



The effectiveness of reading, spelling and writing support for a large sample of school-aged children with Dyslexia: factors influencing efficacy.

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Abstract

In a follow up to an earlier study (Fitriya, 2021) on the longitudinal progress of children with dyslexia, this study further examines the specific learning difficulties associated with Dyslexia, and factors influencing success. Dyslexia hampers accuracy and word fluency in reading and spelling, which is addressed by the Dyslexia Association of Singapore (DAS) in their literacy English Main Literacy Programme (MLP). This programme provides support to students diagnosed with Dyslexia in reading, spelling, and writing using the Orton Gillingham instructional approach. This research aims to examine the effectiveness of the English Main Literacy Programme (MLP) in Singapore in remediating the literacy challenges faced by students with Dyslexia. The present study firstly evaluated the progress of a total of 1280 students between seven and 17 years of age who were enrolled in the programme for one year. The Curriculum-Based Assessment (CBA) was utilized to evaluate the progress of the students in the study using the following test items: (1) words to spell (2) words to read (3) writing tests. Analysis involved the use of both hypothesis testing and the Central Limit Theorem (CLT) across a one-year timespan (from Term 4 in 2019 to Term 4 in 2020), a particularly challenging time for education. Based on a Z-score to ascertain the statistical significance of the results, study findings revealed a significant increase in the mean scores between Term 4 2019 ($M = 92.71$) and Term 4 2020 ($M = 93.98$). This is indicative of a statistically significant improvement in the academic performance of Dyslexic students who participated in the literacy intervention. The validity of this literacy intervention supports the efficacy of the English Main Literacy Programme (MLP) as an evidence-based literacy practice, even during the period of challenge relating to Covid and the switch to online learning. In order to evaluate the impact of individual differences on success or failure, a 2nd phase of the study examined progress within this pattern of improvement, drawing on data from over 1000 children who had participated in the previous study (Fitriya, 2021), during a period of greater normality. These results revealed that home resources, participation in support within the DAS specialist programmes, the length of time and consistency of attendance at DAS for support were implicated in those children who progressed, remained static or regressed. Implications for practice are considered, which are likely to be of particular importance during the period of change experienced in education post-Covid.

Keywords: Central Limit Theorem, curriculum assessment, hypothesis testing, statistical significance, word accuracy, word fluency

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INTRODUCTION

Dyslexia is an increasingly prevalent problem found in school-aged children. Dyslexia, a deficit in phonological language, which is characterized by issues in phonological awareness, processing and speed of processing as well as verbal memory (Fitriya, 2021). Dyslexic students often encounter difficulty with comprehension, spelling, word recognition, and writing (Fitriya, 2021; Lyon et al., 2003; Rutter et al., 2006). As a result, students with Dyslexia also have difficulty concentrating as well as behavioural, emotional, and language issues (Fitriya, 2021; Lyon et al., 2003; Rose, 2009; Rutter et al., 2006). The challenges Dyslexic students encounter on a daily basis diminish their self-esteem and zest for learning (Fitriya, 2021; Gooch et al., 2016).

In Singapore, students with Dyslexia are supported by the Dyslexia Association of Singapore (DAS). This organization has adopted and implemented the principles associated with a highly structured, phonic-based, multi-sensory approach to teaching and learning as developed by Orton Gillingham to support reading, writing, and spelling (Fitriya, 2021; Ritchey & Goeke, 2006; Rose & Zirkel, 2007). DAS uses an integrated curriculum designed to meet the various needs and demands of dyslexic students with varying abilities (Fitriya, 2021). This present study seeks to measure the academic performance and progress made by dyslexic students ($n = 1280$) 7-17 years of age who were enrolled in the English Main Literacy Programme (MLP) for a year (from Term 4 2019 and Term 4 2020). Assessments were made using the Curriculum-Based Assessment (CBA) to test words to spell, words to read as well as writing assessments.

LITERATURE REVIEW

Reading and writing impairments are associated with children diagnosed with Dyslexia. Assessment of transcription issues and follow-up discussion can assist in understanding the effectiveness of the DAS English Main Literacy Programme (MLP) in improving the literacy challenges these children face.

Dyslexia and its Impact on Reading and Spelling

Dyslexic students often find it hard to read, write and spell words during their education journey (Catts et al., 2012). Dyslexia is a learning disability that affects children and poses challenges in reading and writing that may be aggravated when exposed to a noisy classroom setting (Calcutt et al., 2016, 2018). Researchers further indicate that students with Dyslexia do poorly on reading and writing exercises, implying that Dyslexics have a deficit in phonological skills (Sümer Dodur & Altındağ Kumaş, 2021). Amongst other challenges, Dyslexia hinders the reader's ability to link intense sounds and symbols together. In this case, the student with Dyslexia will struggle with phonemic stages. Reading instruction in schools primarily focuses on robust phonemic-based reading methods, whereby the student must decode words (Galuschka et al., 2020).

Readers, therefore, take the initiative to translate instructions systematically, going letter by letter. Decoding is the aspect that consumes much of the dyslexic student's comprehension ability because their difficulty in processing each word impacts their understanding. These are cognitive comprehension abilities. Spelling and reading involve reciprocal parts of one task, which are essential since they connect letters and reading sounds (Hagan-Burke et al., 2011).

Dyslexic students will exhibit common types of spelling difficulties which are persistent until adolescence. The dyslexic problem is evident when students are engaging in phonological processing. (Hagan-Burke et al., 2011). Therefore, when spelling unknown words and encoding, students require practice and need to apply different strategies that the teacher has taught them. Students also have difficulties remembering long sentences, as students with Dyslexia tend to have weak working memory (Alloway et al., 2017). It is for those reasons that the student's spelling abilities often end up predicting their reading abilities.

With difficulty in spelling and reading, it is no surprise that students with Dyslexia manifest difficulties in writing. They also have poor spelling, lack of vocabulary, and poor organization skills (Hebert et al., 2018). In DAS, we have the English Main Literacy Programme (MLP) that addresses all these challenges in students. This study aims to evaluate the progress made by these students.

DAS Main Literacy Programme (MLP) Integrated Curriculum

The DAS MLP intervention is substantiated by evidence-based research and instruction from the National Reading Panel (US), Professional Practice Guidelines (SG), and the Rose Report (UK). Individualised group lessons based on the Orton-Gillingham principles (National Reading Panel, 2000; Ritchey & Goeke, 2006; Rose & Zirkel, 2007) are taught as part of the programme.

With reference to Figure 1, the MLP integrated curriculum begins with developing students' vocabulary languages and progressing upwards. In addition, educational technology tools are utilized to aid students' learning and ensure that students are engaged throughout the lesson given their digital readiness.

National Reading Panel

According to the National Reading Panel (2000)'s analysis, the optimum method in reading instruction comprises vocabulary language, explicit phonemic awareness instruction, systematic phonics instruction, and ways to enhance fluency and comprehension. It is found that teaching children to read requires a combination of techniques:

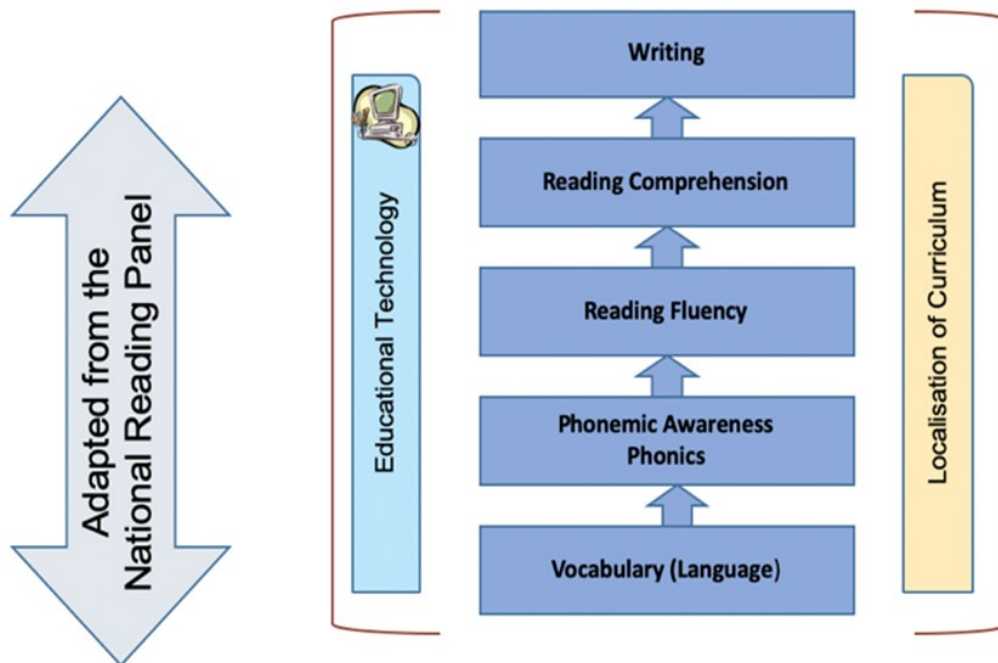


Figure 1. DAS Main Literacy Programme Integrated Curriculum

- ◆ **Phonemic awareness** – the understanding that spoken words can be broken down into smaller segments of sound known as phonemes. Children who are read to at home, particularly those materials that rhyme, typically develop the basis of phonemic awareness. When children are not read to, they will need to be taught how to break words down into smaller sounds. It is important to note that Dyslexic children may show this pattern of difficulties, even when parents have read to them extensively.
- ◆ **Phonics** – the knowledge that letters of the alphabet represent phonemes, and these sounds are combined to form written words. Readers who are proficient in phonics can sound out unfamiliar words without having to memorise them beforehand.
- ◆ **Fluency** – the ease of recognizing words, being able to comprehend, and reading with greater speed, accuracy, and expression. Children gain fluency by practicing reading until it becomes automatic. One method for assisting children in becoming fluent readers is guided oral repeated reading.

- ◆ **Guided oral reading** – reading aloud while receiving guidance and feedback from skilled readers. The combination of practice and feedback improves reading fluency.
- ◆ **Teaching vocabulary words** – teaching new words when they appear in the text or introducing new words separately. This form of instruction also aids reading ability.
- ◆ **Reading comprehension strategies** – methods for helping students to comprehend what they have read. It involves having students summarize what they have read to obtain a better understanding of the material.

In addition, in the DAS enhanced curriculum, the new concept is incorporated into writing. The new concept is the new teaching topic for the day and integrating the new concept into various lesson plan components is a means to provide more holistic literacy instruction. The in-house curriculum has implemented strategies to address students' reading, writing, and spelling challenges through the English Main Literacy Programme (MLP).

Orton Gillingham (OG) principles

At DAS, the Orton Gillingham (OG) principles of structured, sequential, multi-sensorial, and phonics-based approaches are adopted to educate students on the basic concepts of reading, spelling, and writing (Ritchey & Goeke, 2006; Rose & Zirkel, 2007).

- ◆ **Diagnostic and prescriptive** – in which lessons are built on learners' learning needs and profiles.
- ◆ **Emotionally sound** – where lessons are aimed at helping learners achieve success while bridging any gaps in their knowledge.
- ◆ **Cognitive** – each lesson covers fundamental and advanced literacy skills and strategies vital for reading, spelling, reading comprehension, and writing.
- ◆ **Structured, cumulative, and sequential** – the knowledge and skills taught build on previous lessons to ensure that learners are proficient and confident in applying what they have learned and acquired (Ritchey & Goeke, 2006; Rose & Zirkel, 2007).

In addition to incorporating the OG principles, PPP (Presentation, Practice, Production) stages approach is adopted to teach and communicate concepts to students. The Presentation stage facilitates pre-activity conversations through modelling. The Practice stage supports and guides students in a structured, cumulative, and sequential manner to

enhance learning. The Production stage presents opportunities for students to be independent in applying the concepts or skills they have learned (Criado, 2013).

Factors Influencing Intervention Efficacy

Past reviews on the effectiveness of intervention approaches for students with Dyslexia revealed that interventions aimed at remediating spelling and reading skills should emphasize targeting their literacy skills rather than underlying auditory or visual factors (Galuschka et al., 2020). Research has been shown that direct, explicit spelling instructions are more effective in improving spelling than implicit self-study approaches. Furthermore, intervention components beneficial for spelling abilities include instant corrective feedback and several spelling exercise opportunities (Wanzek et al., 2006; Williams et al., 2017).

Research has shown an association between children's socioeconomic background and their reading abilities. Specifically, economically disadvantaged children tend to demonstrate slower reading development (Aikens & Barbarin, 2008; Diuk et al., 2019; Schiff & Lotem, 2011). High socioeconomic status (SES) families might have more means to afford a wide range of resources that provides their children a developmental advantage and seek out alternative educational strategies as compared to low SES children who may lack access to such resources, limiting learning opportunities afforded to children from low-income backgrounds (Bradley & Corwyn, 2002; Noble et al., 2006). Children may thus be able to overcome phonological challenges and attain adequate reading achievement in such a highly supportive environment (Noble et al., 2006). Noble and colleagues (2006) revealed that a higher SES environment might buffer children with lower phonological skills reading abilities. Besides, prior studies have demonstrated that educators' perception of their students' academic skills influences the teaching techniques employed and students' outcomes (Begeny et al., 2008; Mojavezi & Tamiz, 2012). This underscores the possibility of multiple factors in influencing students with Dyslexia's progression in their literacy skills. Accordingly, in an exploratory vein, the present study also seeks to explore various factors influencing the literacy intervention in enhancing students' literacy skills with Dyslexia.

METHOD

Research Aim

The research aims to evaluate the progress made by students with Dyslexia enrolled in the DAS English Main Literacy Programme (MLP) in their reading, spelling, and writing skills through the enhanced curriculum teaching methods. A significant improvement would validate the educational intervention in knowledge transfer to students.

Research Hypothesis

We hypothesized that, on average speaking, there would be a significant improvement in the mean difference in students' performance in the Curriculum-Based Assessment (CBA) between Term 4 2019 and Term 4 2020.

Research Design and Procedures

One thousand two hundred eighty Singaporean school-aged children with Dyslexia, aged 7 to 17 years old, were recruited to participate in the present study. These students were enrolled in the English Main Literacy Programme (MLP) at the Dyslexia Association of Singapore (DAS) for literacy intervention. All students held an official diagnosis of Dyslexia, assessed and diagnosed either at the DAS or elsewhere in Singapore, based on Full-Scale IQ (FSIQ) and difficulties in literacy that resulted in lowered achievement compared to neurotypical peers.

A longitudinal study was adopted to review the effectiveness of the English Main Literacy Programme (MLP) in improving students' literacy skills. Progression in their reading, spelling, and writing abilities was assessed using the Curriculum-Based Assessment.

Curriculum Based Assessment (CBA)

All students were assessed using the CBA to track their knowledge transfer and progression in the English Main Literacy Programme (MLP). The CBA focused on three main tests assessing the words to read, words to spell, and writing tests. The following are a few examples of Curriculum-Based Assessment (CBA), such as words to read and words to spell (Figures 2 and 3). In the CBA words to read, students were given five minutes to read as many words as possible, progressing from easy to difficult.



Figure 2. A Sample of Word Reading Accuracy (Fitriya, 2021) © DAS



Figure 3. A Sample of Word Spelling (Fitriya, 2021) © DAS

In the CBA words to spell, students heard the spelling words by pressing the play again button, and following, typed the words in the designated space.

RESULTS

Percentage scores

To examine the effectiveness of the English Main Literacy Programme (MLP), students' progression across a one year period, specifically between Term 4 2019 and Term 4 2020, were evaluated and compared. Students' individual total CBA scores were computed by summing their reading, spelling, and writing scores. Subsequently, an overall score for each student was calculated as a percentage of the total possible score.

CBA = reading + spelling + writing scores

$$\text{Percentage scores} = \frac{\text{Reading + Spelling + Writing Scores (CBA)}}{\text{Total Score Possible}} \times 100\%$$

Following, mean percentage scores for each of the time points, specifically, Term 4 2019 and Term 4 2020, were computed by averaging the sum of 1280 students' percentage scores in each term, which would then be used for our analysis.

$$\text{Mean percentage scores} = \frac{\text{Summation of 1280 students' percentage scores}}{1280}$$

Data Analysis

The Central Limit Theorem (CLT) and hypothesis testing are used to analyse the research data. The rationale for the analytical method employed is that it allows the evaluation of two mutually exclusive statements about a population to ascertain which statement is best accounted for by the sample data. The hypothesis testing approach is used to determine the statistical significance of the research undertaken to demonstrate that the results obtained were not by chance alone. By statistically significant, we indicate that if we are to select multiple independent random samples of 100 students, who took the CBA test in Term 4 2020, then what is the probability that most of the random samples will have an average mean higher than Term 4 2019 ($\mu_{20} > \mu_{19}$).

The null hypothesis states no statistically significant mean difference in students' CBA percentage scores between Term 4 2019 and Term 4 2020.

$$\text{Null hypothesis: } H_0: \frac{\mu_{20} - \mu_{19}}{s/\sqrt{n}} = 0$$

$$\text{Research hypothesis: } H_1: \frac{\mu_{20} - \mu_{19}}{s/\sqrt{n}} > 0$$

Figure 4a presents the trajectory of students' mean percentage scores across one year in the three test items: words to read, words to spell, and writing tests.

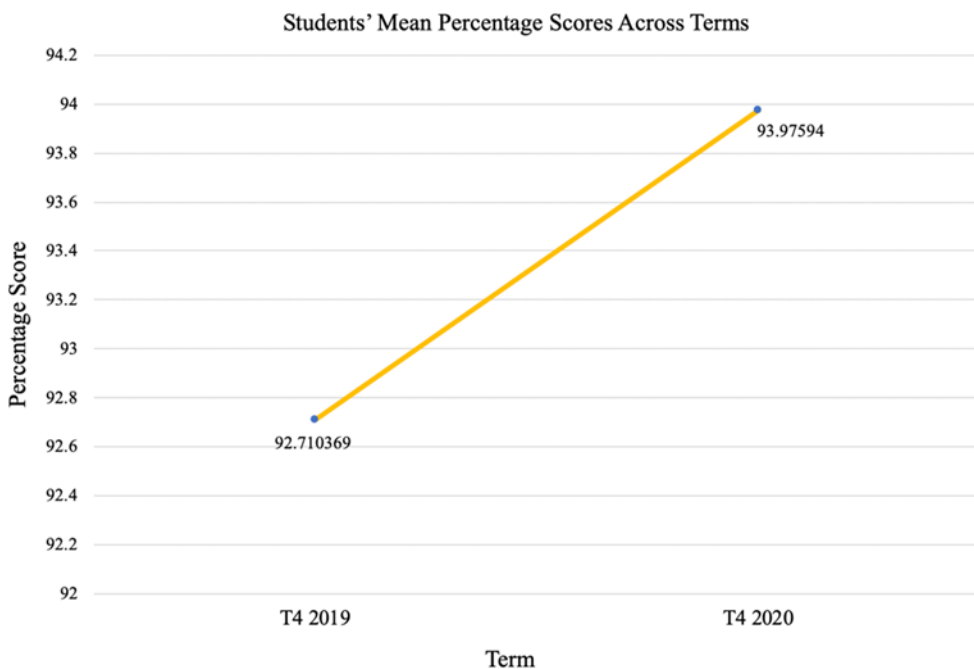


Figure 4a. Progression of Mean % Scores Across 1 Year, Precisely, Term 4 2019 & Term 4 2020

A Z-test was conducted, comparing the average mean percentage scores in Term 4 2019 and Term 4 2020. According to the finding, mean CBA percentage scores increased between Term 4 2019 ($M = 92.71$, $SD = 4.17$) and Term 4 2020 ($M = 93.98$, $SD = 3.36$). With reference to Figure 4b presented below, the Z score indicates a significant improvement, and the null hypothesis is rejected.

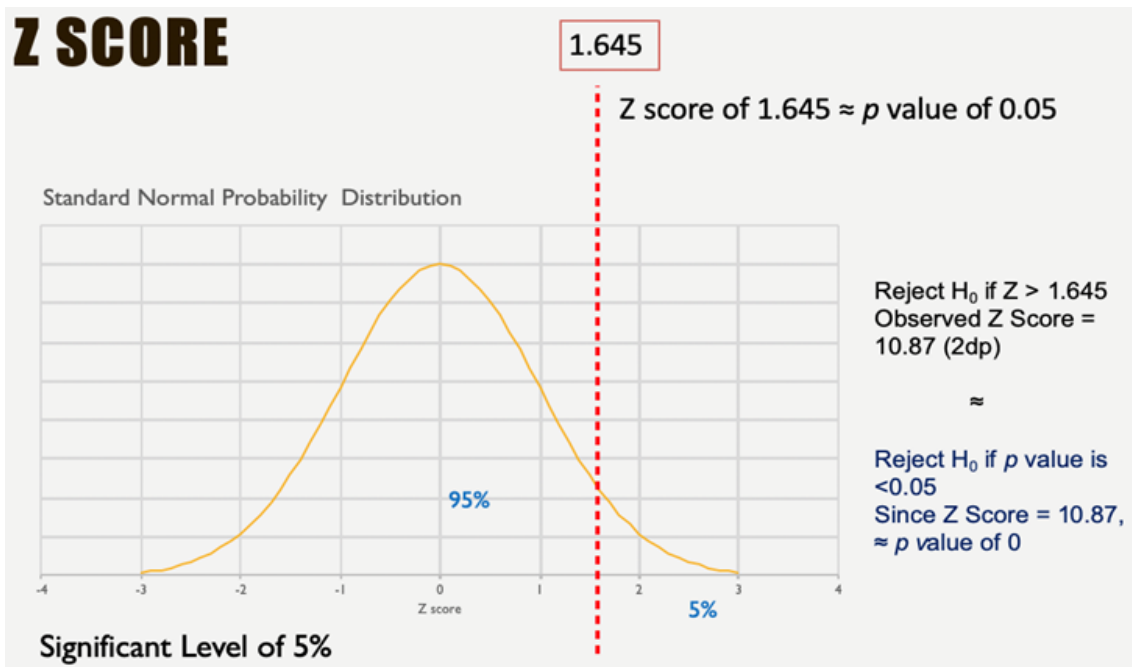


Figure 4b. Z Scores Across 1 Year

Based on the result obtained, we conclude that the English Main Literacy Programme (MLP) has resulted in a statistically significant improvement in the performance among students with Dyslexia across the one-year period. This finding is in line with the 2016 to 2018 longitudinal study conducted by Fitriya (2021), which found that students' mean scores increased from an average mean of 48.54 in 2016 to 62.43 in 2018 (Figure 5).

Exploratory analyses

In addition, to understand further the various factors influencing students' improvement following the curriculum, 1007 students' data were further analysed from the 1343 students aged 7 - 17 enrolled in the English Main Literacy Programme (MLP) for six school terms from 2016 to 2018. This would aid in establishing a more practical approach to remediation. Of the 1007 students, 662 had progressed, 44 remained unchanged, and 301 had regressed (Fitriya, 2021).

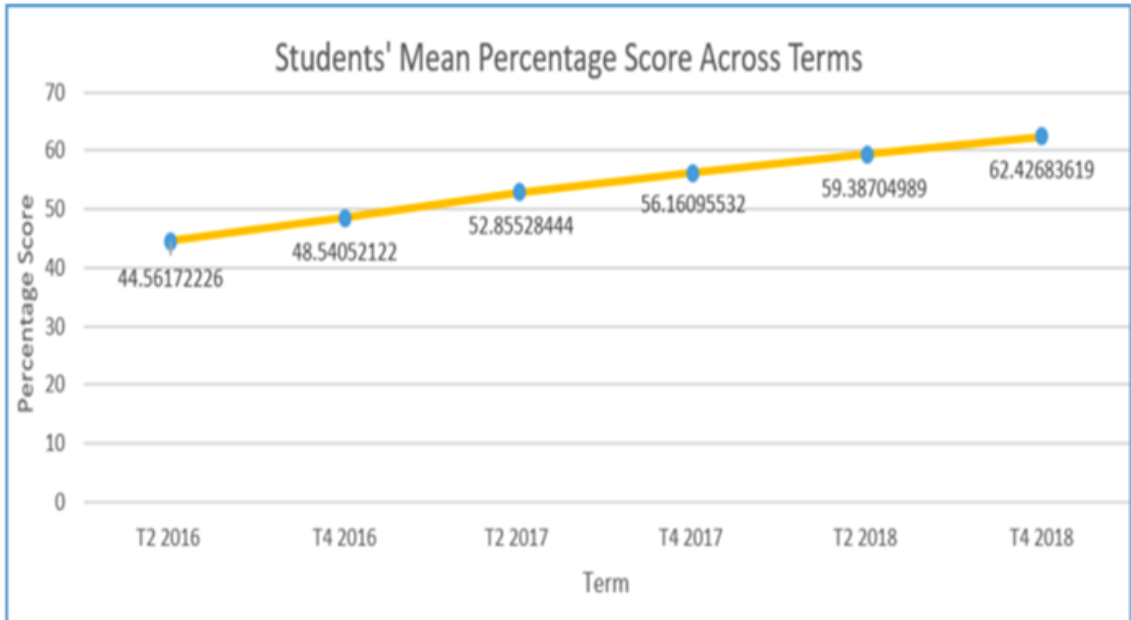


Figure 5. Progression of Mean % Scores Over Time, From Term 2 2016 to Term 4 2018 (Fitraya, 2021)

Bursary Type

Eligible Singaporean Citizen students attending government-funded Special education (SPED) schools may receive financial assistance by applying for the SPED Financial Assistance Scheme (FAS). The qualifying conditions are the Gross Household Income (GHI) of not more than \$2,750 per month or the Per Capita Income (PCI) of not more than \$690 per month (SupportGoWhere, 2021).

Over the years, a range of language and literacy support services, including Dyslexia remediation, have been made available to students attending mainstream and government-funded Special Education (SPED) schools.

The Main Literacy Programme is part-funded by the Ministry of Education (MOE). Students who meet the following criteria are eligible for the MOE financial assistance scheme for the MLP:

1. Singaporean students enrolled in a mainstream school
2. Primary 1 to Secondary 5
3. Diagnosed with Dyslexia

Table 1 below presents the breakdown of the number of students attending the MLP receiving or not MOE financial assistance. 40.03% of progressed students, 65.91% of unchanged students, and 50.83% of regressed students were under the Ministry of Education (MOE) bursary scheme. The results show that more than half of those students who remained unchanged and regressed received financial assistance to support the DAS Main Literacy Programme (MLP) fees. We can assume that students with Dyslexia from disadvantaged families may face more significant literacy challenges.

Table 1: Breakdown of students by bursary scheme

	No. of overall progress students	No. of overall unchanged students	No. of overall regress students
No Bursary	397	15	148
MOE Bursary	265	29	153

Specialised Educational Services (SES) Programmes

Overall Progress Students. Concerning students who had progressed, 94 students were enrolled in the SES programme. Among these students, nine students attended two SES programmes, and one attended three SES programmes. As a percentage, 15.24% attended the hourly Chinese Primary programme, 5.71% attended the Chinese Primary programme (2 hours), 11.43% attended the Chinese Secondary Bridging programme (2 hours), 10.48% were enrolled in the hourly Preparation for English Paper 2 PSLE programme, 0.95% participated in the iReaCH programme (2 hours), 19.05% attended the hourly Math programme, 13.33% attended the hourly Math Essential programme, 5.71% participated in the Speech and Drama Arts programme (1.5 hours), 17.14% participated in the Speech and Language Therapy (SLT), and 0.95% attended the Artventure programme (Table 2).

Overall Unchanged Students. For those unchanged students, two students were enrolled in the SES programme, specifically Speech and Language Therapy (SLT) (Table 3).

Overall Regress Students. Of those unchanged students, 31 were enrolled in the SES programme. 3.23% attended the hourly Chinese Primary programme, 12.90% attended the 2-hours Chinese Primary programme, 32.26% attended the 2-hours Chinese Secondary Bridging programme, 12.90% attended the hourly Preparation for English Paper 2 PSLE programme, 6.45% were enrolled in the iReaCH programme (2 hours), 9.68% attended the hourly Math programme, 6.45% attended the hourly Math Essential programme, 3.23% attended the Speech and Drama Arts programme (1.5 hours), and 12.90% attended the Speech and Language Therapy (SLT) (Table 4).

Table 2: Breakdown of Progressed Students by SES Programme

Specialised Educational Services (SES) Programme Name	No. of students enrolled
CHN/Chinese Primary (1hr)	16
CHN/Chinese Primary (2hr)	6
CHN/Chinese Secondary Bridging Prog (2hr)	12
EP2/Preparation for English Paper 2 PSLE (1hr)	11
IRE/iReaCH Programme (2hr)	1
MTH/Maths (1hr)	20
MTH/Maths Essential (1hr)	14
SDA/Speech and Drama Arts (1.5hr)	6
SLT/Group (Term/10 sessions)	18
STP/Artventure (3hr)	1

Table 3: Breakdown of Unchanged Students by SES Programme

Specialised Educational Services (SES) Programme Name	No. of students enrolled
SLT/Group (Term/10 sessions)	2

Table 4: Breakdown of Regressed Students by SES Programme

Specialised Educational Services (SES) Programme Name	No. of students enrolled
CHN/Chinese Primary (1hr)	1
CHN/Chinese Primary (2hr)	4
CHN/Chinese Secondary Bridging Prog (2hr)	10
EP2/Preparation for English Paper 2 PSLE (1hr)	4
IRE/iReaCH Programme (2hr)	2
MTH/Maths (1hr)	3
MTH/Maths Essential (1hr)	2
SDA/Speech and Drama Arts (1.5hr)	1
SLT/Group (Term/10 sessions)	4

Generally speaking, as a percentage, 14.20% progressed students, 4.55% unchanged students, and 10.30% regressed students were enrolled in SES programmes, apart from Main Literacy Programme (MLP). We can presume that students' improvement in their CBA scores could be partly accounted for by their participation in SES programmes in addition to MLP.

Approximate Number of Years Students are in the MLP

Due to missing data, one student from the overall progress group was excluded from the analysis. Hence the final sample comprised of 1006 students (Overall Progress: n = 661; Overall Unchanged: n = 44; Overall Regress: n = 301).

Table 5: Breakdown of Students' Progression by Number of Years Enrolled in the MLP

Approximate no. of years	No. of overall progress students	No. of overall unchanged students	No. of overall regress students
<1	1	0	0
1	26	1	11
1.5	26	0	8
2	33	3	21
2.5	71	3	19
3	37	3	9
3.5	82	2	53
4	31	2	14
4.5	101	4	34
5	48	4	25
5.5	78	6	31
6	34	4	20
6.5	41	6	29
7	11	3	5
7.5	14	2	10
8	7	1	5
8.5	18	0	5
9	1	0	2
9.5	1	0	0

Concerning Table 5, most progressed students were enrolled in the MLP within the range of 3.5 to 5.5 years. Most of those who remained unchanged was in the MLP for about 5.5 to 6.5 years. While for those regressed students, the majority attended the MLP for 3.5 years. Comparing students who had progressed to students who had regressed, most progressed students were enrolled in the MLP longer than students who had regressed.

MLP Attendance

Overall speaking, the majority of students' MLP attendance, as a percentage, ranged from 90 to less than 100 (Table 6). As students have different learning profiles, there may be individual and synergistic effects of potential factors influencing their literacy progression.

Table 6: Breakdown of Students' Progression by MLP Attendance

Attendance (%)	No. of overall progress students	No. of overall unchanged students	No. of overall regress students
70 - <80	12	1	7
80 - <90	59	6	42
90 - <100	378	24	151
100	211	13	101
>100	2	0	0

DISCUSSION

The current study sought to evaluate the efficacy of the DAS English Main Literacy Programme (MLP) as an intervention for remediating the literacy challenges faced by Singaporean school-aged children with Dyslexia. In line with our hypothesis, research findings revealed a significant gain in literacy performance among students with Dyslexia following one year of the English Main Literacy Programme (MLP), lending support to DAS English Main Literacy Programme (MLP) as an evidence-based practice. It is important to note this continuing improvement, despite the restrictions experienced during the period of Covid.

The DAS in-house curriculum has implemented strategies to address the students' reading, writing, and spelling challenges. In view of the research findings, educators should continue to employ the in-house curriculum and adopt teaching approaches appropriate for individual learning. Implementing an English Main Literacy Programme

(MLP) is not sufficient without proper teaching tools in place. To aid students in improving their reading, spelling, and writing skills, educators need to apply both face-to-face and specialised instructional materials. These strategies can help students with reading and writing challenges (Martínez-García et al., 2020).

As educators in schools may have an inadequate understanding of Dyslexia and how to manage students with Dyslexia, strengthening awareness of the educational needs of students with Dyslexia is therefore imperative. Hence, the education institutions should endeavour to ensure that teachers are equipped with the skills and knowledge needed to understand a student with a disability (Moats, 2019). Given that literacy difficulties in students with Dyslexia are a result of their phonological deficits, phonologically based training needs to be incorporated in teaching practice. Educators should understand the importance of the issue of phonological awareness and also receive phonological awareness training to develop an understanding of how they can implement strategies to help students with Dyslexia achieve positive outcomes. In such methods, students learn to comprehend a text and read and extract key messages to promote healthy development and cognitive skills (O'Brien, 2020).

LIMITATIONS

Several limitations of the present research should be noted. First, there is a disparity in the test administration dates, which is a potential limitation of any longitudinal studies. Accordingly, there may exist possible confounding variables such as history and maturation. The second limit of the research is the scores. As the "total" score is computed by summing all the three items incorporated in the Curriculum-based assessments, which is unique to each student, the actual differences in scores of each literacy skill may be diluted by differences in the progression of the different skills measured amongst the students. For instance, if student A made significant progress in reading while student B only progressed by a little, the overall change in the total reading and spelling scores could be significant. In other words, the results does not reflect students' progression in each individual test component. To address the limits in measuring individual progress, future research could measure students' performance in each of the Curriculum-based assessments test components to determine which components students have difficulty with the most when progressing to the next band level. The third limitation to be included could be the disruption of classes in 2020 due to the COVID-19 pandemic, all classes have switched mediums (e.g., moved online), which may have made an impact on the students' reading, spelling, and writing performances.

FUTURE DIRECTIONS

Future research may examine the different aspects of students' improvement following the intervention, such as by exploring the number of years that educators have worked in the special needs profession. Difficulties with spelling and writing are likely to continue,

despite improvement in reading, and it would therefore also be useful to break down progress into reading, spelling and writing separately, to provide further information on individual differences in progress.

CONCLUSION

The present research findings demonstrate that students' performance in the Curriculum-based assessments has improved over one year. It is pleasing to note that the intervention programme remained effective despite the many constraints on progress during this period, with the need to switch teaching online and deal with periods of illness.

This improvement could be credited to the English Main Literacy Programme (MLP). The intervention programme facilitates interaction between students and educators, allowing the educators to understand better the reading difficulties faced by students with Dyslexia. Besides, it allows for close monitoring and evaluation of the students to ensure that they meet their academic objectives. The educators discuss and address any setbacks encountered, thereby allowing the English Main Literacy Programme (MLP) to be implemented successfully. It was rewarding to note that performance improved overall despite the ongoing difficulties worldwide, a tribute to the flexibility of teachers at DAS.

Students with Dyslexia face difficulties in reading, writing, and spelling, which causes them to fall behind in their educational pathway. Therefore, it is the role of parents, teachers, and institutions to develop education plans to help identify students with Dyslexia and assist them in their academic pursuits. The DAS English Main Literacy Programme (MLP) is a crucial tool for supporting educators in remediating their difficulties. As a result, educational institutions should put in place relevant English intervention programmes and understand their practical application plans. Successful implementation of these intervention programmes can result in success within these institutions. Research has shown that educators and the Ministry of Education can implement educational support for students with Dyslexia in educational institutions. These platforms foster the development of an environment that could improve literacy skills amongst students with Dyslexia, even in difficult situations.

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