International Journal of Social Sciences and Management Review

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

DEVELOPMENTAL PROFILES OF PRESCHOOL CHILDREN WITH LEARNING DIFFICULTIES IN MALAYSIA

FONG HUI MIN[1], LU JINGYI[2]* & OOI BOON KEAT[3]

School of Education and Social Sciences, Management and Science University[1&3]

Post Graduate Centre, Management and Science Unviversity[2]*

University Drive, Off Persiaran Olahraga, Shah Alam, Selangor, Malaysia 40100

https://doi.org/10.37602/IJSSMR.2025.8413

ABSTRACT

The main objective of this study was to understand the development of preschool children with learning disabilities. The purpose of the study was to test whether there were significant differences between different demographic variables (gender, ethnicity, and age of the child). A literature review on cognitive development, types of learning disabilities, and child development was first conducted, and then an online questionnaire was administered to parents and teachers of children with learning disabilities. The data collected was analysed using SPSS. The results of the study showed that although Levene's Test showed that gender did not have a significant effect on children's intelligence, independent samples t-test showed that females were slower than males in their developmental status in reading, information processing and learning academic skills. The developmental level of Malaysian pre-school children (5 - 6 years old) with learning disabilities remains relatively low. Therefore, it is expected that the education system will be improved and more assistance will be given by the government, parents and all stakeholders to help promote healthy development from the early stages of a child's life.

Keywords: Learning Difficulties, Cognitive Development, Gender, Developmental Profile

1.0 INTRODUCTION

Children with learning and developmental problems are relatively common in Malaysia. Global developmental delay (GDD), mental retardation, autism, Down syndrome and attention deficit hyperactivity disorder (ADHD) are just a few of them. Learning difficulties" is a common phenomenon in basic education, and the terminology used to describe learning difficulties varies from one field to another (Zhao, 2024). Dyscalculia (extreme difficulty with arithmetic calculations), dysgraphia (inability to write clearly), and dyslexia are common problems with learning difficulties (difficulty reading or interpreting words, letters, and other symbols) (Weng & She, 2024).

According to Understood.org, a non-profit devoted to providing information and support to parents of children ages 3 through 20 with learning and attention issues, a learning disability is a disorder that results in "learning challenges that are not caused by low intelligence, problems with hearing or vision or lack of educational opportunity." Besides, according to the National Center for Education Statistics, during the 2018 to 2019 school year, 18% of male students ages 6 to 21 received special services under IDEA (Individual with Disabilities Act), compared to 10% of female students benefiting from these services.

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

Learning difficulties are caused by genetic and/or neurobiological factors that disrupt one or more cognitive processes associated with learning via altering brain functioning（Shen，2024）. These processing issues might make it difficult to master basic abilities like reading, writing, and math（Ma，2024）. They can also obstruct higher- order skills including organization, time management, abstract reasoning, long and short-term memory, and attention Ma，2023）. Learning difficulties can have an impact on an individual's life outside of the classroom, affecting connections with family, friends, and co-workers（Gao，2023）. Besides, children with learning disabilities also need extra assistance and training tailored to their specific needs（You，2023）. A child with a learning disability may be eligible for special education services at school. To determine if a child requires intervention, schools often conduct their own tests for learning disabilities（Liu，2024）.

A child with a learning disability challenges one or more areas of learning, even though his or her overall intellect or motivation is unaffected（Xin，2023）. In the past, there were as many students with significant disabilities in general education classes without special support as students in special schools or classes（This journal comprehensive，2023）. Some children are slow learners at first, but they gradually catch up and handle their studies and other activities (Lan et al.,2023). Some children are uninterested in certain forms of learning (for example, learning a foreign language, a particular activity or ability, or an academic subject), or in sports or other outdoor activities (Cao.,2023). These features are representative of the child's preferences rather than a learning disorder.

Learning difficulties are a group of cognitive processing disorders caused by genetic or neurobiological factors and are not caused by mental retardation, sensory deficits or lack of educational opportunities (Prior, 2022). At their core, they are deficits in specific areas of learning, and common types include dyslexia, which is difficulty in recognising and interpreting words, letters and symbols; dyscalculia, which is a significant low level of arithmetic ability; and dysgraphia, which is the inability to write clearly and coherently (Margolis et al., 2025). These disorders stem from alterations in brain functioning that disrupt cognitive processes related to learning (e.g., memory, attention, reasoning, etc.), which in turn affects basic learning abilities (e.g., reading, writing, and arithmetic) as well as higher-order skills (e.g., time management, abstract thinking) (Yenduri et al.,2023).The study of Conrad et al. (2022) clarified that learning disabilities include dyslexia, dysgraphia, numerical dyslexia, and nonlinguistic dyspraxia. dyslexia, numerical dyslexia and non-verbal learning disabilities, clarifying that dyscalculia, dyslexia and dysgraphia belong to the category of learning difficulties, which is in line with the classification of types of learning difficulties in this study and provides a basis for classification in this study.

Around 4 million children and teenagers have a learning disability, and many of them have several disabilities（Guo,2023）. Learning disorders are neurological problems that affect how information is received, processed, stored, and interpreted by the brain. Because it affects an individual's ability to develop reading, writing, and math skills, a learning problem is frequently noticed and diagnosed while they are still in school（Gao,2023）. Some people with learning difficulties, on the other hand, may not be detected or diagnosed until they are in college or have worked in the field（Li,2024）.

The study outlines four clear objectives:

1. To study the status of learning difficulties in kindergarten children.
2. To assess the developmental profile of preschool children.
3. To identify developmental profiles based on learning difficulties.
4. To differentiate developmental status by gender.

2.0 LITERATURE REVIEW

This review is divided into three parts: the first part is the past research on learning disabilities, the second part is the past research on child development, and the last part is the past research on cognitive development.

First, many theories have attempted to explain the origins of dyslexia, including difficulties with working memory and attention (Trelani et.al., 2017), deficits in procedural memory (Hedenius Martina & Persson Jonas,2022), and magnetocyte damage. However, the most widely accepted view of the cognitive origins of dyslexia is that it is caused by abnormalities in phonological processing, defined as the ability to decode and manipulate phonemes. The agreement between traditional and RTI-based definitions of reading-related learning disabilities in preschoolers (Milburn, , 2017) took 1,011 preschoolers as the study population and compared the use of four contemporary indicators of learning disabilities (IQ- achievement differential, low achievement differential, low growth differential, and double differential) in determining preschoolers' risk status for learning disabilities. Its research states that young children are considered at risk for reading-related learning disabilities when they have difficulty learning the foundational skills of reading and writing while receiving high-quality instruction. Other studies have concluded that children at risk for dyslexia exhibit deficient left hemisphere memory representations of new spoken forms, and the article refers to developmental dyslexia as a learning disability characterized by difficulties in learning to read and spell. In addition to reading problems, individuals with dyslexia have inefficient phonological encoding and poorer learning of new words, as well as phonological processing and learning problems. There have also been studies comparing the neural correlates of phonological learning in 7- to 8-year-olds with a family history of dyslexia to controls who were just beginning to read. Phonological difficulties in dyslexia become more pronounced when early linguistic information is less useful, such as in interpreting and saying new written or spoken words (Cardillo et al., 2017).

Second, past research on child development. Reflections of Parents of Malaysian Children with Developmental Disabilities on Their Experiences with AAC (Joginder et al., 2017) states that developmental disabilities are a group of conditions related to a child's cognitive socio-emotional, sensory-motor, and/or behavioral developmental conditions that begin prenatally and continue until approximately 22 years of age (Wen et al., 2024). The role of parents in the effective implementation of AAC (augmentative and alternative communication) is important. Previous research has found that parents in different countries have different attitudes toward the use of AAC and face different difficulties in implementing AAC. Additionally, there is limited research on educational transitions for young children with intellectual disabilities (ID) based on teachers' and parents' meaning-making of preschool-to-school transition learning for children with ID (Almalki et.al.,2021). Research on transitioning students with ID has focused

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

on transitioning from school (Lee,2019). The purpose of this study was to observe how parents and teachers perceive the transition of learning from preschool to school for children with intellectual disabilities ages 5-7. These children often require individual modifications in the instructional setting, and children with ID are particularly dependent on adults for learning support. Collaboration and ongoing support across settings is critical to effective transition experiences for children with special needs in early education transitions (Donna et al., 2012).

In a review of cognitive development, Cognitive correlates of dyslexia, dyscalculia, and co-morbid dyslexia/dyscalculia: the effects of digit volume processing and phonological processing (Peters rt al.,2020), the researchers in the present study assessed symbolic and non-symbolic digit volumes, as well as three phonological processing subcomponents (phonological awareness, vocabulary acquisition, and verbal short-term memory). They also examined the children's spatial and verbal abilities. The effects of these cognitive correlates on dyscalculia, dyslexia, and their comorbidities were examined. Development of Cognitive Control in Children with Autism Spectrum Disorder or Obsessive-Compulsive Disorder A Longitudinal Functional Magnetic Resonance Imaging Study (Gooskens et al., 2021) suggests that repetitive activity is associated with cognitive control problems in individuals with autism spectrum disorder (ASD) and obsessive-compulsive disorder (OCD). However, no link has been established between cognitive control and associated brain circuits and the development of repetitive behaviors in children with these disorders. The development of cognitive control begins in childhood and continues into adulthood. In summary, the researchers found relatively small differences in the development of cognitive control and related brain circuits in children with OCD. They found no significant abnormalities in cognitive control or brain activity in children with ASD or OCD compared to normally developing children.

In summary, these comments detail all of the conceptual and behavioral approaches needed for this study. The obstacles that children with learning disabilities face in group learning environments can be overwhelming. In addition, these children are required to complete a variety of standardized assessments. These exams are often designed in ways that are diametrically opposed to the way they confront and process information.

3.0 METHOD

The research design that was chosen is quantitative study. For this research, a total of 150 children with learning difficulties from 5 to 6-year- old children were surveyed by me from kindergarten and preschool. All of the children come from different family backgrounds. The target respondents answering my survey will be teachers and parents for the children with learning difficulties. A purposive sampling method may prove to be effective when only limited numbers of people can serve as primary data sources due to the nature of research design and aims and objectives. This survey is under purposive survey and a set of questionnaires will be given throughout the process of this research study and it will be used for the data collection. It was a quantitative model as we measured the variables numerically. The sample for this study is parents of children with learning difficulties and special needs educators that live in Malaysia. Hence, I contacted the school / centre / parents to request permission and spread the survey to them through WhatsApp, email as well as Telegram.

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

For the pilot study, the questionnaire was piloted with a group of 30 respondents involved. The pilot study was done to check the validity and reliability of the questionnaire. As well as, to check whether the questions and instructions were clear and understandable. The outcome of this pilot study indicated a need to reword some questions and statements. The collection procedure for the pilot study was done by parents and teachers with children with learning difficulties. The reliability of the pilot study was finalised through the SPSS software, and my reliability statics of Cronbach's Alpha was 0.864. After passing the pilot test, I started to distribute the questionnaires to the preschool and centres.

The data collection procedure for this study involved requesting participation in the survey for this study from the school or center as well as the parents. After obtaining consent from the school or center, a link to the research questions was emailed to the appropriate person in charge to answer the survey questions. In addition, parents of children with learning difficulties were contacted to answer the survey questions for this study. A total of 150 parents or teachers of children with learning difficulties answered the questionnaire. With the help of Google Forms, collecting data through the web became easier because respondents could fill out questionnaires or forms online. Google Forms makes it easy and free to create questionnaires and get answers from respondents.

In addition, in this study, data were accumulated particularly through the distribution of research instruments and questionnaires to parents or teachers of selected children with learning difficulties. Respondents' response data were then exported to Google Sheet and Microsoft Excel for easy collection. The data analysis tool for this study was the use of software formerly known as Statistical Package for Social Sciences (SPSS). The main analyses for data analysis included descriptive, normal, reliability, non-parametric, correlation, and finally regression analyses.

4.0 RESULTS

4.1 Demographic Profiles

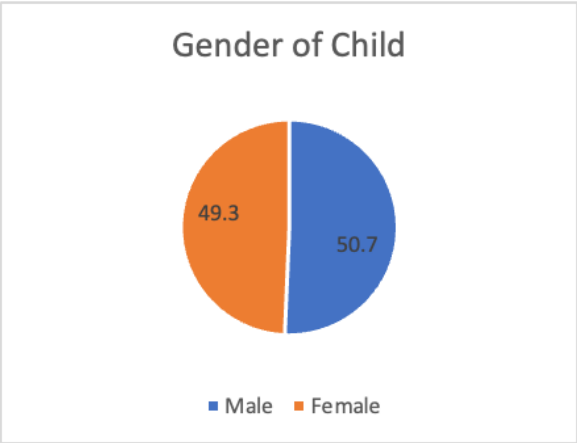

Figure 4.1: Gender of Respondent

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

Figure 4.1 shows from the 150 respondents the data collected, the majority of them were male which amount to 50.7% it shows that the number of males stated in the pie chart is higher than the number of females.

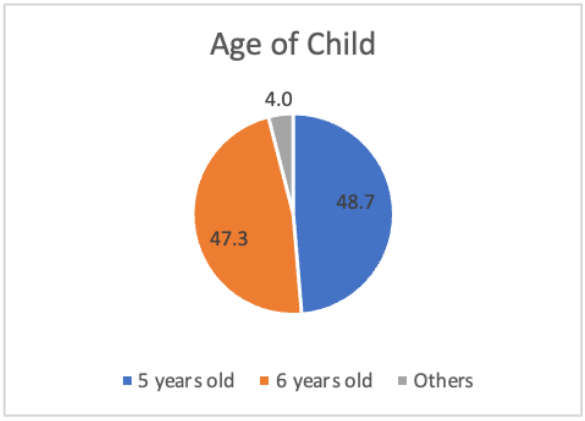

Figure 4.2: Age of Respondents

From the figure above, most of the respondents are from the age group of 5 years old with a percentage of 48.7%. Then second place goes the age group of 6 years old with a percentage of 47.3%. At last, is the age group of others with only 4%of respondent under age of 4.

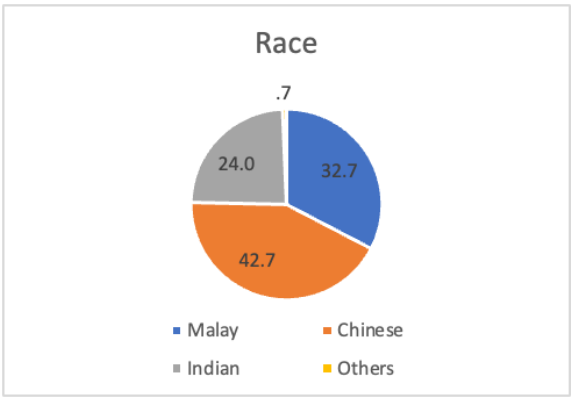

Figure 4.3: Race of Respondents

This figure represents the race of respondents. As we can see most of the respondents are Chinese with 42.7% followed by 32.7% are Malay and 24% of respondents are Indian.

4.2 The profiles of learning difficulties among kindergarten children

Table 1: Table of Total Children with Types of Learning Difficulties

Sort	Quantity
Dyslexia	52
Dyscalculia	78
Dysgraphia	20
Total	150

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

Based on the data received, they were categorized and analyzed according to the type of learning difficulties, including dyslexia, dyscalculia and dysgraphia. As can be seen in Table 1, 78 of the children interviewed for this study were classified as dyscalculic, 52 as dyslexic and 20 as dysgraphic.

Children diagnosed with a learning disability are four to five times more likely to have a learning problem in another area of learning than children with normal development (e.g., Landerl & Moll, 2010). This means that the prevalence of dyslexia/dyscalculia comorbidity is much higher than would be expected based on the individual disorders. Despite adequate intellectual and learning opportunities, dyscalculia is defined by chronic difficulties with arithmetic, particularly in using and performing computational procedures and recovering arithmetic information from memory (American Psychiatric Association, 2013; Geary, Hoard, Byrd-Craven, Nugent, & Numtee, 2007). On the other hand, children with dyscalculia have significantly weaker spatial skills compared to children without dyscalculia. Children with dyslexia scored significantly lower on all phonological processing subscales.

4.3 Explores the developmental characteristics of preschoolers

Table2: Cognitive Development of Young Children

Descriptive Category	Standard Score	Percentage (%)	Total of Children
Well Above Average	>130	0	0
Above Average	116 – 130	6.00	9
Average	85 - 115	16.67	25
Below Average	70 - 84	22.67	34
Delayed	<70	54.67	82
Total			100

Based on the standardized scores of the Developmental Profile-3, this study found that 54.7% of the children in the intake were developmentally delayed. Next, a total of 22.7% of the children were below average and 16.7% were average. Finally, 6% of the children fell into the above average category. Stunting is defined as the failure of a child to achieve the expected level of developmental skills compared to children of the same age. Developmental delays can occur in areas such as motor function, speech and language, cognition, play and social skills.

4.4 The developmental profiles according to their learning difficulties

Table 3: Descriptive Table of IV1 — IV3

	N	Minimum	Maximum	Mean	Std. Deviation
Dyslexia（IV1）	150	.00	1.00	.2600	.44010
Dyscalculia（IV2）	150	.00	1.00	.3694	.22937
Intelligence and skills necessary	150	.00	1.00	.2956	.24351

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

for academics （IV3）	
Valid N (listwise)	150

As shown in Table 3, IV1 in this study is dyslexia, IV2 is information processing disorder, and IV3 is intelligence and skills necessary for academics.

The mean of IV1 is 0.26 and the mean of IV3 is 0.2956 closer to the 0 label or otherwise most respondents answered the questionnaire in the negative. This suggests that the aspect of helping children who may be at a disadvantage in the first semester of teaching is effective because they are younger and lack good reading comprehension which is essential for early numeracy growth in the classroom environment.IV1 and IV3 have low standard deviations of 0.44 and 0.24 respectively, suggesting that most of the numbers are very close to the mean.IV2's mean of 0.37 is closer to the 0 standard. This suggests that children with learning difficulties have difficulties in processing information, such as reading decoding, as well as difficulties in spelling and writing. It can be demonstrated that children can have difficulties in one or more areas of learning even when overall intelligence and motivation are not affected.

4.5 To differentiate the developmental profiles (DV) by gender

Table 4: Table of Group Statistic According to Gender

Gender of Child	N	Mean	Std.Deviation	Std.Error Mean
Male	76	0.431	.03423	.00393
Female	74	0.409	.03239	.00376

This study used independent samples t-test to test the effect of gender on developmental profile. According to Table 4, there were 76 boys and 74 girls. The mean for males is 0.043 and the mean for females is lower at 0.041. This means that females have a slower developmental profile than males when it comes to reading, processing information and learning academic skills. It is also difficult to communicate with children with learning disabilities, it is hard to manage their behavior and it is hard for others to understand. In practice, the diversity of talents within each gender is much greater than the gap between the 'typical girl' and the 'average boy'. In other words, there are many boys with strong verbal skills and many girls with strong visual-spatial skills. While it may be beneficial for parents and teachers to be aware of the different tendencies of the sexes, neither teachers nor parents should expect all children to conform to these norms.

Table 5: Levene's Test According to Gender

Gender of Child	N	Mean	Std.Deviation	ConfidenceInterval
Male	.0431	.00223	.382	Lower: -.00853
Female	.0409			Upper: .1299

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

According to Table 5, due to the p-value of 0.382, e could not accept the Levene's test for null, and 0.0431 - 0.0409 = 0.0022 was used to calculate the mean difference. The 95% confidence interval for the difference in means was 0 and the result was not significant at the chosen level of significance (-0.0853,0.01299). Therefore, this study found that there is no significant difference in the developmental status of males and females.

In summary, this study found that the developmental level of Malaysian preschool children with learning difficulties aged 5 to 6 years old is still low. The intellectual development of preschool children was categorized into dyslexia; information processing disorder and intellectual abilities related to academic achievement. Gender does not have a significant effect on children's intelligence as there is little difference between boys and girls.

5.0 DISCUSSION

This study found that there were significant differences in the distribution of types of learning difficulties among Malaysian preschoolers aged 5-6 years old with learning difficulties: dyscalculia was the most common type of learning difficulties, with 52 per cent of the children having significant difficulties in arithmetic calculations, such as difficulties in understanding numerical concepts, simple addition and subtraction, etc. Dyslexia was the second most common type of learning difficulties, with 34.7 per cent of the children having difficulties in reading or interpreting words, letters, and symbols. Dyslexia was the second most common, with 34.7% of children having difficulty in reading or interpreting words, letters and symbols, such as being unable to recognise letters accurately or matching letters to their sounds, etc. Dysgraphia was the least common, with 13.3% of children being unable to write legibly, such as having scribbled handwriting, inverted strokes, or difficulty in maintaining writing consistency. This result suggests that among preschool-aged children with learning difficulties, difficulties in the area of numeracy are most prominent, followed by reading and writing, suggesting that educational interventions need to focus on the improvement of numeracy and take into account the training of reading and writing skills. The relatively high prevalence of dyscalculia in the preschool years is indeed a phenomenon that has been observed in multinational studies (Ayar et al., 2022). Preschool assessments focus more on early literacy emergent skills (letter knowledge, phonological awareness, rapid naming). While phonological awareness deficits are central markers, their translation into overt reading failure is sometimes less immediate and visualised in preschool than in dyscalculia. Some children at risk for dyslexia may show a lack of love of books, inability to remember letters, etc., in preschool, but it is not as quantitatively clear as computational errors (Muktamath et al., 2022). Formal assessment of writing in pre-school tends to be minimal and least demanding (e.g. writing names, tracing, drawing shapes), and therefore many underlying writing difficulties (e.g. difficulties with sequence organisation, problems with visuospatial arrangement) are not adequately exposed or effectively recognised in pre-school (Prior,2022).

Based on the standard scores of the DP-3, the overall developmental level of Malaysian preschoolers with learning difficulties aged 5-6 years was low, as shown by the following: the highest proportion of children with developmental delays (54.7 per cent), i.e., they did not reach the expected level of development in motor function, speech and language, cognition, and social skills when compared to their peers; a total of 34 children (22.7 per cent) were below the average level of development and were slightly lower than their peers but did not meet the

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

criteria for delays; 16.7 per cent were at the average level of development; only 6 per cent were above the average level of development; and only 6 per cent were better than their peers. level was slightly lower than that of children of the same age, but did not meet the criteria for delay; 16.7 per cent of the children were at the average level, and their development was basically the same as that of children of the same age; and only 6 per cent of the children were above the average level, and their development was better than that of children of the same age. In terms of the cognitive development dimension, the intellectual development of preschool children was mainly in three areas, namely, reading ability, information processing efficiency and intellectual ability related to academic skills, and the overall performance was weak. This result suggests that the current developmental status of Malaysian preschool children with learning difficulties is not encouraging and more than 70% of the children need targeted intervention support. It is possible that difficulties in cognitive processing (e.g., phonological processing, working memory, attention) and executive functioning (planning, organisation, inhibitory control) are the direct cause of their lagging performance in academic skills such as reading, writing, and mathematics, as well as overall learning efficiency (Donolato et al., 2022).

Chen's (2022) study, by analysing the association between learning difficulties and developmental characteristics, found that children with learning difficulties generally have information processing deficits, as evidenced by significant difficulties in reading decoding (e.g., identifying words and letters), spelling, and writing tasks, which is in line with the results in the present study, suggesting that the majority of the respondents (parents and teachers) perceived such children to have information processing problems; even when children's overall intelligence level or motivation to learn was not affected, they still showed deficits in specific learning domains (e.g., reading, arithmetic, and writing), confirming that learning difficulties are a core feature of localised cognitive processing deficits rather than of overall mental retardation. This result suggests that the nature of learning difficulties is that cognitive processes related to learning (e.g., information processing, phonological processing) are impaired, and that such impairments have a direct impact on children's performance in the corresponding learning domains.

Analysing the effect of gender on developmental profiles through a non-parametric independent samples t-test showed that girls were slightly slower than boys in reading, information processing and academic skills learning in these areas; however, the statistical test showed that the gender differences did not reach the level of statistical significance. This result suggests that the overall effect of gender on the intellectual development of preschool-aged children with learning difficulties is small, and the differences in the developmental levels of boys and girls are subtle and insignificant, but there may be weak gender trend differences in specific learning domains (e.g., reading, information processing), which need to be further verified with larger sample sizes. Subtle signals from parents, caregivers, peers, and even the media about what boys/girls should like and be good at may influence children's interest engagement, which in turn affects the frequency of practice and early development of specific skills (e.g., reading, spelling) (Hautala et al., 2024).

The overall developmental level of Malaysian preschool children aged 5-6 years with learning difficulties was low, with numeracy as the main type of learning difficulty and cognitive deficits related to information processing; the effect of gender on their development was small and did not show any significant difference. The results of the study provide empirical evidence

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

for the development of preschool special education intervention strategies and the improvement of the early support system.

6.0 LIMITATIONS

Sample representation was limited. Only 150 children were included in this study and it was not made clear whether the sample covered children from different regions of Malaysia and from families of different economic levels, which may make it difficult to fully generalise the findings to the entire population of preschool-aged children with learning difficulties in Malaysia. Purposive sampling was used in this study, which allows for the targeted selection of the study population, but it may be subject to selection bias and the sample is not sufficiently randomised, which affects the external validity of the results.

The data for this study were mainly derived from questionnaire responses from parents and teachers, which are indirect assessments. Parents' and teachers' observations of children's learning difficulties may be subjectively biased, for example, judgements of information processing difficulties may vary according to personal experience, making it difficult to fully and objectively reflect children's actual developmental status.

Potential influencing factors were not included in this study. For example, the influence of external variables such as family environment (e.g., parents' education level, family upbringing style) and school environment (e.g., teaching resources, teachers' professional background) on children's development was not taken into account, making it difficult to clarify the association between these factors and the developmental characteristics of children with learning difficulties. As well as insufficient segmentation of the types of learning difficulties, although dyslexia, dyscalculia and dysgraphia were distinguished, the specific subtypes of each disorder (e.g., phonological and visual in dyslexia) were not further analysed, and the impact of co-morbidities between different disorders (e.g., the co-existence of both dyslexia and dyscalculia) on the development of children was not explored in depth.

The cross-sectional research design of this study, in which data were collected through a single questionnaire survey, did not allow for the tracking of long-term developmental changes in children, making it difficult to reveal the dynamic evolution of the developmental characteristics of children with learning difficulties and the long-term effects of the interventions.

7.0 SUGGESTIONS FOR FUTURE RESEARCH

To address the above limitations, future research can be improved and expanded in the following ways:

Increase the sample size. A larger sample size (e.g., covering different states and ethnic groups in Malaysia) should be selected to ensure that the sample is representative of the overall population of children with learning difficulties in Malaysian preschools and to increase the generalisability of the findings. Stratified random sampling: Stratified sampling by region (urban/rural), household economic level, and type of kindergarten (general kindergarten/special education kindergarten) to reduce sampling bias and increase the representativeness of the sample.

Increase multi-channel data sources. In addition to parents and teachers, more dimensional information can be added by observing children's daily learning activities in kindergartens, interactions with peers, and other scenarios to record their behaviour.

Incorporate more influencing variables. Future studies can analyse the influence of family environment (e.g., parents' accompanying time, educational style), school factors (e.g., class size, teachers' special education training experience), and socio-cultural factors (e.g., differences in perceptions of learning difficulties among different races) on children's development, and clarify the mechanism of action of each factor.

Breakdown the types of learning difficulties. Future research can conduct in-depth studies on different subtypes of dyslexia, dyscalculia, and dysgraphia, analysing the unique developmental characteristics and cognitive mechanisms of each subtype, to provide a basis for formulating more precise intervention strategies. At the same time, focus on the co-morbidities of the disorders and explore the overlapping effects of co-morbidities on children's development.

Conduct long-term follow-up studies. Future research could conduct long-term tracking of the same cohort of preschool-aged children with learning difficulties, continuously observing them from preschool to primary school, recording their developmental trajectories, and analysing the stability of the learning difficulties, the trend of change, and the impact of early intervention on long-term development, so as to provide support for the development of stage-by-stage intervention plans.

Conduct cross-national comparisons. Future studies can compare the developmental characteristics of Malaysian preschool children with learning difficulties with similar studies in other countries to explore the impact of different education systems and cultural environments on the development of children with learning difficulties, and provide a reference for optimising special education policies in Malaysia.

REFERENCES

Almalki, S., Alqabbani A. & Alnahdi,G. (2021). Challenges to parental involvement in transition planning for children with intellectual disabilities: The perspective of special education teachers in Saudi Arabia.Research in Developmental Disabilities103872-103872.

Ayar, G., Yalçın, S. S., Tanıdır Artan, Ö., Güneş, H. T., & Çöp, E. (2022). Strengths and difficulties in children with specific learning disabilities. Child: care, health and development, 48(1), 55-67.

Cao,A.H.(2023). Early screening, diagnosis and intervention of children with learning disabilities. Chinese Journal of Child Health Care (06),590-594.

Gooskens, B., Bos, D. J., Naaijen, J., Akkermans, S. E., Kaiser, A., Hohmann, S., Bruchhage, M. M., Banaschewski, T., Brandeis, D., Williams, S. C., Lythgoe, D. J., Buitelaar, J. K., Oranje, B., & Durston, S. (2021). The development of cognitive control in children with autism spectrum disorder or obsessive-compulsive disorder: A longitudinal fMRI

study. Neuroimage: Reports, 1(2), 100015. https://doi.org/10.1016/j.ynirp.2021.100015

Cardillo, R., Garcia, R.B., Mammarella, I. C. & Cornoldi, C. (2017). Pragmatics of language and theory of mind in children with dyslexia with associated language difficulties or nonverbal learning disabilities. Applied neuropsychology. Child (3),1-12.

Conrad, C., Deng, Q., Caron, I., Shkurska, O., Skerrett, P., & Sundararajan, B. (2022). How student perceptions about online learning difficulty influenced their satisfaction during Canada's Covid-19 response. British Journal of Educational Technology, 53(3), 534-557.

Chen, L. (2022). Research on Social Development Characteristics of Children with Learning Difficulties and Corresponding Educational Strategies. International Journal of New Developments in Education, 4(2), 18-21.

Donolato, E., Cardillo, R., Mammarella, I. C., & Melby-Lervåg, M. (2022). Research Review: Language and specific learning disorders in children and their co-occurrence with internalizing and externalizing problems: a systematic review and meta-analysis. Journal of Child Psychology and Psychiatry, 63(5), 507-518.

Donna,C. Martinez,J.W. C. & Mary,C.C.(2012). Parent Involvement in the Transition Process of Children with Intellectual Disabilities: The Influence of Inclusion on Parent Desires and Expectations for Postsecondary Education. Journal of Policy and Practice in Intellectual Disabilities (4),279-288.

Guo,H. (2023). How to Improve the Learning ability of students with learning difficulties. (eds.) Proceedings of the 2023 Annual Symposium of Guangdong Education Society (8) (pp.218-221). Guying Town Middle School, Caoxian County, Heze City, Shandong Province; Doi: 10.26914 / Arthur c. nkihy. 2023.109549.

Gao,F.Y. (2023). The Causes and Countermeasures of high school Mathematics learning Difficulties. (eds.) Proceedings of the 10th Academic Conference on Innovative Education -- Teaching Methods (pp.66-68). Chongqing Bashu Middle School; Doi: 10.26914 / Arthur c. nkihy. 2023.090319.

Gao,H.C.(2023). Students' probabilistic and statistical Learning Difficulties and solving strategies. (eds.) Proceedings of the 2023 Annual Conference of China Tao Xingzhi Research Society (6) (pp.72-74). Harbin Normal University; Doi: 10.26914 / Arthur c. nkihy. 2023.116719.

Hedenius Martina & Persson Jonas. (2022). Neural correlates of sequence learning in children with developmental dyslexia. Human Brain Mapping (11),3559-3576.

Hautala, J., Karhunen, R., Junttila, E., Ronimus, M., & Young, C. (2024). The goal to perform in readers' theater motivates boys who struggle with reading. Journal of Research in Childhood Education, 38(3), 485-501.

Joginder, S.S, Hussein, N.H., Mustaffa, K. R, & Hassan, F. H. (2017). Reflections of Malaysian parents of children with developmental disabilities on their experiences with AAC. Augmentative and alternative communication (Baltimore, Md.:1985) (2),110-120.

Lee, L. W. (2019). Design and development of a Malay word recognition intervention program for children with dyslexia. Australian Journal of Learning Difficulties, 24(2), 163–179. https://doi.org/10.1080/19404158.2019.1661261

Li,T. (2024). Investigation and analysis of learning difficulties in college mathematics courses. China Educational Technology and Equipment (10),46-48+54.

Lan,W.X, Ma,Z.C. & Chen,Q.X.(2023). "Learning Difficulties Clinic": attention to children's "pain in the heart". Lishui journal, 004. Doi: 10.28540 / n.c. Nki NLSBR. 2023.001467.

Liu,L.J. (2024). Rational and scientific treatment of learning difficulties. Shanxi Education (Management)(01),79.

Ma,C.H.(2023). There is a kind of poor performance called "learning difficulties". Parents (34),7-8.

Margolis, A. E., Dranovsky, A., Pagliaccio, D., Azad, G., Rauh, V., & Herbstman, J. (2025). Annual Research Review: Exposure to environmental chemicals and psychosocial stress and the development of children's learning difficulties. Journal of Child Psychology and Psychiatry, 66(4), 547-568.

Muktamath, V. U., Hegde, P. R., & Chand, S. (2022). Types of specific learning disability. Learning Disabilities-Neurobiology, Assessment, Clinical Features and Treatments, 10.

Ma,K.(2024). Learning difficulties clinic, what exactly? Hainan daily, A06. Doi: 10.28356 / n.c. Nki NHLRB. 2024.000110.

Milburn, T. F., Lonigan, C. J., Allan, D. M., & Phillips, B. M. (2017). Agreement among traditional and RTI-based definitions of reading-related learning disability with preschool children. Learning and Individual Differences, 55, 120–129. https://doi.org/10.1016/j.lindif.2017.03.011

Peters, L., Op de Beeck, H., & De Smedt, B. (2020). Cognitive correlates of dyslexia, dyscalculia and comorbid dyslexia/dyscalculia: Effects of numerical magnitude processing and phonological processing. Research in Developmental Disabilities, 107, 103806. https://doi.org/10.1016/j.ridd.2020.103806

Prior, M. (2022). Understanding specific learning difficulties. Psychology Press.

Shen,T.Y.(2024). Overcoming Learning barriers and achieving life Growth. Shanghai Education (11),17-19. This journal comprehensive. (2023). Learning difficulties outpatient fire, poor performance is a disease. Health for All (22),14-15.

Volume: 08, Issue: 04 July - August 2025

ISSN 2582-0176

Trelani, F., Milburn, Christopher, J., Lonigan, Darcey, M., Allan & Beth M. Phillips. (2017). Agreement among traditional and RTI-based definitions of reading-related learning disability with preschool children. Learning and Individual Differences120-129.

Wen, Q. H., Hannah, C. M., Jessica, E.M., David, P.B., Olivia, S., Samantha, J. L. & Natasha, N. (2024). Impact of early childhood infection on child development and school performance: a population-based study. Journal of epidemiology and community health

Weng,T. & She,Y.J.(2024). Why No. 1 "Learning Difficulties" clinic is difficult to find. Henan daily, 007. Doi: 10.28371 / n.c. Nki NHNRB. 2024.003567.

Xin,Y.(2023). New progress in the research and practice of "learning difficulties" and its intervention: A review of published Chinese literature based on CNKI database in 2023. Modern Special Education (23),13-18.

You,D.Z.(2024). Individualized Tutoring and Support for students with mathematics learning Difficulties. (eds.) Proceedings of the Life Education Symposium of China Tao Xingzhi Research Society in 2023 (III) (pp.610-612). Secondary School affiliated to Tongren College; Doi: 10.26914 / Arthur c. nkihy. 2024.004885.

Yu,M.H., Cheng,W.B., Wang,Y.J, Bai,Y.H. & Pan,X. (2024). Learning burnout, mental health and coping styles of adolescents with learning difficulties and its influencing factors. Journal of Naval Medical University (07), 831-837.doi:10.16781/j.CN31-2187/R.20230701.

Yu,J.X. & Ge,H.J.(2024-07-15). Learning difficulties clinic popular, children's poor grades need to see? Workers journal, 003. The doi: 10.28277 / n.c nki. NGRRB. 2024.003726.

Yenduri, G., Kaluri, R., Rajput, D. S., Lakshmanna, K., Gadekallu, T. R., Mahmud, M., & Brown, D. J. (2023). From assistive technologies to metaverse: Technologies in inclusive higher education for students with specific learning difficulties. arXiv preprint arXiv:2305.11057.

Zhao, W. (2024). Educational intervention for children with learning disabilities. Shanghai Education (11),7-8.

Zhan, Y.J. (2023). What are the characteristics of attention of children with learning difficulties? Adolescent health (21),29.

