (2013). Story boxes: using a multisensory story approach to develop vocabulary in children experiencing language-learning difficulties.
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field methods*, 18(1), 3-20.
- Mehta, S. R. (2002). *Multiple intelligences and how children learn: An investigation in one preschool classroom* (Doctoral dissertation, Virginia Tech).
- Pearson, P. D., & Duke, N. K. (2002). Comprehension instruction in the primary grades. *Comprehension instruction: Research-based best practices*, 247-258.
- Piaget, J. (1965). The stages of the intellectual development of the child. *Educational psychology in context: Readings for future teachers*, 63(4), 98-106.
- Raza, K. (2020). Differentiated instruction in English language teaching: Insights into the implementation of Raza's teaching adaptation model in Canadian ESL classrooms. *TESL Ontario Contact Magazine*, 46(2), 41-50.
- Bergmann, J., & Sams, A. (2014). *Flipped learning: Gateway to student engagement*. International Society for Technology in Education.