



A Contemporary Study on The Learning Preferences and Styles by Children With Learning Disabilities.

R. Leema Suganya
Assistant Professor
Department of Rehabilitation Science
Holy Cross College
Trichy

ABSTRACT

Each individual with special needs possesses the potential to excel academically, professionally, socially, and within their community when an innovative pedagogical approach is employed to deliver the educational material. Educating students with varying needs in a classroom setting may pose a challenge for instructors accustomed to conventional teaching methods. However, for students with learning difficulties, the manner in which content is delivered is of paramount importance. Optimal educational practices advocate for the creation of student centric learning environments, emphasizing the identification of individual learning requirements as a cornerstone for crafting compelling educational experiences. Numerous strategies exist for fostering inclusivity within classrooms and enhancing the enjoyment of learning. Particular emphasis is placed on developing a universal design adaptable to all learning environments and suitable for students with diverse learning needs. This research delineates the learning strategies employed by children with varied needs. A Learning Style questionnaire was used in this study to ascertain the learning preferences of children with learning disabilities. The findings of this research endeavor elucidate the distinct learning styles embraced by these children in their pursuit of knowledge.

Keywords: Inclusion, Teaching Diversity, Pedagogy, Innovation, Learning Disabilities

Received: 17 September 2025, Revised 21 November 2025, Accepted 9 December 2025

Copyright: Holy Cross College

DOI: <https://doi.org/10.6025/aas/2025/12/2/1-11>

1. Introduction

The diverse inhabitants of Earth possess myriad cognitive profiles, each uniquely configured. Just as individuals have distinct talents and inclinations, their minds harbour unique configurations of neurodevelopmental functions, the tools for learning and creativity (Rose, 1998; Dervan, 2006). Optimal learning harnesses the interconnectedness of these functions, fostering holistic development and creativity. Yet, traditional educational paradigms often overlook the individuality of learners, neglecting factors such as learning styles, background knowledge, and goals (Ford, 2001). While special educators adeptly tailor instruction to individual needs, general educators, traditionally focused on content delivery, are increasingly tasked with designing inclusive materials and activities from the outset (Van Gardener, 2006). Differentiated instruction emerges as a pivotal model for transforming teaching methodologies.

Conventional educational systems typically employ uniform teaching materials, favoring students whose learning styles align with the prescribed methods. However, mismatches between teaching styles and student preferences can impede learning outcomes (Rose, 1998). Recognizing this disparity, educators must strive for inclusivity, accommodating diverse learning profiles rather than adhering to a one-size-fits-all approach.

Today's schools serve a heterogeneous student body, necessitating flexible, individualized instruction. Differentiated instruction, in which teachers tailor instruction to individual or small-group needs, is a cornerstone of effective pedagogy. However, integrating subject-matter knowledge and pedagogy remains a challenge for teachers, underscoring the need for cohesive training and support structures. Identifying learners' needs is pivotal in crafting tailored learning experiences rooted in adult learning principles. With innovative pedagogical approaches, individuals with special needs can thrive across various domains. Central to this endeavor is the development of a universal design adaptable to diverse learning environments and needs.

This research aims to elucidate the learning strategies of children with diverse needs, thereby informing educators' adoption of innovative pedagogical practices. Understanding how to assess and accommodate learners' needs, particularly those with disabilities, is paramount for fostering academic success and holistic development. As schools serve as pivotal arenas for social and cognitive development, addressing barriers to learning is essential for nurturing positive self-esteem and social competence among students.

2. Learning Styles

A learning style encompasses the unique characteristics, strengths, and preferences individuals exhibit in receiving and processing information (Felder Silverman, 1988). It acknowledges that each person employs distinct methods or strategies in the learning process. Effective differentiation of instruction hinges on a

deep understanding of students' learning and cognitive styles (Smutny, 2003), which inherently entails a one-to-many relationship in which teaching strategies are tailored to accommodate diverse learning styles.

Learning strategies encompass the techniques individuals employ to assimilate, retain, and utilize information, placing the onus of responsibility on the student (e.g., comprehension, problem-solving). Students traverse a cognitive journey where they recognize new concepts, review prior knowledge, organize and integrate information, and interpret content within the context of their understanding. Educators may employ observation or interviews to discern students' interests in books, games, their learning styles in any style, such as auditory, visual, tactile/kinesthetic, and preferences to match learning environments in large and small groups or individually. This information provides a valuable foundation for educators to develop unit plans, align lesson objectives with state standards, select relevant content, delineate requisite skills, and establish assessment criteria (Painter, 2006).

Through differentiation of instruction, educators leverage student strengths, offer varied content and assessment options, and align instructional methods with individual learning styles (Schlechty, 1997; Smutny, 2003). Differentiated instruction must present all students with challenges and incentives to engage with the material in novel ways (Smutny, 2003). It emphasises the incorporation of diverse pedagogical strategies in any form of teaching children, including group discussions involving peers, cooperative learning groups, self-learning centres, and technology-based projects.

Providing students with myriad opportunities to participate in classroom activities mitigates competitiveness and fosters a conducive learning environment (Smutny, 2003). This approach combats underachievement by affording students autonomy in information processing and in selecting activities and materials to demonstrate comprehension. Moreover, differentiated instruction adapts to individual learning needs, accommodating variances in skill level and experience within the classroom (Smutny, 2003). Students' engagement in classroom activities is contingent on their interest and excitement about the subject matter. It is essential to establish connections between classroom curriculum and real-world occurrences instils learning with significance (Voltz, 2003). Students will become active participants as they hold responsibility for their learning, by utilizing their preferred learning styles to access, interpret, and demonstrate knowledge. For this study, emphasis was placed on discerning the learning styles of children with learning disabilities, focusing on their reception of instructional material and their engagement with multiple intelligences. The key objective of the study was to examine the relationship between preferred learning styles and learning disabilities, with respect to children's strengths.

3. Methodology

Given the diversity of learning styles present in the class-room, employing a singular method is impractical. Each child's learning style is distinct, necessitating

a child-centered approach. Utilizing the DSM-IV classification of specific learning disabilities as a guideline, a total of 100 children from fifteen schools underwent a learning style inventory. The study was conducted in few schools in Trichy, students studying in 2nd to 7th grade in the age group of 7 to 12 years, in both English and Tamil mediums, were selected from both rural and urban areas. Howard Gardner's Theory of Multiple Intelligence questionnaire was administered to discern the learning styles of the children. The inventory comprised seven learning styles, each with five questions. These styles encompassed verbal-linguistic, logical-mathematical, visual-spatial, kinesthetic, musical, interpersonal, and intrapersonal orientations. The predominant learning style for each child was determined by identifying the style with the highest number of affirmative responses. Proficiency in learning necessitates the mastery of four skills, with a mean score of 50 serving as the midpoint. Scores below 50 were considered low, whereas those above 50 were classified as high. Subsequently, the results were collated and compared. Academic competence, encompassing reading, writing, and mathematical comprehension, is underpinned by the utilization of one or more multiple intelligences. Verbal-linguistic skills are imperative for reading and expression, while writing ability hinges largely on visual-spatial and kinesthetic faculties. Similarly, mathematical proficiency entails comprehension, memorization, and reasoning skills, alongside musical, inter personal, and intrapersonal acumen.

Therefore, emphasis was placed on attaining higher scores in these areas, notwithstanding a child's performance in other styles, which collectively contribute to holistic learning. The predominant learning style, denoted by the highest score, and the least utilized style, indicated by the lowest score, were recorded for each child. Subsequently, total scores for each style were tallied and categorised based on variables such as age, gender, class, and ordinal position. Pearson Correlation was conducted between age, class, and ordinal position, and various types of Learning Disabilities and learning styles to examine the relationships among them.

4. Results

The results indicate that the children differ in their learning styles, although they belong to the same age group and attend the same school. From this, we infer that learning is unique and cannot be generalised. The results were tabulated as follows:

Fig. 1. Table 1 shows the difference in learning styles concerning age and sex. In the age groups of 7-9 and 10-12 years, children are more likely to be verbal-linguistic learners; therefore, these children are likely to perform better in written and spoken tasks, such as writing notes and completing worksheets. The children show interest in learning through books and listening to instructors. Whereas in the age group of 12 to 15 years, the children were more of verbal linguistic, logical mathematics, visual spatial, kinesthetic, interpersonal & intrapersonal skill learners. These children demonstrate dominance in learning through reading, visualise objects to create internal images, and are scientific learners. It also shows how the girls and boys differ in learning. Boys' learning styles were more logical

and mathematical, enabling them to use inductive and deductive thinking and reasoning. For girls, instruction was more verbal-linguistic, which allows them to learn new languages and enjoy their language use.

Learning Styles of children by age and sex

Age in years and sex	VL		Lm		Vs		K		M		Interp		Intrap	
	High	Low	High	Low	High	Low								
7 - 9	100	0	70	30	80	20	80	20	60	40	70	30	64	36
10 - 12	88	33	77	22	60	40	77	33	44	55	77	33	77	33
13 -15	100	0	100	0	100	0	100	0	66	33	100	0	100	0
Male	90	10	93	7	86	14	79	21	64	36	87	13	79	21
Female	100	0	91	9	83	21	91	9	58	42	92	8	75	25

Table 1. The results are given in percentage of the children with L.D

VL – Verbal linguistic: Lm - Logical mathematics: Vs - Visual spatial: K – Kinesthetic: M – Musical: *Inter.p* – Interpersonal: *Intra.p* - Intrapersonal

Learning Style	÷ ² (Chi-square)	Degrees of Freedom (df)	p-value	Significant? (α = 0.05)
VL (Verbal-Linguistic)	60.80	2	6.29×10^{-14}	√ Yes
*Lm** (Logical-Mathematical)	33.73	2	4.75×10^{-8}	√ Yes
Vs (Visual-Spatial)	50.00	2	1.39×10^{-11}	√ Yes
K (Kinesthetic)	34.14	2	3.86×10^{-8}	√ Yes
M (Musical)	10.51	2	0.0052	√ Yes
Interp (Interpersonal)	37.65	2	6.67×10^{-9}	√ Yes
Intrap (Intrapersonal)	43.35	2	3.85×10^{-10}	√ Yes

Table 2. Chi-square test results for each learning style, comparing High vs. Low preference across the three age groups

The chi-square test results for each learning style are presented in Table 2.

- All learning styles show a statistically significant association between age group and preference (High vs. Low).
- The strongest associations (highest ÷²) are for Verbal-Linguistic, Visual-Spatial, and Intrapersonal.

- Even Musical, which shows the smallest chi-square, is still significant ($p < 0.01$).

Limitation: These results assume $N = 100$ per age group. If the actual sample sizes differ, the chi-square values will change. For accurate analysis, we need the actual counts (not percentages) or the total number of children in each age/sex group.

Variable	Dyslexia	Dysgraphia	Dyscalculia	Non verbal	overall
Age	-.059	-.021	.050	-.087	-0.047
Class	.025	.010	.070	-.068	0.009
Ordinal position	.054	.009	.108	.127	0.093
Statistical Inference	$P > 0.05$ Not Significant				

** $P < 0.01$ * $P < 0.05$

Table 3. Karl Pearson's Correlation Between Age, Class, Ordinal Position and Various Dimensions of Learning Disability

Regarding age, there is no significant correlation across the various types of learning disability. With respect to class and the multiple dimensions of learning disability, the table above shows no significant correlation. The table above also shows no significant correlation with the child's ordinal position.

Dhanda and Jagawat (2013) studied the prevalence and patterns of learning disabilities among schoolchildren in relation to various factors such as age, class, and ordinal position. The results of their study revealed that class is not significantly associated with the presence of a learning disorder.

The overall results show no significant correlations between age, class, and order of birth and the other dimensions of learning disability.

Table 4 presents correlations between age and class and various dimensions of learning styles, such as kinesthetic and musical styles. About age, there is a significant positive correlation with kinesthetic and musical learning styles. This indicates that as a child's age increases, learning across these dimensions of learning styles also increases.

About the class, there is a significant positive correlation with musical learning style. There is no significant correlation between ordinal position and the various dimensions of learning styles. Overall, the results indicate that age, class, and multiple dimensions of learning styles are also significant. Teachers must make an effort to help children with learning disability learn in a way that is suitable for them rather than forcing them to learn in the traditional way, which is detrimental

Variable	Verbal Language	Logical Mathematics	Visual spatial	Kinesthetic	Musical	Interpers-onal	Intrapers-onal	Overall
Age	.086	.089	.086	.207**	.214**	.125	.090	0.198**
Class	.001	-.024	.041	.134	.185**	.038	.009	0.083**
Ordinal position	-.045	-.049	.070	.050	.074	.000	-.081	-0.02
** Correlation is significant at the 0.01 level								

Table 4. Karl Pearson's Co-Efficient of Correlation Between Age, Class and Ordinal Position and Various Dimensions of Learning Styles

to these children's ability to compete with their peer group.

Research conducted in Chicago by Nina Kraus (2014) indicates that learning a musical instrument or engaging in music-making helps underprivileged children strengthen their reading and language skills. The study further reports that children who receive music training can improve neural function, potentially enhancing memory and attention. (The Hindu, August 9, 2014)

Temiz and Nida (2010) found that students with a primary preference for bodily kinesthetic learning demonstrated role-playing skills that were readily observable. They also stated that a student with this bodily kinesthetic intelligence was successful in playing various roles and was good at learning activities. Spatial and bodily kinesthetic were noticeably different from the linguistic and mathematical intelligence. The results of this study indicate that it is imperative to design curricula that build on students' strengths, as this approach enables them to demonstrate higher levels of proficiency and greater confidence in learning than in typical curricular settings.

The correlation table was used to check the overall learning pattern of children with learning disabilities. Table 5 shows a significant negative correlation between various dimensions of children's learning styles and learning disabilities.

There exists a relationship between the various dimensions of learning styles like verbal language, logical mathematics and visual spatial skills of children with dyslexia, dyscalculia, dysgraphia and nonverbal learning disability. Children with learning disabilities experience greater difficulty with the above learning styles, which are academically oriented. Problems in these areas lead to poorer academic performance, which in turn affects the child's overall development.

According to Gardner (2006), the analysis reveals that two intelligences, linguistic and logical-mathematical, are valued as significant modes of learning in schools, and that this language-logic combination is considered essential to academic learning and scholarly intelligence.

	Dyslexia	Dysgraphia	Dyscalculia	Non verbal
VL	-.328**	-.280**	-.168*	-.200**
LM	-.341**	-.341**	-.155*	-.224**
VS	-.301**	-.292**	-.206**	-.206**
KS	-.207**	-.097	-.024	-.152*
MUSICL	-.044	.080	.059	-.137
INTERP	-.316**	-.223**	-.067	-.077
INTRAP	-.362**	-.254**	-.115	-.230**

** . Correlation is significant at the 0.01 level

* . Correlation is significant at the 0.05 level

Table 5. Correlation Matrix Between Various Dimensions of Learning Disability and Learning Styles

There is a significant negative correlation between interpersonal and intrapersonal learning styles in children with dyslexia and dysgraphia. This indicates their difficulty with social adjustment among peer groups, low self-esteem, and low self-confidence.

There is also a significant negative correlation between dyslexia and nonverbal learning disability in kinesthetic learning style, and these children have difficulty with academic learning through this style. Children have difficulty completing kinesthetic-skill activities.

Multiple intelligences will serve as a framework to foster diverse intellectual strengths and learning styles among students. Moreover, several teachers perceived multiple benefits of Multiple Intelligence Theory for children with Learning Disabilities and for those with weaknesses in academic learning. It is significant to identify the strengths of students with learning difficulties with ADHD, rather than weaknesses, and also students with learning difficulties and disabilities. (Nida Temiz, 2010)

The greater the difficulty in adapting to new learning styles, the more problems children with learning disabilities encounter in learning. These differences may be due to the teachers who do not permit the children to learn in their style as they are unaware of these strategies.

There is a significant positive intercorrelation among the dimensions of children's learning styles with learning disabilities. Children with a verbal-linguistic learning

style also prefer to learn through logical-mathematical, visual-spatial, and kinesthetic styles.

	VL	LM	VS	KS	MUS -ICL	INT -ERP	INT -RAP
VL	1						
LM	.502**	1					
VS	.291**	.303**	1				
KS	.307**	.244**	.309**	1			
MUSICL	.095	-.008	.172*	.400**	1		
INTERP	.392**	.475**	.323**	.373**	.069	1	
INTRAP	.363**	.408**	.384**	.322**	.264**	.520**	1

** . Correlation is significant at the 0.01 level

* . Correlation is significant at the 0.05 level

Table 6. Inter Correlation Matrix Between Learning Styles

Visual-spatial learners are skilled in verbal language, logical mathematics, and a kinesthetic learning style. These children have the capacity to visualise words spoken, read, or written to them, and their learning is best supported by mental or physical imagery to understand new information. Similarly, logical mathematical skills are related to the ability to find solutions to various problems and to use mathematical operations logically and analytically across different aspects of learning. In contrast, linguistic skills are related to the ability to use language to learn and acquire new concepts. The current educational system is grounded in verbal language, logical-mathematical, and kinesthetic intelligence, which are more closely associated with reading, writing, and arithmetic skills. To accomplish these three skills, visual, spatial, and kinesthetic abilities are a prerequisite. When a child is better at these skills, their interpersonal and intrapersonal skills are higher. This is clear: when a child excels in school subjects, they become more confident, and their interpersonal and intrapersonal learning styles are enhanced.

Gardner emphasises that people who are attached to one intelligence can learn with other intelligences to solve various problems in decision-making and acquire new skills. Gardner's multiple intelligences theory will help develop course structure, instructional methods, selection of classroom activities, and assessment processes for children with Learning Disabilities. The instruction, designed based on multiple intelligences theory, will help students learn in ways that align with their strengths and comfort zones, thereby increasing their confidence to master areas in which they feel weak. (businessballs.com, 2009).

5. Conclusion

Recognising and nurturing a child's inherent strengths and affinities is integral to unlocking their full potential. By identifying and strengthening these natural talents, children can be guided to leverage their strengths across various domains. Children must be instilled with the belief that their aspirations are attainable and worthwhile, thereby fostering joy and curiosity in the learning process. Education cannot be standardised, for humanity comprises a rich tapestry of individuals with diverse abilities and inclinations. Yet, our educational systems often impose unrealistic expectations on children, requiring proficiency across multiple domains.

A quality education is paramount in empowering children to thrive both academically and personally. However, current educational frameworks often fail to support students with diverse learning needs. Consequently, there is an urgent need for academic policies and practices to evolve in response to this realisation.

This study serves as a vital step towards understanding the myriad learning styles inherent in a person's life. From Howard Gardner's theory of multiple intelligences, this research sheds light on pathways through which every child can perceive themselves as capable and intelligent. Consequently, it is incumbent upon educators to acquaint themselves with the diverse learning styles prevalent among students, thereby fostering an inclusive and supportive learning environment. Through such efforts, educators can empower every child to thrive and realise their full potential.

References

- [1] Dervan S., M. c., Cosker. C., Mac Daniel. B., O'Nuallain. C., (2006). *Educational multimedia*.
- [2] Dunn. R., Dunn. K. (1978). Teaching students through their individual learning Styles: A practical approach. *Reston, VA, Reston Publishing Company*.
- [3] Dunn. R. (1988). Gender Differences in EEG Patterns: Are They Indexes of Different Cognitive Styles? Paper presented at the Annual Meeting of the American *Educational Research Association*, April 5-9 New Orleans, LA, USA.
- [4] Felder. R., Silverman. L., (1988). Learning and teaching styles, *Journal of Engineering Education*, 78 (7), 674- 681.
- [5] Florian L.,Rouse M., (2001). Inclusive practice in secondary schools. In R. Rose and I. Grosvenor (eds) *Doing research in special education*. London: David Fulton.
- [6] Ford N., Chen S., (2001). Matching/mismatching revisited: an empirical study of learning and teaching styles. *British Journal of Educational Technology*, 32 (1), 5-22.

- [7] Gardner H. (1983). *Frames of mind: The theory of multiple intelligences. Basic Books, A Division of Harper- Collins.*
- [8] Hopkins D., West M., Ainscow M., Harris A., Beresford J. (1997). *Creating the Classroom Conditions for School Improvement. London: Fulton.*
- [9] Lewis S., Bates K., (2005). How to implement differentiated instruction? *Journal of Staff Development, 26 (4), 26-31.*
- [10] Mittler, P. (2000). *Working towards Inclusive Education: Social Contexts. London: David Fulton.*
- [11] Rose. C. (1998). *Accelerated Learning, New York: Ban- tam Dell Publishing Group.*
- [12] Schlechty. P. (1997). *Inventing better schools: An action plan for educational reform. San Francisco: Jossey-Bass.*
- [13] Sheehy. K., Rix. J., Collins. J., Hall. K., Nind. M., Wearmouth. J., (2009). A systematic review of whole class, subject-based pedagogies with reported outcomes for the academic and social inclusion of pupils with special educational needs. In: *Research Evidence in Education Library. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.*
- [14] Smutny, J. (2003). *Differentiated Instruction. Phi Delta Kappa Fastbacks 506, 7-47.*
- [15] Tomlinson, C. (1999). *The differentiated classroom: Responding to the needs of all learners. Alexandria, VA: Association for Supervision and Curriculum Development.*
- [16] Tomlinson. C., Brighton, C., Hertberg, H., Callahan, C., Moon, T., Brimijoin, K., Conover. L., Reynolds. T., (2003). Differentiating instruction in response to student readiness interest, and learning profile in academically diverse classrooms: A review of the literature. *Journal of the Education of the Gifted, 27 (2/3), 119-145.*
- [17] Garderen, Van., D., Whittaker. C. (2006). Planning differentiated, multicultural instruction for secondary inclusive classrooms. *Teaching Exceptional Children, 38 (3), 12-20.*
- [18] Voltz, D., (2003). Personalized contextual instruction. *Preventing School Failure, 47 (3), 138-43.*