



EVALUATION OF SES PROGRAMMES

SPECIALISED EDUCATIONAL SERVICES

*SES is a division of the
Dyslexia Association of Singapore*



Specialised Educational Services

UNLOCKING POTENTIAL

CHINESE PROGRAMME

The aim of the programme is to help students with dyslexia become independent, inquisitive learners in the Chinese language.

There are many difficulties a child with dyslexia can face when learning Chinese such as being confused with characters that look similar like 犬 'dog' and 太 'more', characters that sound alike such as 身 'body' and 生 'grow' and characters that are related in meaning such as 校 with 学 where the two put together is the word school (学校).

OUR APPROACH

The SES Chinese programme helps to foster a child's interest in the language through thematic-based teaching. In this way, vocabulary covered is relatable and can be used on a daily basis, allowing them to express themselves better in the language. Students are taught interactively with the use of stories, educational games and hands-on activities to make language learning a fun and memorable experience for them. This also helps to minimise the child's stigma towards the language and build up their confidence and motivation to learn the language. Lessons are also structured in a way to increase efficiency in learning the language through the instruction of character structure, radicals, stroke pattern, word recognition strategies and understanding how words are combined together.

Components covered in a typical lesson:

1. Word Recognition
2. Vocabulary Instruction
3. Teaching of Sentence Structures

Comprehension and writing activities are also carried out for students who have developed good oracy skills.

Specialised Educational Services

Chinese Programme

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Dyslexia Association of Singapore

BACKGROUND OF THE CHINESE PROGRAMME

Chinese is a pictorial and symbolic language with meanings and sounds represented by strokes and strokes patterns. According to Ho, et al. (2006), the basic graphic unit in Chinese is a character. Each character represents a morpheme as well as a syllable. Only a small percentage of Chinese characters convey meaning by pictographic or ideographic representation (Hoosain, 1991). Hua and Hong (2012, p. 15) point out that more than 80% of modern Chinese characters are ideophonetic compound characters, each consisting of a semantic radical which carries the meaning information of a character and a phonetic radical which provides the cue for the pronunciation of the character. An example is '抬' (tái) (lift), the semantic radical '扌' (hand) gives the cue to the meaning of the character while the phonetic radical '台' (tái) (stage) gives the cue to the pronunciation of the character. However, the predictive accuracy of the pronunciation of a compound character from its phonetic radical is about 40% (Ho et al., 2006). Hua and Hong (2012, p. 16) also point out that many of the radicals have their legal positions within the characters, although others can appear on flexible positions. For example, '扌' can only appear on the left of characters while '亠' can only appear on the top.

As such, in carrying out remediation, it is vital that students are brought to greater awareness of the orthographical structures and position of radicals within the characters. It is also necessary to help them understand how each component relates to the meaning and pronunciation of the character.

In our pilot study conducted from 2010 to 2011, children with dyslexia were weaker on measures of literacy skills such as visual-orthographic, morphological awareness and visual-motor integration skills as compared to students who were not at risk of dyslexia. Other aspects of Chinese language processing requiring visual memory were also found to be weaker. Visual-orthographic skills refer to the strategic attempt of breaking Chinese words into parts to help them read and write. It is required to allow students to recognise Chinese characters and read them as accurately as possible. The DAS Chinese Research team has observed that dyslexics were found to make more errors that are visually similar, i.e. words that have the same radicals (也, 他, 地). Another feature of the language that presents itself as a difficulty to language learning is the presence of the large number of homophones. In other words, there are many words that share the same pronunciation but have very different meaning. This makes it harder for tasks requiring word retrieval. Poorer visual-motor integration skills also result in difficulty in producing Chinese character with strokes that are in the correct direction, stroke sequence and proportion of the parts of the characters.

DESCRIPTION OF THE CHINESE PROGRAMME

The programme was started in January 2013 for primary school students who have been diagnosed with dyslexia. The programme has been shaped to address the identified areas of weaknesses in the pilot study by providing students with strategies. The aim of the programme is to help students become independent and inquisitive learners in the Chinese language. This is achieved by building students' interest in the language, increasing their efficiency in learning the language and increasing their verbal expressiveness through oracy.

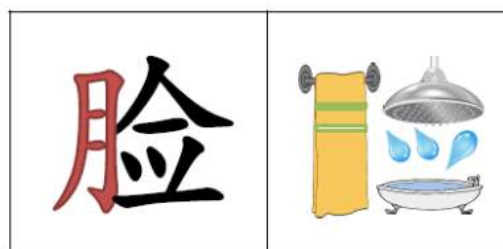
Each lesson covers common vocabulary, sentence structures and word recognition strategies. Students who have developed competency in their oral skills would then be introduced to writing and comprehension skills and strategies. The Orton-Gillingham approach and principles are adopted and applied in the delivery of lessons. Learning is pegged at the learner's level of learning to help develop feelings of competency and success.

In teaching sentence structures, teachers adopt a multisensory approach to allow students to understand the different parts that constitute a sentence and how to manipulate them into a sentence. Teachers would first present a sentence structure with examples. Next, students are required to produce sentences with the help of images.



Lastly, they are then expected to form sentences on their own with the structure.

Word recognition strategies taught are intended to make character learning more memorable and engaging for the students. Generalisations are also taught to help them analyse what they have learnt and synthesise new information to apply into their learning. Some of the strategies taught include identifying semantic radicals, the picture method and coming up with short stories to remember characters. An example is illustrated in teaching the character for face. This helps students to associate the written character with its meaning.



Students are also taught interactively through hands-on activities, educational games and storytelling to help them relate what is taught in class to their daily lives. Other teaching resources are developed internally by the teachers and revised regularly. Reference is made to the MOE Chinese syllabus word list for the selection of words and radicals to teach. The curriculum has also extended to the development of other literacy skills such as reading comprehension and writing. Scaffolding and explicit instruction are critical in literacy instruction.

CURRICULUM DEVELOPMENT

Curriculum Development Process

The programme started in 2013 with the aim of developing students' oracy and word recognition skills. Since then, the needs of the students have grown to be more diverse and advanced in the support they require. Apart from oracy skills, students increasingly also need support in literacy skills, namely reading comprehension and writing skills.

The Oracy Pack was first launched in 2013 and was revised in 2015 and renamed as the Foundational Language Pack as it comprised of the basic language skills of listening, speaking and word recognition.



The pack consists of a total of three manuals with lesson plans, teaching resources and worksheets for students. Teachers are allowed to make adaptations based on the needs and abilities of their students, in line with the OG principle of being diagnostic and prescriptive. The pack is also supplemented by the semantic radical card deck and sentence card deck.

The semantic radical card deck and the sentence card deck are used for teaching and reviewing of semantic radicals and sentence structures. The semantic radicals and sentence structures are selected with reference to the primary school syllabus. The more basic radicals and sentence structures are taught first, followed by the more complex ones. When reviewing, the front of the card shows the target radical or sentence structure. If the student forgets, the reverse serves as a cue or prompt to help the student recall.

Table 1 Example of Card Decks

	Front	Back												
Semantic Radical Card Deck	<div> </div>	<div> </div> <table border="1"> <tr> <td>一年级</td> <td>手 找 扫 打 操 播 拍 抱 抬</td> </tr> <tr> <td>二年级</td> <td>护 抹 捧 换 把 找 抬 拍 捉 拔 招 扶 挂 抱 把 推 检 根 摸 播 担 接 捉 接 挂 搬</td> </tr> <tr> <td>三年级</td> <td>拼 播 播 摆 播 抢 握 探 捧 挂 指 弹 接 换 拈 捉 检 抓 折 捉 担</td> </tr> <tr> <td>四年级</td> <td>排 扔 按 据 搬 播 播 播 播 播 托 拔 排 撞 招 持 抄 抖 批 弹 扮</td> </tr> <tr> <td>五年级</td> <td>扬 播 投 握 拖 抬 招 抵 抗 持 撞 摘 提 拼 挑 括 挖 控 捆 扫 根 柄 挥 技 扩 招 推 拒</td> </tr> <tr> <td>六年级</td> <td>竭 抚 挑 换 摸 抖 扑 描 撑 护 担 扭 搞</td> </tr> </table>	一年级	手 找 扫 打 操 播 拍 抱 抬	二年级	护 抹 捧 换 把 找 抬 拍 捉 拔 招 扶 挂 抱 把 推 检 根 摸 播 担 接 捉 接 挂 搬	三年级	拼 播 播 摆 播 抢 握 探 捧 挂 指 弹 接 换 拈 捉 检 抓 折 捉 担	四年级	排 扔 按 据 搬 播 播 播 播 播 托 拔 排 撞 招 持 抄 抖 批 弹 扮	五年级	扬 播 投 握 拖 抬 招 抵 抗 持 撞 摘 提 拼 挑 括 挖 控 捆 扫 根 柄 挥 技 扩 招 推 拒	六年级	竭 抚 挑 换 摸 抖 扑 描 撑 护 担 扭 搞
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六年级	竭 抚 挑 换 摸 抖 扑 描 撑 护 担 扭 搞													
Sentence Card Deck	<div>的.....。 </div>	<div>的.....。 </div> <div> 这是一本好看的书。 P1BL6: FLP2.3 </div>												

A pilot trial has also been conducted on the effectiveness of teaching a radical using the teaching resources and reviewing with the semantic radical card deck. The students were tested if they recognise a radical before they were taught, taught the radical using videos, teaching slides and teaching worksheet, reviewed weekly alongside other radicals and tested if they could recall the name and meaning of the radical. This trial was conducted with 36 students who are on the Chinese Programme and were in Primary 3 and 4. Of the 36 students trialled, 100% were able to point out the radical accurately but only 28% were able to recall the name of the radical. Nevertheless, 86% were able to still recall the meaning of the radical, which is more pertinent and critical to Chinese learning as 80% of Chinese characters have a radical that show part of the meaning of the character and what it is related to. For example, characters with 扌 is related to the hand and 打 means hitting with the hand.

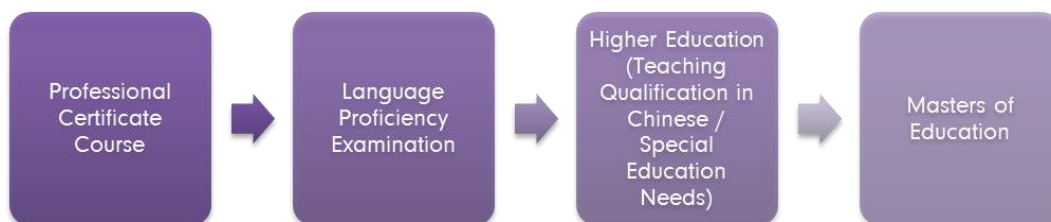
The word recognition manual was also developed and completed in 2015. The manual documents the history of how Chinese characters were created, word recognition strategies, worksheet template for characters, semantic and phonetic radicals, teaching procedures and spelling activities. The manual also includes a set of word recognition strategies posters which are displayed in the classroom to aid students in applying the strategies taught.

The focus for curriculum development will be on reading comprehension and writing activities. This will be done in reference with the current school syllabus and incorporate strategies to help students achieve competency through scaffolding.

To support learning at home, audiobooks have also been created with the help of students from River Valley High School. The audiobooks are created based on a set of primary school graded readers (six books per level) and can be accessible with an online link. Parents who have worked on reading at home with this series reported improvement in the child's word recognition ability.



CHINESE DUAL SPECIALISTS



Training Pathway for Chinese Educational Therapists

Teacher training for Chinese Dual Specialisation

Two educational therapists at the Parkway Parade Learning Centre have undergone the Professional Certificate Course in Chinese Language Support and mentoring. They are now trained and equipped to provide intervention in Chinese.

Teacher Qualification

Lilian Yue, a dual specialist, has received her Diploma in Professional Chinese Teaching awarded by the Singapore Chinese Chamber of Commerce & Industry. Cailyn Kwan, a dedicated Chinese teacher, also received her Advanced Diploma in Chinese Language Teaching from KLC International Institute.

The newly-trained educational therapists will also be sitting for the Chinese Language Proficiency test (HSK Level 6 Written and Oral Examination). This is a requirement for all teachers as it is vital to ensure that the teachers on the programme are effectively bilingual in order to facilitate teaching.

Teacher INSETS

As part of continued professional development, the specialists also underwent training. The content covered included teaching methodology, curriculum development and changes to the school syllabus.

Table 2. Continued Professional Development Training

Teaching Methodology	Curriculum Development	School-Related Changes
Flipping the Classroom Seminar Reading Comprehension 2 Teaching of Hanyu Pinyin	Developing and writing a Chinese curriculum	Briefing on the new Chinese Primary School Syllabus

Manpower for the Chinese Programme

The Chinese team now has a total of 6 dual specialist and 2 dedicated Chinese teachers, making the programme available at six of the 13 learning centres under DAS - Jurong Point, Queenstown, Rex House, Parkway Parade, Bishan and Sengkang. The Chinese team is able to see up to 180 students on a weekly basis.

Quality Assurance for Chinese Programme

Dr Tan Ah Hong has joined the team in June 2014 as a consultant and worked at the DAS as sessional teacher in 2015. Dr Tan was previously a lecturer at NIE and Curriculum Specialist at MOE. She was later appointed in 2008 as the Head of Secondary Chinese Language Unit before retiring in March 2014. She has since resumed employment as a lecturer in NIE, teaching in both undergraduate and graduate programmes.



Dr Tan has since conducted training for the team on curriculum development, improving teachers' competency, word recognition, reading comprehension and writing. In addition, she is also constantly providing feedback on quality assurance and curriculum development. In the coming year, we will be looking at providing teacher support and enhancing teachers' competency in providing intervention.

Lesson observations were carried out by Dr Tan to provide quality assurance of classroom teaching on all educational therapists. A post-lesson observation conference was arranged between Dr Tan and each educational therapist to provide feedback and areas of improvement. For educational therapists that required more support, a further lesson observation was scheduled. This gave educational therapists time to work on the areas that they may be lacking in. Feedback from the educational therapists was forthcoming and they found it helpful for their professional development.

In the coming year, Dr Tan would observe the core team members while the core team members would observe the other specialists and provide feedback. There will also be a Quality Assurance Checklist alongside a documentation checklist added to the quality assurance process to make it more comprehensive in checks on the quality of intervention given to the students.

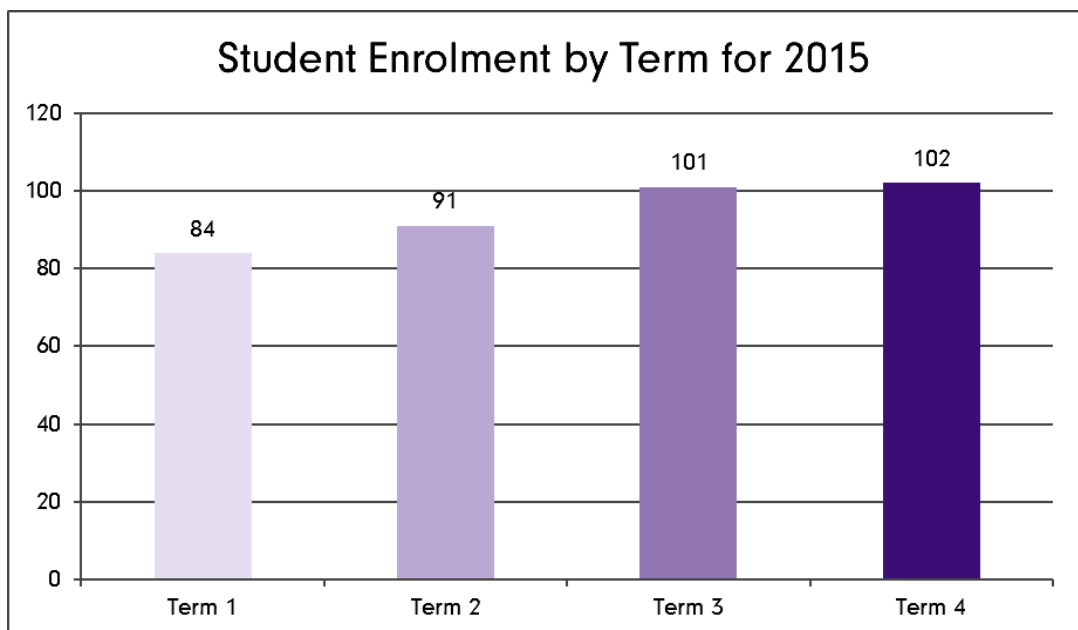
CHINESE STUDENTS

Chinese student enrolment

The Chinese programme sees a total of 102 students on a weekly basis by the end of the year. Out of the 102 students, more than 80% are still taking Chinese lessons (Higher Chinese, Chinese and Foundation Chinese) in school. To date, the programme has seen a total of more than 200 students since the start of the programme in 2013. (Shen et al.,2014)

Table 3. Term by term breakdown of student enrolment for 2015

Term	Term 1	Term 2	Term 3	Term 4
Student Enrolment	84	91	101	102

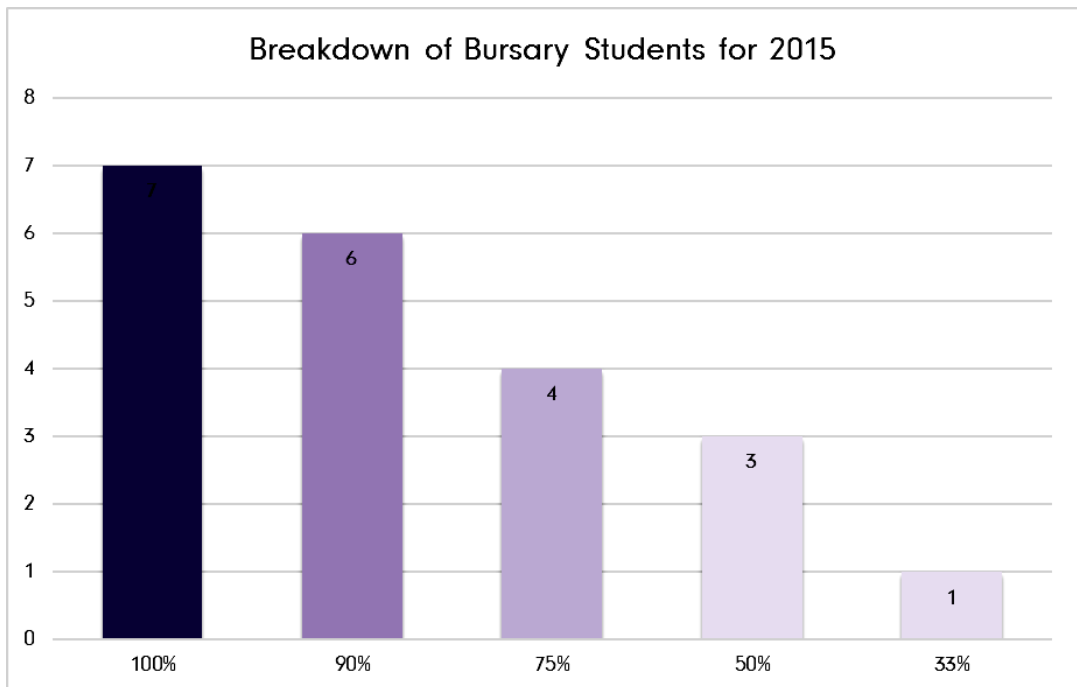


Bursary for Chinese Students

One-third of the bursary students had to appeal for a higher tier of bursary to be given. The breakdown of amount of bursary given to the students are as follows:

Table 4. Bursary Percentage and Students for 2015

Bursary Percentage	No of Students
100%	7
90%	6
75%	4
50%	3
33%	1



EVENTS

TIPS Talks

Following on from the success of the talks in 2014, re-runs on "Fun and Easy Chinese" were given at our Queenstown Learning Centre. The talk illustrated the current education landscape for learning of Chinese and shared with parents practical tips to help their children learn Chinese at home. The talks were well-received by parents and gave them ideas and strategies to work on Chinese at home.

Parent Focus Groups

To better understand the difficulties children with dyslexia and parents face, focus group discussions were conducted at our Bishan, Sengkang and Parkway Parade Learning Centres. Parents were not only able to share their challenges, they were also able to support one another in the sharing of their experiences. The parents were heartened to find support from other parents and with practical tips they can work on at home.

SES INSET

Besides increasing awareness to parents, efforts were also taken to help the staff at the DAS to better understand the programme. The in-service training conducted stimulated actual classroom teaching components. It was carried out in a way that even non-Chinese speakers were able to understand and experience the classroom outing. The INSET was well-received by all staff including the non-Chinese speaking staff. They walked away with new vocabulary learnt and requested for more of such sessions.

Organised Outings

To promote a holistic language learning experience, we brought a total of 35 students to watch the stage musical "Pleasant Goat and Big Big Wolf". The cost of the ticket price was subsidised by SISTIC and the Committee for Promoting Chinese Language. The students gave positive feedback and would like to participate in such an activity again while the older students found the content too simple for them. The play appealed to all primary students and stimulated thinking through language use.



PROGRAMME EVALUATION DESIGN

In evaluating the progress made by the students, a qualitative and quantitative approach is undertaken. The students were tested based on a Battery of Chinese Literacy Tests and parents completed a survey on the progress the students made in that year. Parents were also asked to comment on the progress their child has made throughout the intervention.

The purpose of the study is to determine the effectiveness of the intervention programme for learners with dyslexia. This can be examined in the following two aspects:

- a) if any significant improvement is made in the areas of reading, spelling and morphological awareness
- b) if the errors committed during reading and spelling can be significantly reduced with intervention

This study then serves to inform if the intervention is effective in addressing areas of weaknesses that learners with dyslexia faces and in helping them to achieve competency in the language. If the intervention is not as effective as predicted, the team could then explore other possible methodologies to empower students more effectively. Through error analysis, we can also gain a more in-depth understanding of the nature of errors our students commit as they progress.

Participants

A total of 20 out of 102 students on the programme were identified to participate in the study. These students had received intervention for a period of six to twelve months and are currently in primary school.

Programme implementation/instruction

The programme focuses on vocabulary, sentence structure and word recognition instruction. Students that have acquired competency in oracy skills would then progress to higher literacy skills such as reading comprehension and writing. The students are placed in a class of maximum four students and attended lessons for one hour weekly. The choice of what is taught under each component is decided by the teacher based on the needs of the children or what they do not know. The difficulty of each task is also adjusted based on the ability of the child, where they will experience success but also be challenged to help them improve.

Data collection procedures

The students underwent pre and post test using a Battery of Chinese Literacy Tests developed by the DAS. The tests measure linguistic and sub-linguistic skills children with dyslexia have been known to show weaknesses in. In addition, the programme has been designed and developed to target these areas of difficulties. The students were tested on the full battery in the pre-test to gain a better understanding of the full profile of the students. During the post-test, students were only tested on the areas of reading, morphology, spelling and copying as these are the main objectives of intervention. The pre-test was carried out prior to the start of intervention (mean age = 104.95 months) while the post-test (mean age = 115.5 months) was carried out in November 2015.

On the reading tests, the students were asked to read from a character list and form words after reading them. The characters were arranged according to school levels and higher frequency characters were chosen. For the writing component, students were asked to do a multiple-choice spelling task, open-ended questions and passage copying. Apart from the scores that indicate the proficiency of the student, error analysis is also carried out to better understand the nature of the errors.

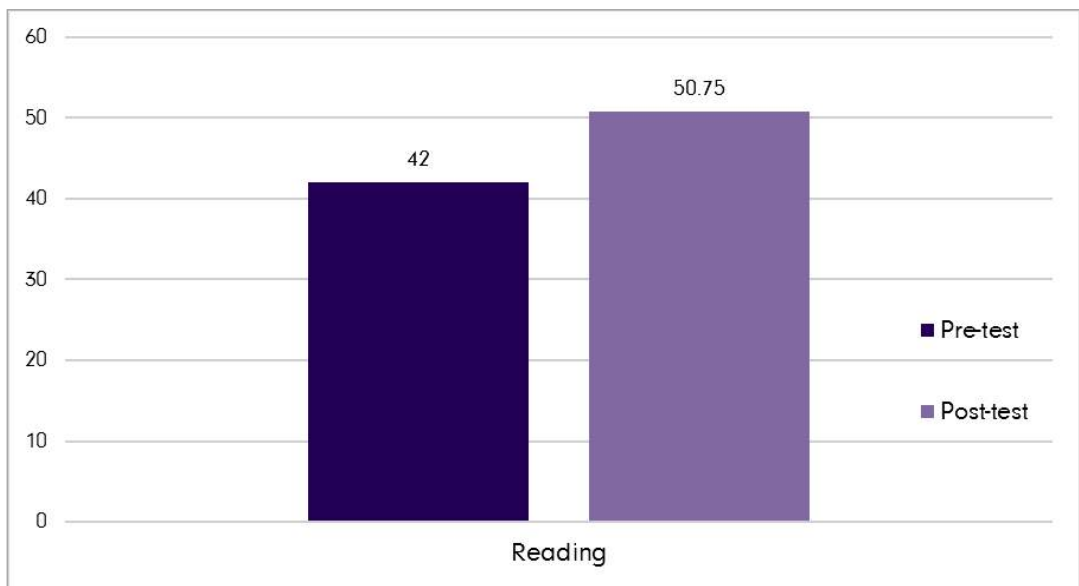
The parents were asked to complete the Annual Parent Rating of Progress questionnaire after completing the Parent-Teacher Conference. Parents were asked to rate their satisfaction with the progress the students have made in the past year and also to indicate what they are pleased and disappointed with regarding the intervention. From the survey, we could gain insights on the progress parents are observing, as well as the strengths and weaknesses of the intervention.

Findings

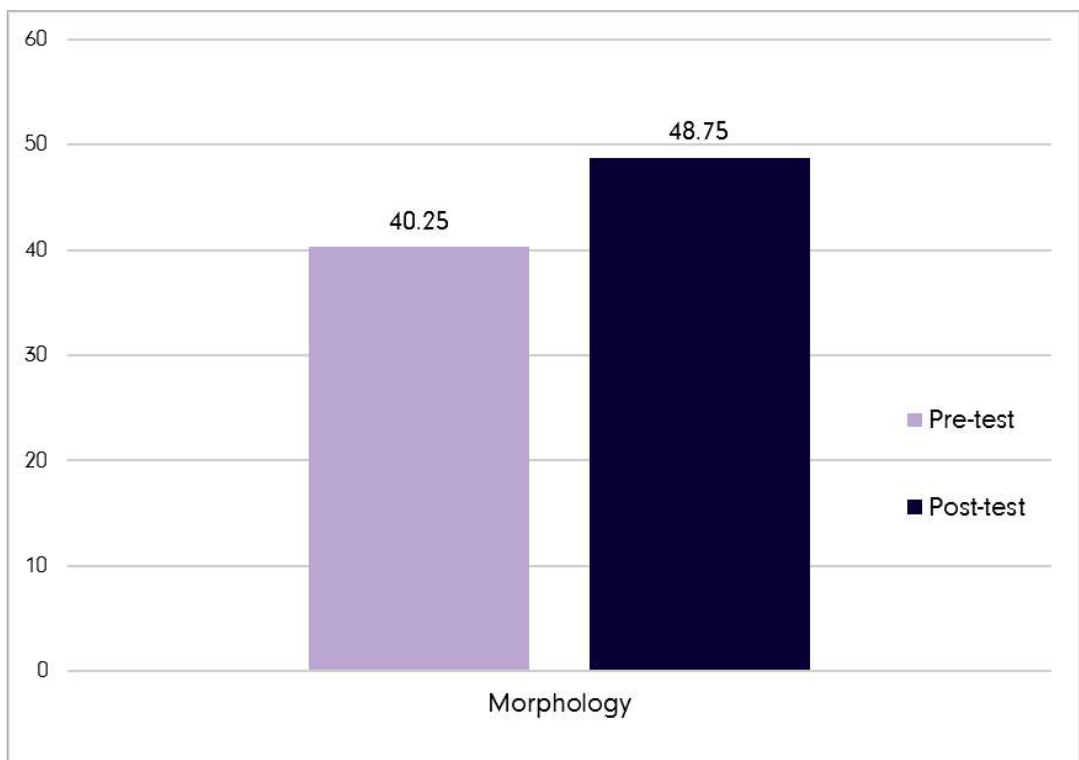
A paired samples t-test comparing pre-test and post-test scores of the experimental was conducted. Results of the t-test ($p < .05$) suggest that there is a significant difference between the pre-test and post-test scores of the experimental group.

Table 5. Results of Paired Samples t-test comparing pre-test and post-test

Group	N	Mean	SD	df	P
Pre-test	20	42	27.01	19	.00786**
Post-test	20	50.75	31.55		



There is a significant improvement in reading (mean increased from 42 to 50.75).



There is a significant improvement in morphological awareness (mean increased from 40.25 to 48.75).

Table 6. Results of Paired Samples t-test comparing pre-test and post-test (Morphology)

Group	N	Mean	SD	df	P
Pre-test	20	40.25	27.04	19	.0068**
Post-test	20	48.75	31.79		

There is some significant improvement in spelling (mean increased from 9.05 to 10.8).

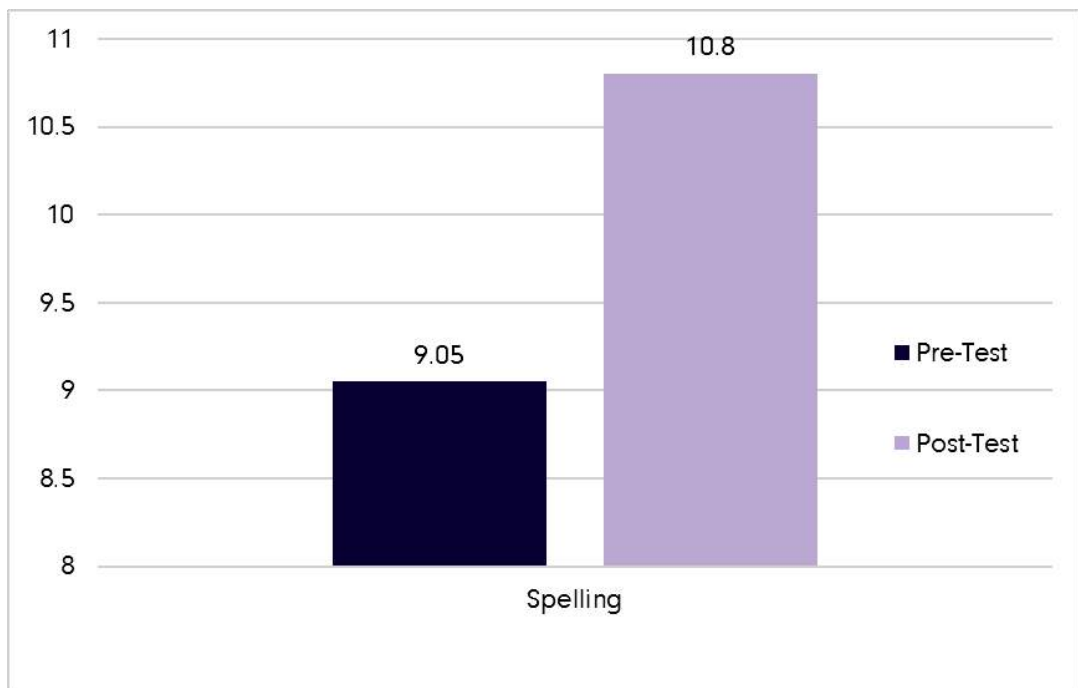


Table 7. Results of Paired Samples t-test comparing pre-test and post-test (Spelling)

Group	N	Mean	SD	df	P
Pre-test	20	9.05	5.29	19	.0350*
Post-test	20	10.8	6.77		

The second set of tests conducted was a paired samples t-test comparing pre-test and post-test errors of the experimental group.

Reading Errors

There is an observed significant increase in the number of visual errors and random errors while there is a significant decrease in visual-tonal errors. A further comparison was also made between the errors made in the pre and post-test to determine if students were making the same mistakes. Students were found to be making more correct attempts when reading than wrong attempts. This suggests that students were making progress in their reading ability but that their processing ability when reading is not automatic. In addition, some students were observed to make reading attempts that were close to right, getting the sound right but tone wrong, such as 也 was read as yé instead of yě.

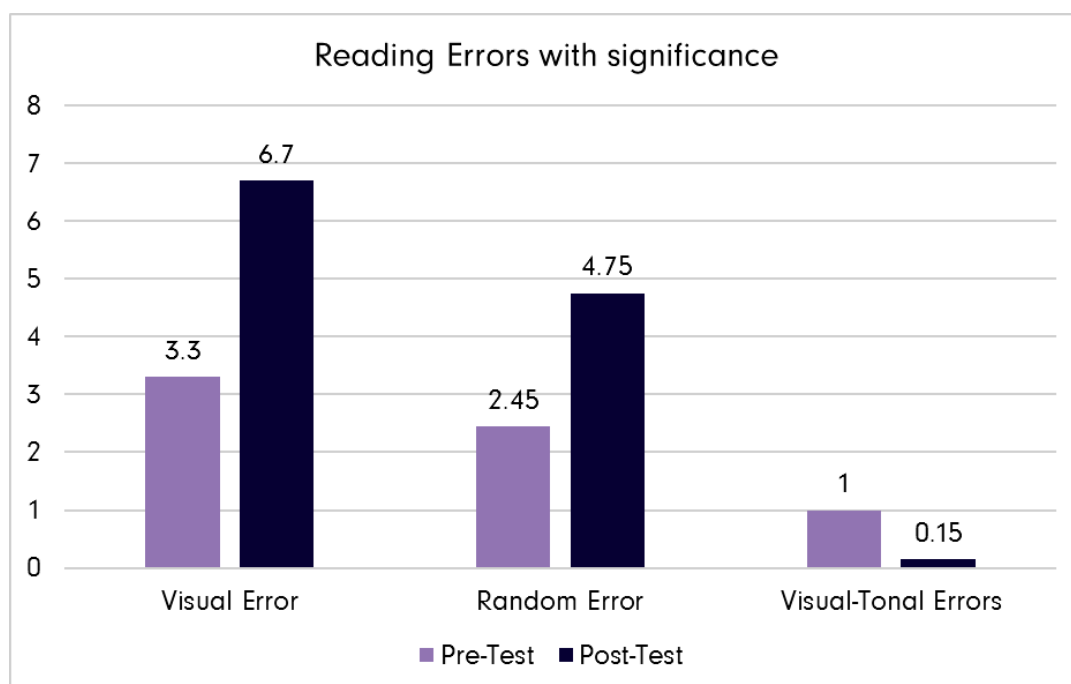


Table 8.1. Results of Paired Samples t-test comparing pre-test and post-test (Visual)

Group	N	Mean	SD	df	P
Pre-test	20	3.3	3.72	19	.0016**
Post-test	20	6.7	5.74		

Table 8.2. Results of Paired Samples t-test comparing pre-test and post-test (Random)

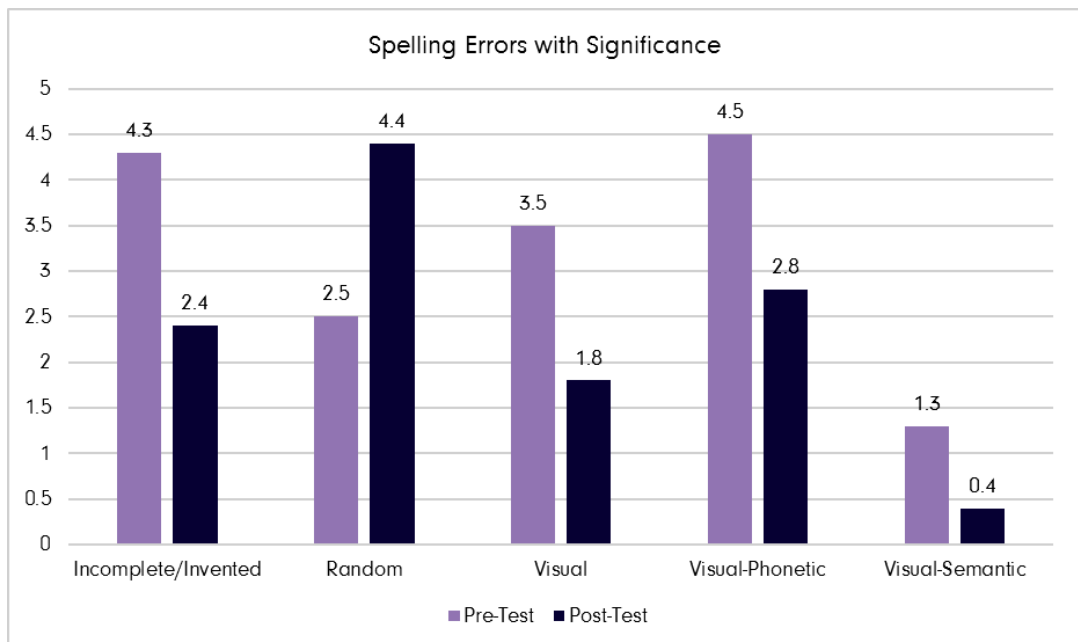
Group	N	Mean	SD	df	P
Pre-test	20	2.45	2.45	19	.0088**
Post-test	20	4.75	4.70		

Table 8.3. Results of Paired Samples t-test comparing pre-test and post-test (Visual-Tonal)

Group	N	Mean	SD	df	P
Pre-test	20	1	1.49	19	.0090**
Post-test	20	0.15	0.48		

Spelling Errors

There is an observed significant increase in the number of incomplete and invented errors, and random errors while there is a significant decrease in visual, visual-



phonetic, visual-semantic errors. The increase in incomplete and invented errors is likely to be due to incomplete retrieval of the whole character.

Table 9.1. Results of Paired Samples t-test comparing pre-test and post-test (Incomplete/Invented)

Group	N	Mean	SD	df	P
Pre-test	20	1.2	1.50	19	.0023**
Post-test	20	2.8	1.88		

Table 9.2. Results of Paired Samples t-test comparing pre-test and post-test (Random)

Group	N	Mean	SD	df	P
Pre-test	20	0.15	0.36	19	.0250*
Post-test	20	1.6	2.58		

Table 9.3. Results of Paired Samples t-test comparing pre-test and post-test (Visual)

Group	N	Mean	SD	df	P
Pre-test	20	0.15	1.76	19	5.32E-05***
Post-test	20	1.6	1.23		

Table 9.4. Results of Paired Samples t-test comparing pre-test and post-test (Visual-Phonetic)

Group	N	Mean	SD	df	P
Pre-test	20	1.05	0.88	19	.0174*
Post-test	20	0.5	0.68		

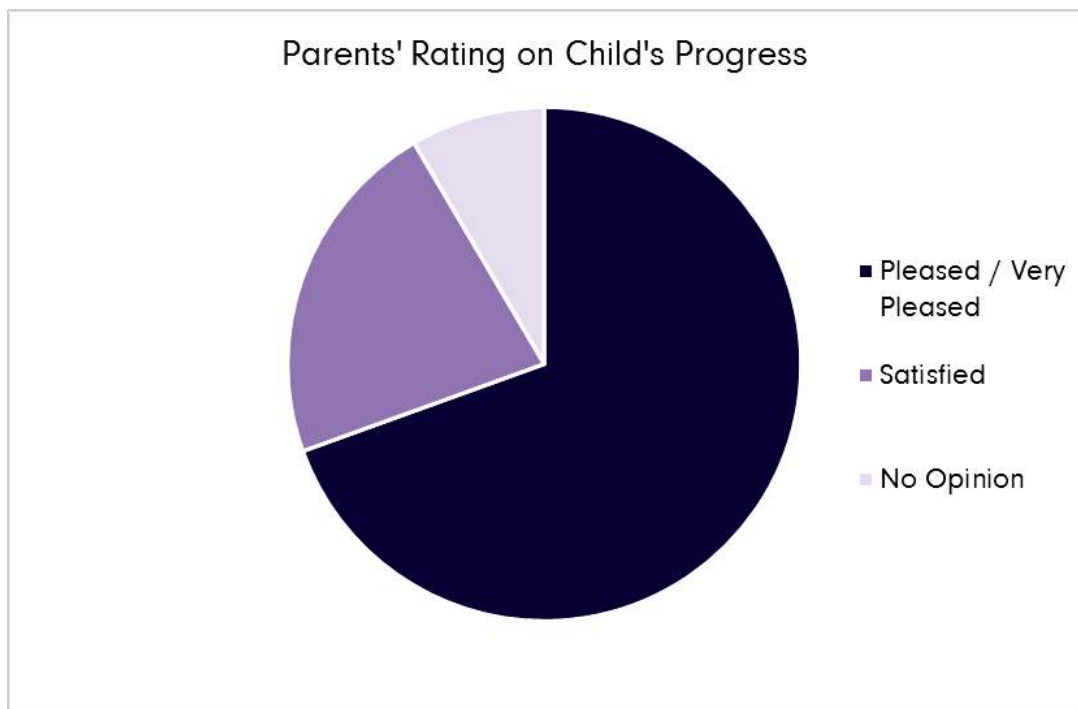
Table 9.5. Results of Paired Samples t-test comparing pre-test and post-test (Visual-Semantic)

Group	N	Mean	SD	df	P
Pre-test	20	1.3	1.03	19	.0019**
Post-test	20	0.4	0.59		

Annual Parent Rating of Progress

To find out parents' views on their child's progress, all parents were asked to rate their progress and provide feedback on the programme. 59 out of 102 parents responded to the survey. The result of the rating is as follows:

- ◆ 41 out of 59 parents (69%) were either very pleased or pleased with their child's progress in learning at the DAS.
- ◆ 13 out of 59 parents (22%) were satisfied with their child's learning at the DAS.
- ◆ 5 out of 59 parents (8%) were not able to give an opinion about their child's progress in learning at the DAS.



Parents gave feedback that their children found the classroom environment safe and encouraging for learning. There were also requests for two-hour classes and web-based learning so that they can continue learning at home. There was also a reported increase in interest and lesser resistance in learning the language. Students enjoy and look forward to coming to their weekly classes. They also have greater confidence and a more positive attitude towards learning. Some students were also observed to watch more Mandarin-based television programmes and read books in Chinese. The word recognition strategies taught have also helped students to be able to remember and read more characters and words. Parents also noted the commitment and dedication the teachers have shown in helping their students make progress. Improvements in school results have been noted, especially in the area of comprehension.

DATA ANALYSIS AND DISCUSSION

Pre-test and post-test

The significant improvement of reading, morphology and spelling scores indicates that the intervention is effective in helping students make progress in these areas. The gains made in reading and morphology are greater than in spelling. This is consistent with current literature that suggests and shows that reading is easier than spelling. Further investigation on teaching methodologies to help students progress in their spelling ability is imperative to arrive at more conclusive findings.

While it was expected to observe fewer errors to be made in reading and spelling, students have been found to commit more visual and random errors when reading and when writing, students tend to invent characters, write incomplete characters and commit random errors more but commit fewer visual, visual-phonetic and visual-semantic errors.

The increase in random errors on both reading and writing tasks suggests a greater willingness and confidence in students to attempt characters and words that they are unfamiliar with. Hence, the higher number of random errors. The willingness to try is a very important aspect in language learning. Short interviews or surveys with students after attempting the tasks will give insights on if this is true.

The increase in visual reading errors could be due to a reliance on a word recognition of decoding using a phonetic radical or some degree of relatedness to a known character in its radical. There could also be a part-whole relation used to make guesses on the strategy. Asking students what strategies students used to read could help us understand better if any strategies were used or if they approached it as a whole character, or were they guessing.

Table 7. Examples of Reading and Writing Errors (with significant findings)

Reading Errors	
Visual Errors	渴 → 喝
Visual-Tonal Errors	把 → bā → 吃吧, 泳 → yǒng → 永远
Random Errors	No known relation with the character
Writing Errors	
Incomplete	Missing strokes or strokes are incomplete
Invented	No such characters in Chinese
Visual Errors	幸 → 亲
Visual-Phonetic Errors	晴 → 静
Visual-Semantic Errors	功 → 工
Random Errors	原 → 团

The decrease in visual-tonal errors could be due to students making clearer distinction between tones and visually similar characters.

With regard to spelling and writing, students were able to spell and write more characters but the number of incomplete, invented and random errors made also increased. The increase in incomplete and invented characters suggests that students could have formed a visual memory of the character but did not remember the details of the character.

The significant decrease in visual, visual-phonetic and visual-semantic errors suggests that students are able to make clearer distinctions between characters by looking at the radicals in greater details and apply their understanding of the meaning and sounds of the radicals.

Annual Parent Rating of Student Progress

In summary, 92% of parents were satisfied, pleased or very pleased with their child's learning in the DAS. This is a possible indicator of the objective of building interest in the language met. In addition, it will be helpful for teachers to continue encouraging students to cultivate the habit of reading Chinese books and this is welcomed by most parents.

FEEDBACK FROM PARENTS

Other feedback given by parents include:

"Teacher Cailyn is very patient, supportive and gave a lot of good suggestion towards my son learning."

- Mrs Chan, parent of P3 student

"Teacher Li Dong, is approachable and it is very encouraging to know that he has all the interest in helping my boy."

- Mrs Ng, parent of P3 student

"我非常满意老师的教学方法和处世态度。希望DAS能够开办中学课程。"

(I am very satisfied with the teaching methodologies and the teachers. I hope that DAS will be able to start secondary school classes to continue supporting my child.)

- Mrs Tan, parent of P6 student

"He is more responsible in completing his homework."

- Mrs Hon, parent of P4 student

"Thank you Sha Lan laoshi for making the lesson fun and interesting for my son. He enjoys going for his lessons at DAS!"

- Mrs Tan, parent of P2 student

CONCLUSIONS

The Chinese programme has met the objectives of building up the child's interest in the language and helping them in their reading, spelling and morphology. While students are committing less writing errors, they are found to be committing more reading errors. This could be due to a greater willingness to attempt reading. As such, intervention should aim to help student gain reading accuracy as they are able to read more. From the errors committed, it is suggested that students are making use of strategies taught to them to decode and thus, more instruction is required to help them attain accuracy.

FUTURE DIRECTIONS

Future studies should include a survey on student's confidence in attempting reading, writing and learning of new characters. Questions such as how confident are you in trying out new Chinese words, how anxious are you when trying to read and write in

Chinese can be used. This would shed light on the qualitative aspect of student's performance.

We should also make a distinction between students who are exempted from studying Chinese and those that are still studying Chinese in school. This results in a difference in language exposure and input the child receives. One of the students who was exempted from Chinese in the school year deteriorated greatly due to a lack of constant exposure and interest.

To better evaluate the effectiveness of the intervention and mitigate progress made due to lessons in school, we would seek to use a control group of students with dyslexia and compare the gains made. This would lend greater credibility to the programme.

Another meaningful area of study would be to investigate if learners with difficulties in learning Chinese would benefit from such an intervention given that there have been cases of students who are doing well in school but has consistently failed in Chinese.

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Yun Rui has more than four years of experience in providing intervention for learners with dyslexia in both the English and Chinese language. She holds the role of a Senior Educational Therapist and also heads the Chinese Programme team at the DAS. Besides teaching, her scope of work includes research in the area of learning difficulties in Chinese, profiling of students, curriculum development and mentoring teachers. She also helps to facilitate and share with school teachers on dyslexia. She is an Associate Fellow with the Register of Educational Therapists (Asia). Her educational qualifications include a BA (Hons) in Linguistics and Multilingual Studies (Nanyang Technological University), Postgraduate Certificate in Special Educational Needs (University of South Wales) and Advanced Diploma in Chinese Language Teaching (KLC). She is currently pursuing her Masters of Education with the University of Hong Kong, Hong Kong. She believes that language learning opens up the horizon of a child and it is vital to teach a child how to learn. She has been co-presenting papers on learning difficulties in Chinese in relation to dyslexia at conferences since 2014.

**SEE LAY YEN***Senior Educational Therapist*

Lay Yen has about nine years of experience teaching Chinese Language. She has been teaching at the DAS for about four years. Previously, she was with the Ministry of Education teaching Chinese Language in a Primary School. She currently holds the role of a Senior Educational Therapist and is also a core team member of the Chinese Programme team at the DAS. Besides teaching, her scope of work includes research in the area of learning difficulties in Chinese, profiling of students, curriculum development and mentoring teachers. Lay Yen is also an adjunct lecturer with the DAS Academy for courses relating to Chinese language learning difficulties. She is a member with the Register of Educational Therapists (Asia) and is a qualified trainer with a WSQ Advanced Certificate in Training and Assessment (ACTA). She believes in providing the conditions in which students learn but set them free to express what they need. Her postgraduate studies include Postgraduate Certificate in Special Educational Needs (University of South Wales), Postgraduate Advanced Diploma in Education (Chinese) and Postgraduate Diploma in Education (Chinese).



SHA LAN

Senior Educational Therapist

Sha Lan has four years of experience teaching children with dyslexia at the DAS. She holds the role of a Senior Educational Therapist and is also a core team member of the Chinese Programme team at the DAS. Besides teaching, her scope of work includes research in the area of learning difficulties in Chinese, profiling of students, curriculum development and mentoring teachers. She believes that every learner has unique combinations of abilities and learning needs, so it is important to teach with the consideration of the best interest of each individual learner. Sha Lan is a member with the Register of Educational Therapists (Asia) and is a qualified trainer with a WSQ Advanced Certificate in Training and Assessment (ACTA). Her postgraduate academic achievements include a Master of Arts (Distinction) in Chinese Linguistics and Language Acquisition (Chinese University of Hong Kong) and a Postgraduate Certificate in Special Educational Needs (University of South Wales).

CHINESE PROGRAMME

小学华文辅助课程

**Specialised
Educational
Services**
UNLOCKING POTENTIAL

The aim of the SES Chinese Programme is to help students with dyslexia become independent, inquisitive learners in the Chinese language.

Chinese as a language is more complex than English as many words can be read the same way though each word has a different meaning. The strokes in Chinese words must also be written in sequence. This complexity causes reading and writing Chinese to be very tedious for children with dyslexia.



OUR APPROACH

The programme helps to foster your child's interest in the language through thematic-based teaching. In this way, vocabulary that is covered is relatable and can be used on a daily basis, allowing them to express themselves better in the Chinese language. Students are taught interactively through the use of stories, educational games and hands-on activities to make language learning fun and memorable. Lessons are also structured in a way to increase efficiency in learning the language through the instruction of character structure, radicals, stroke pattern, word recognition strategies and understanding how words are combined together.

Components covered in a typical lesson:

1. Word Recognition
2. Vocabulary Instruction
3. Teaching of Sentence Structures

Comprehension and writing activities are also carried out for students who have good oracy skills in the language.

Application is open only to primary school students. Priority will be given to students who are not exempted from Chinese.



Find out more at www.ses.org.sg or 6444 5700

Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore.

Specialised Educational Services

UNLOCKING POTENTIAL

PRESCHOOL EARLY LITERACY INTERVENTION

The aim of the programme is to help preschoolers who are potentially at risk of dyslexia, or has a developmental delay in early literacy, develop skills and strategies to become confident achievers when they enter primary school.

Our Approach

The SES Preschool programme helps preschoolers acquire a good foundation in alphabet knowledge and phonograms, leading up to learning sight words essential for reading. These abilities gear them towards reading and spelling readiness. In class, your child will be taught rules, facts and generalisations about the English language, enabling them to read and spell more effectively. They will also be taught strategies to cope with letter reversals. The programme follows a prescribed scope and sequence for systematic, sequential and cumulative teaching.

Components covered in a typical lesson

- ◆ Alphabet Knowledge
- ◆ Phonograms
- ◆ Learned Word Knowledge (e.g. said)
- ◆ Reading
- ◆ Spelling

Preschoolers will be advised to go for a School Age Psychological Assessment if they have not responded to appropriate instruction in the language when they turn six. Children diagnosed with dyslexia have the option to continue with the MOE-aided DAS Literacy Programme.

Specialised Educational Services

Preschool Early Literacy Intervention

Wong Kah Lai

Preschool Programme Manager

Dyslexia Association of Singapore

The Preschool Programme was conceptualised and set up in 2006 in the interest of providing early literacy intervention to 6 year olds identified as being at risk of dyslexia. In 2014, the Preschool Programme extended its services to admit Kindergarten Year 1 (K1, 5 year olds) students. The programme has since reached out to over 800 children in Singapore. It gained the support of Income Orangeaid in 2012 as part of their corporate social responsibility (CSR) initiative. To date, Income Orangeaid Fund supports about 20% of preschoolers on the Preschool Programme yearly, on intervention and assessment costs, and continues to offer bursaries to children from low income families.

The Preschool Programme works in close collaboration with Child Development Units (CDUs) of hospitals KK Women's and Children's Hospital (KKH) and National University Hospital (NUH). In 2015, about 30% of the Preschool Programme total enrolment were referrals from KKH.

It complements the services of the PAP Community Foundation (PCF) SEN team in offering support to children with special learning needs. In July 2014, DAS Preschool Programme established literacy intervention services on-site at Joyful Juniors PCF Ulu Pandan, Ghim Moh Link, with the support of Member of Parliament Mr Christopher De Souza. This on-site service was recently renewed for another three years. In addition, the Preschool Programme is also working with PCF Sparkletots@Admiralty to extend similar help to children attending full day childcare in a model similar to the service provided at Ghim Moh Link.

CURRICULUM DEVELOPMENT/ASSESSMENTS

The Preschool Programme provides early literacy intervention in a holistic way. Summarised in Figure 1 below, the Preschool's curriculum targets listening, speaking, reading and writing, the cornerstones to language learning. The Programme has an Oracy component that addressed the learning needs of students from ESL/EFL background, establishing communicative language needed by students in order to benefit from our instructions. In order to read and spell effectively, knowledge of the alphabet, phonogram and learnt word (sight words) are key. Writing is difficult without proper fine motor coordination. As such, appropriate fine motor skills activities form part and parcel of our programme.



Figure 1. The Preschool Programme Curriculum

Over time, the Preschool Programme noticed that a number of students coming into the programme at K2 (often in late K2, with less than six months left for intervention) do not show much achievement in the areas of reading and spelling during post-tests. Also, low self-esteem, a predominant occurrence observed to dog the heels of dyslexic children, continued to be an area of concern.

CURRICULUM DEVELOPMENT PROGRESS UPDATE

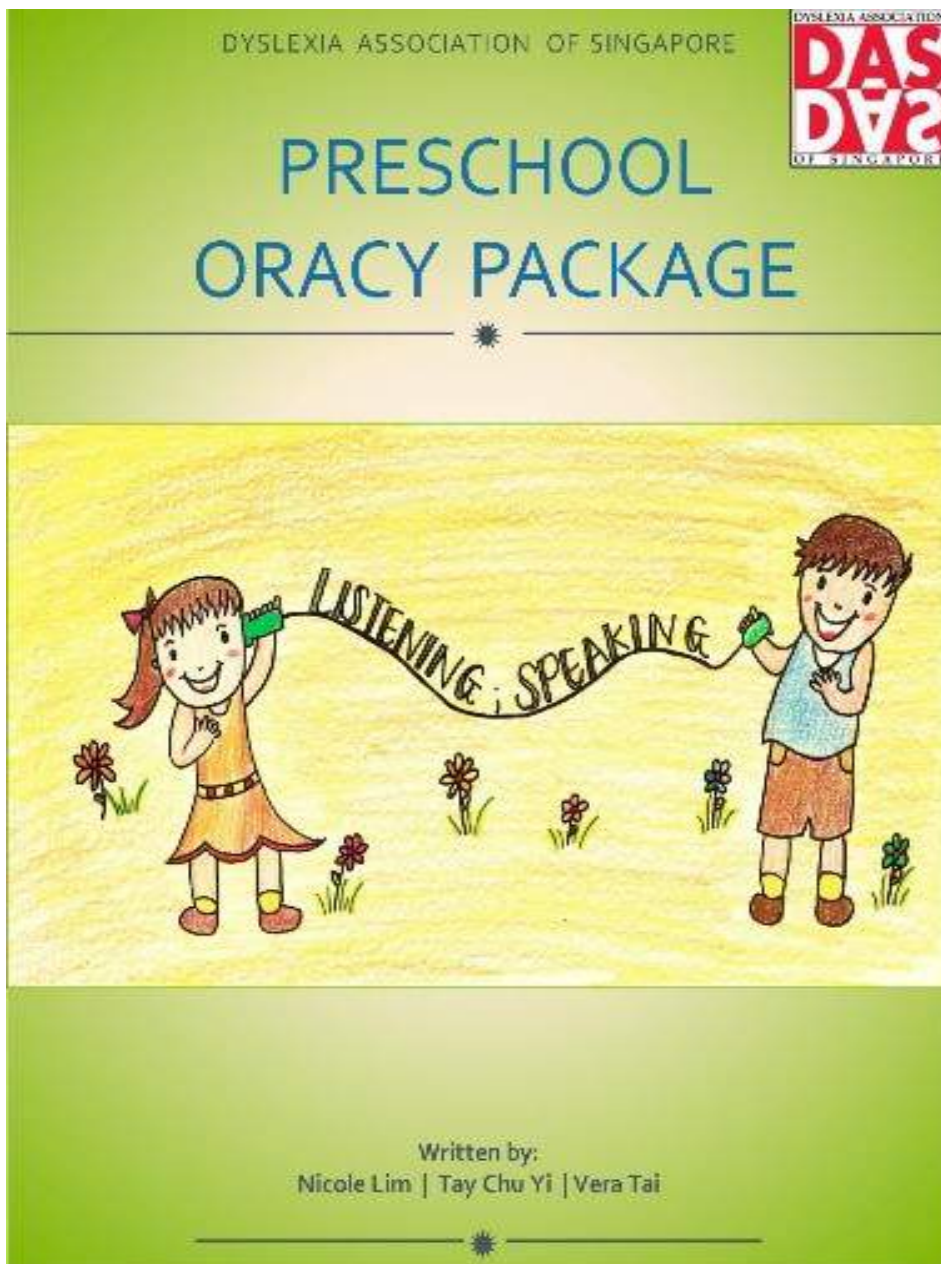
Several challenges, with implication to curriculum and resource development, were highlighted in 2013 and 2014 year-end programme evaluation. Challenges identified included the following:

1. Very little or poor grasp of spoken English to begin with. This has a direct impact on our lesson delivery as English is our medium of instruction. It also impacts upon children's learning through the inability to comprehend the concept taught
2. Weak fine motor skills – not deliberately targeted nor addressed through explicit teaching
3. Weak executive functioning – somewhat lacking and in need of explicit teaching of specific strategies that promote memory, and activities that stimulate memory development
4. Noticeable disparity in developmental levels e.g. Global Developmental Delay
5. Social-emotional development lagging behind their peers

While we have addressed most of the challenges identified in 2013 in between the years of 2014 and 2015, there is still work to be done. Works undertaken and accomplished to date include addressing the lack of specific teaching tools, with the development of teaching resources, mostly in collaboration with local school, Ngee Ann Polytechnic. As part of their internship programme, final year students interned at various organisations to gain industry and job related experiences. Those interned at the DAS with the Preschool Programme under the mentorship of Wong Kah Lai and her team of Educational Therapists were expected to gain teaching skills related to early literacy intervention at the DAS and also to create a project deliverable for the organisation.

Thus far, under the guidance of Wong Kah Lai and her team, a localised version of an Oracy Kit that preschool educational therapists at DAS can pluck and use at any point of time (due to the nature of year round open enrolment, it is not always possible to start from scratch in a race against time) was developed between 2013-2014.

Recognising the fact that children with dyslexia may eventually suffer from low self esteem, experience difficulty in social situations and such, prompted the creation of a Social-Emotional Literacy (SEL) Kit – a brain child of Wong Kah Lai and the interns, under the strong support and influence of Nor Ashraf Bin Samsudin, the Director of Specialised Educational Services, and his knowledge in Six Seconds: Enhanced Emotional Intelligence, was born between 2014-2015.





We have yet to look into the area of executive functioning due to rapid programme growth. What is executive function? Why is it so important for children at risk of dyslexia? The International Dyslexia Association (Reid, 2011), noted an “overlap between dyslexia and other learning difficulties”, that may include dysgraphia (handwriting), dyscalculia (math), attention deficit hyperactivity disorder (attention), dyspraxia (motor skills) and executive function. As such, a child at risk of dyslexia may experience other co-existing difficulties that may affect his/her learning experiences and achievement level.

Executive function is made up of working memory, inhibitory control and cognitive flexibility. Working memory refers to the ability to store information and work with it. Inhibitory control relates to the ability to control or regulate one’s (impulsive) behaviour. Cognitive flexibility, as the word implies, refers to thinking creatively and out-of-the-box, something that comes naturally to many young children.

Reid (2011) gave several examples that characterise weak executive function in students with dyslexia. These include poor sense of time, forgetting one’s homework (unintentional), poor organisational skills, overwhelmed by too much input, and so on. In short, academically speaking, executive function is crucial to achievement in learning, retaining what’s taught, integrating and manipulating existing knowledge with new knowledge to tackle homework, tests, examinations and so on.

There is also a need to look deeper into how we can better seamlessly integrate the various literacy components with the array of tools that we developed so far. How

can we further maximise the impact of our current intervention? How can we incorporate fine motor skills, a pre-requisite to writing acquisition, as part and parcel of our early literacy intervention? How about improving further on phonological awareness, another critical cornerstone to our literacy intervention? What tools have we got (or not) that is suited to our local context?

In 2014 year-end evaluation, three areas were identified for development in 2015 (Wong, 2015, p.68). The first task examined the integration of lesson components for more holistic literacy intervention. As such, the existing lesson plan template was revised and redesigned to better reflect and accommodate the upgrades that were made to the curriculum. The template was piloted out in term 4 of 2015 and revised according to teacher feedback. A more “finalised” version is launched for trial across the entire programme beginning January 2016. Existing Pre-test and Post-test developed prior to 2014 have been completely streamlined and revamped. An instructional manual accompanied this new upgrade. It will be trialled across the entire programme in 2016.

The second task examined the quality of teaching delivery. This will be addressed in the later part of this report, under the section Quality Assurance.

The third task looked into addressing the gap in reading achievement and the introduction of the Programme’s carefully chosen new online reading programme.

DAS **PRESCHOOL POST-INFORMAL ASSESSMENT KIT**
This informal assessment kit aims to assess a student's literacy attainment at the end of the year.

Name of Student: _____ Assessor: _____
Date: _____ Learning Centre: _____ B/C No: _____

ALPHABET KNOWLEDGE	Less than 5	6-10	11-15	16-20	More than 21
• Able to name letters (A1)					
• Able to sequence the letters (A2)					
• Able to write lower case letters (A3)					
• Able to write upper case letters (A4)					
PHONOGRAM KNOWLEDGE	Less than 5	6-10	11-15	16-20	More than 21
• Able to identify basic components and short vowels sounds (B1a) to sound correspondence (B1)					
• Able to identify sound of advanced phonograms (B2)					
LEARNED WORD KNOWLEDGE	Less than 5	6-10	11-15	16-20	More than 21
• Able to read learnt words (C1)					
READING	Yes	No	Remarks		
• Able to read at words					
• Able to read out words					
• Able to read concrete words (d, k, g, m)					
• Able to read onset (p, m, k, t, ch, sh, s)					
• Able to read consonance (p, g, k, t, ch, sh, s)					
• Able to read image-ir words					
SPELLING	Yes	No	Remarks		
• Able to spell at words					
• Able to spell out words					
• Able to spell concrete words (d, k, g, m)					
• Able to spell onset (p, m, k, t, ch, sh, s)					
• Able to spell consonance (p, g, k, t, ch, sh, s)					
• Able to spell image-ir words					
Total Score	268				

Specialised Educational Services
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Pre/Post-Informal Assessment
Test of Early Literacy – Pilot Copy
For Preschool Team Circulation Only

Administration and Scoring Guide
Version Control 1

Reading has always been a challenge for pre-schoolers coming into our early literacy intervention programme. Many has a natural thirst for stories and knowledge (i.e. non-fiction) but hampered because they need someone willing and available to read to them.

This online reading programme has a comprehensive library of both fiction and non-fiction books. The reading level ranges from picture books with no words, moving progressively to caption books, to picture books with longer sentences and so on. These carefully graded level readers extend all the way up to meeting the reading needs of students attending secondary (high) school.

Preschoolers have a wide choice of age appropriate reading material (audio books) with a record and playback function that also enable their educational therapist to listen and track their reading progress. Parents can participate and read along with their children too. We discovered, quite accidentally, that some families read together. The audio recordings include choral reading from the family, interjected with laughter and sound effects.

Consequently, there seemed to be some significant improvement (see table 5.4, post-test results for reading) in this area. Ten students were awarded the inaugural SES Preschool Prolific Reader Award during the DAS Graduation and Awards Ceremony 2015 for their outstanding reading achievement from the use of this online reading programme.

CURRICULUM DEVELOPMENT – CURRENT WORK IN PROCESS

The Preschool Programme is working on revising its existing literacy scope and sequence to better accommodate the diversity of students coming into our programme seeking help, and the progress that they make. The current scope and sequence does not effectively support the learning needs of very weak learners on one end of the spectrum and it has limited wingspan in meeting the needs of advance learners and students repeating K2.

SCHOOL AGE ASSESSMENTS

The process of School-age Assessments for Kindergarten two (K2) students, who are going on to Primary One, is an intricate process involving the coordination across multiple stakeholders.

To begin with, K2 students who met the six-six criteria (six years old based on date of birth and had six months' intervention or phonics classes) were sifted out, their case

files readied. Parents signed consent forms, agreeing to assessment. Those in need of bursary assistance for assessment applied for bursary. Parents paying by Baby Bonus for the first time completed Child Development Account (CDA) application forms to be forwarded to the bank for approval through DAS Finance Department. The Singapore government encourages parents to have more babies. The Baby Bonus Child Development Account is a co-savings scheme for children, where savings deposited by parents into a special savings account called the CDA are matched dollar-for-dollar by the Government, up to a specified cap depending on the child's birth order (MSF, 2013).

DAS Admissions team then contact parents for appointments, arranging assessments for K2 students with DAS psychologists. The average wait time for assessment is approximately six to eight weeks. A typical assessment consists of

1. An interview with parents
2. Administration of standardised cognitive and literacy tests
3. A discussion with parents (usually one week after the assessment) about the assessment results
4. Recommendations on areas of strengths and weaknesses
5. A written report by DAS psychologists

Cost of assessment is differentiated with lower Singaporean and higher non-Singaporean rates. Parents may opt to have this conducted within the DAS or by other psychologists working in public and private settings.

A diagnosis of dyslexia, through School Age Assessment, is compulsory if students wish to continue remediation support with DAS through his/her primary years if they are enrolled in a government funded school. Results of the assessment are dependent on factors such as the child's medical history, language background, and length of educational support (preferably with at least 6 months of phonics exposure). There is no need for an assessment if a K2 student is deferring entry into P1, repeating K2.

Four information talks for K2 parents regarding School Age Assessment were conducted over two Saturdays in August 2015 at DAS Learning Centres located in Tampines, Bishan, Chua Chu Kang and Rex House. According to general feedback, parents found the session informative and useful in helping to make informed decisions about having their child assessed. Some found administrative information, e.g. how to navigate completing the various forms and application for financial assistance for assessment fee, helpful.

Out of 271 K2 students registered with Preschool Programme, 125 were diagnosed dyslexic and 58 non-dyslexic. See Table 1 for the breakdown.

Table 1. Breakdown of K2 students eligible for school age assessment in 2015

NUMBER OF STUDENTS REGISTERED		271
1	Diagnosed with dyslexia	125
2	Diagnosed as not Dyslexic	58
3	Not placed in programme – lacking manpower	15
4	Opted Out from Assessment	37
5	Withdrew From Programme	18
6	Repeated K2 in 2016	14
7	Dropped out of the programme without notice	1
8	Pending Assessment (Schedule in June 2016)	2
9	Assessment postponed to 2017	1
	Total	271

TRAINING FOR PRESCHOOL PROGRAMME TEAM – IN-SERVICE AND PROFESSIONAL DEVELOPMENT

The Preschool Programme conducted insets and focus group meetings for the entire team of 15, consisting of dedicated Specialist Teachers (Preschool) and Dual Specialists (MAP and Preschool) throughout the year of 2015. This platform facilitated the exchange of issues/concerns/difficulties experienced by teachers in class. Someone within the team would voice a challenge happening in class and another will share a similar experience of how that was overcome. It proved to be a positive learning experience and great for team bonding, too.

These monthly sessions also kept everyone in the team up to date with information regarding processes upgrading and content revision in keeping with the diversity of students' needs.

The free Preschool Public Screening Exercises conducted three times a year, was another fabulous learning opportunity for the Preschool Team professionally. It gave everyone a better understanding of the true disparity in literacy challenges faced by mainstream K2 students seeking help from us. Many of the registered K2 mainstream students who came for the screening exercise were found to be weaker

(early literacy wise) than the weakest we see in our current intervention classrooms. We need to help these children. It also provoked us into working towards extending our existing literacy scope and sequence in order to take these young learners under our wings. Table 2 below outlined some of the topics and activities in 2015.

Table 2. Summary of Preschool Programme Training Related Events in 2015

No	Month	Content Topic	Duration
1	February	Online reading programme training	3 hours
2	March	Preschool Audits, Preparing and getting ready to be audited, Filing System	3 hours
3	April	Preschool Seminar 2015 School Age Assessment (SAA) Administrative Processes	7.5 hours
4	May	How to Conduct Preschool Screening & Concluding	3 hours
5	June	Preschool Public Screening (2-full day including a debrief session held separately)	19 hours
6	July	Goal setting 2016	3 hours
7	August	Workshop: Creative Use of Preschool Resources	3 hours
8	September	Sharing of SES Education Day slides, New Lesson plan Template for Trial, New scope and sequence	3 hours
9	October	2016/2017 work plans and professional development	3 hours
10	November	Programme evaluation, Upcoming Mass Screening	3 hours



Preschool Seminar 2015 - A concurrent workshop by DAS Educational Therapists, Natasha and Sandra, on Phonemic Awareness



Workshop on creative use of resources



Team training and “makan” (Malay word – meaning “eat”) session - Another bonding opportunity not to be missed!



Professional sharing – Insights into the Preschool Programme during SES Education Day



Info talks on school age psychological assessment

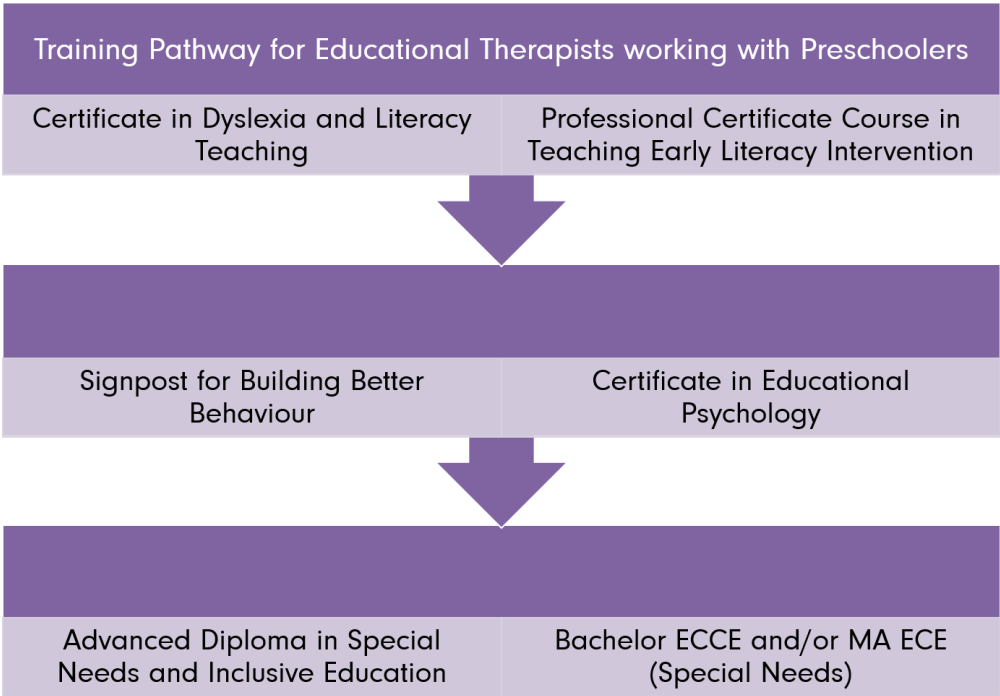


Figure 2. Training pathway for Educational Therapists working exclusively with preschoolers in providing early literacy intervention

New training pathways were formulated and proposed during Work Plan Presentation 2016/2017 for all as outlined in Figures 2 to 4 below.



Figure 3. Training pathway for Educational Therapists teaching preschoolers and primary and/or secondary age students

(*WSQ refers to Singapore’s Workforce Skills Qualifications (WSQ), a national credentialing system. It trains, develops, assesses and recognises individuals for the key competencies that companies look for in potential employees. PCC refers to Professional Certificate Course in Teaching Early Literacy Intervention)

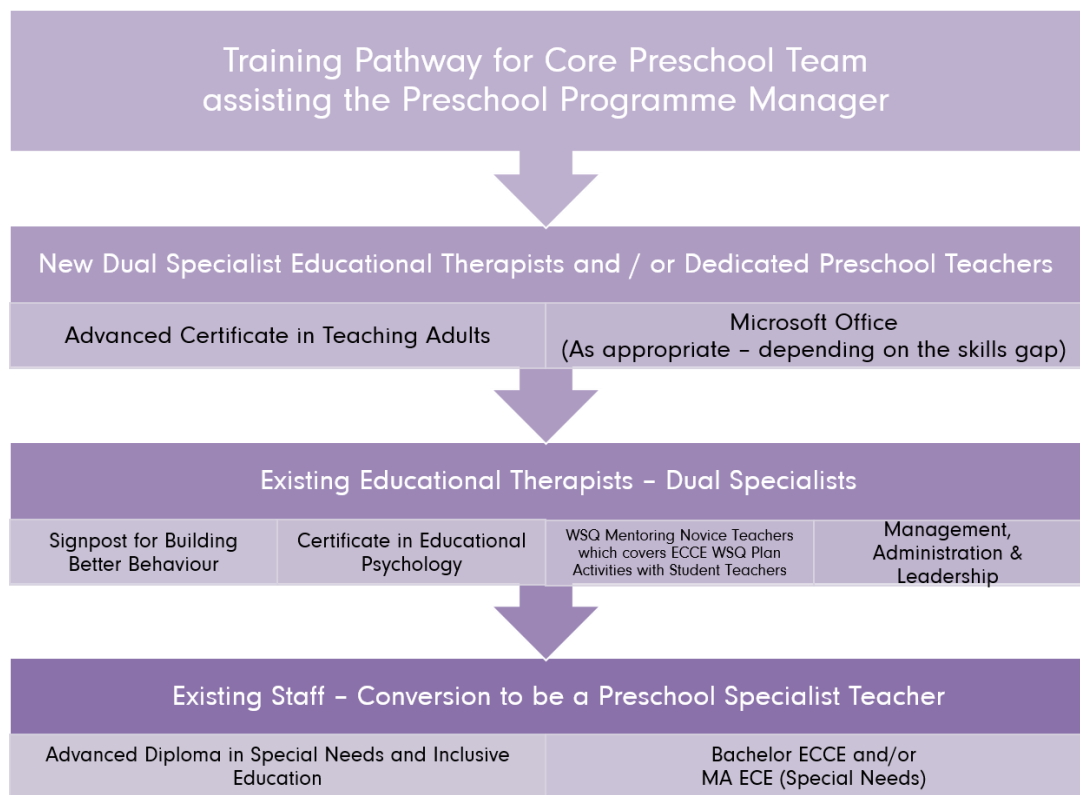


Figure 4. Training pathway for members of the Preschool Core Team assisting the Programme Manager (applicable to both existing and potential new comers)

MANPOWER FOR PRESCHOOL PROGRAMME

Table 3. Summary of Preschool Programme's Manpower as at December 2015

Category	Current headcount not including attrition	Attrition and reason:
Teaching:		
Dedicated preschool teachers	5	1 - pursuing higher education (University)
Dual specialists	10	2 - family commitments
*Core team	2	
Administrative:		
Programme manager	1	
Programme officer	1	Nil

QUALITY ASSURANCE FOR PRESCHOOL PROGRAMME

The following was carried out as part of Preschool Programme's Quality Assurance Practices

A. Classroom observations of teachers by either Programme Manager or core team

Several teachers had their teaching practices observed by PM. More observations will follow in 2016. Some criteria listed as follows. Observer to look out and feedback on:

1. Content - appropriate balance: evident (i.e. deliberately planned within the LP according to PS scope and sequence) and observed
2. Content delivery - appropriate balance observed, demonstrating the applications of OG principles and EC pedagogy
3. Lesson pitch - rhythm and pulse - evident through observation
 - * rhythm - active and quiet
 - * pulse - evenly paced, brisk
4. Peer dynamics
5. Awareness of individual needs and meeting those needs
6. Use of age appropriate language in instruction
7. Use of appropriate language to foster and extend oral language development
8. Use of appropriate strategies to promote learning and skills acquisition

B. Execution of pre-audit run in readiness for NTUC Income OrangeAid Fund Bursary Audit

An operational framework was drafted by the programme manager to facilitate the process.

C. Pre-audit check in readiness for programme audit (by MSF)

This is ongoing work in progress. The (new) core team is being trained and mentored for the first time to undertake part of these routine checks.

PRESCHOOL STUDENTS

Preschool Programme student enrolment

Enrolment

Statistical Information on the Preschool Programme

The Preschool Programme continued supporting an increasing number of new students

- ◆ 2011 – 82 students
- ◆ 2012 – 117 students – 46 being NTUC Income OrangeAid bursary students
- ◆ 2013 – 135 students – 40 being NTUC Income OrangeAid bursary students
- ◆ 2014 – 268 students – 63 being NTUC Income OrangeAid bursary students
- ◆ 2015 – 280 students – 57 being NTUC Income OrangeAid bursary students

Though the Preschool enrolment hit 280, there were approximately 22 students on the waitlist who were unable to come on board for several reasons. One, their applications came in too late for placement. The K1s were able to be placed in January 2016 as new K2 enrolments. Unfortunately, we were unable to help the K2s who were going directly into Primary One.

Two, our programme ran out of active teaching capacity since term 3. (See stats in table 4)

While every effort is made to provide adequate intervention available for preschoolers in need of our services, it is made challenging due to the unpredictability of birth rate, parent awareness and ready support that will lead them to us. It is difficult to provision services given these unknown. DAS preschool programme has taken these on board and will work on better resolving this next year.

Table 4. Statistical comparison of end of term 3 and term 4 student enrolment figures

LC / Level	ACTUAL Term 3		Accepted yet to start		Waitlist for placement		ACTUAL Term 4		Accepted yet to start		Waitlist for placement	
	K1	K2	K1	K2	K1	K2	K1	K2	K1	K2	K1	K2
AMK												
BDK												
BJ8	5	54		2	5	6	5	55			5	2
CCK	6	10					1	14			2	
CTP												
JPT	2	36		4	4	2	4	38			3	3
PWP												
QTN	4	30				3	4	31		1		1
REX	1	7					2	6			1	
SKG	4	27		1			4	25			1	
TPN	6	49				2	8	51			2	1
WDL		4						5				
YSH	3	9				1	4	10			1	
GHIMO	7	3					10	3				
TOTAL # of students per level	38	229	0	7	9	14	42	238	0	1	15	7
GRAND TOTAL	267		7		23		280		1		22	

EVENTS

1. Preschool Seminar
2. Unite SpLD Conference
3. Preschool Public Screenings (free)

Preschool Seminar 2015

The Preschool Programme had its annual Preschool Seminar in April 2015.



Photos from the Preschool Seminar registration above and the Question and Answer Panel below.





Audience at the Preschool Seminar there were many questions for the panel



The 2015 Preschool Seminar was successful with a good turnout of more than 200 participants.

Unite SpLD Conference 2015

The Preschool Programme also participated in Unite SpLD Conference 2015 with a research poster and a workshop session by Programme Manager, Wong Kah Lai. It was a lively and interactive workshop. Participants had an opportunity to look at some unique Preschool Programme's resource e.g. certain components of its Social-Emotional Literacy (SEL) kit, and how these features translate to practical in-class strategies and good practices. Extracts of conference slides as shown.



UNITE SPLD CONFERENCE 2015

The Importance of Early Intervention of Literacy Difficulties at Preschool: Practical strategies that support teaching and learning

Presented by: Wong Kah Lai (Ms)



DYSLEXIA ASSOCIATION OF SINGAPORE

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Content Coverage UNITE SPLD WORKSHOP



1. Importance of early literacy intervention
2. How teachers teach
3. How children learn
4. Practical strategies that support teaching – from the perspective of the teacher, how to “teach” better, ideas that you can implement easily
5. Practical strategies that support learning - from the perspective of children, what do they walk away with? (practical key skills and strategies with immediate transferability)
6. Hands-on, interactive group activities



Sample slides extracted from Unite SplD Conference 2015 presentation

Preschool Public Screening for Preschoolers

Three Preschool Public screenings were held in June and November 2015 for kindergarten 1 and kindergarten 2 students (5 to 6 year olds). This was an unexpected over achievement as the original intention was to do only one free Public Screening with the entire programme team roped in. The unexpected over subscription for the first screening on 5 June resulted in a second date quickly arranged (25 June) to absorb the spill over effect so that no child gets turned away from help. A third screening was arranged end of the year (November) as a trial, to see if it will boost enrolment for the new year, 2016.



A preschool team photo – after one of the free public screening exercises for pre-schoolers



Photo with our programme sponsor – NTUC Income OrangeAid Fund representatives

OUTREACH AND ASSORTED ACTIVITIES

The Preschool Programme was very active in supporting awareness and outreach efforts as summarised in Figure 6. It conducted 12 talks for parents, teachers and administrators of kindergartens and childcare centres.

Preschool Screening 2015			
	June 2015 Bishan	June 2015 Jurong Point	Nov 2015 Bishan
Total Screened	72	56	57
Students enrolled into Programme	19	31	15
Students with No Literacy Concerns	10	4	11

It worked in collaboration with Ngee Ann Polytechnic on internship programme for their graduating final year students from Diploma in Child Psychology and Early Education (special needs and early intervention track) cohort.

Selected interns were given training in understanding dyslexia and techniques in teaching at-risk pre-schoolers with early literacy difficulties. Their teaching practice (practicum) was graded as part of internship criteria from the polytechnic. In addition, all interns need to work collaboratively to undertake the development and completion of a project deliverable for the Preschool Programme guided by the programme manager and team.

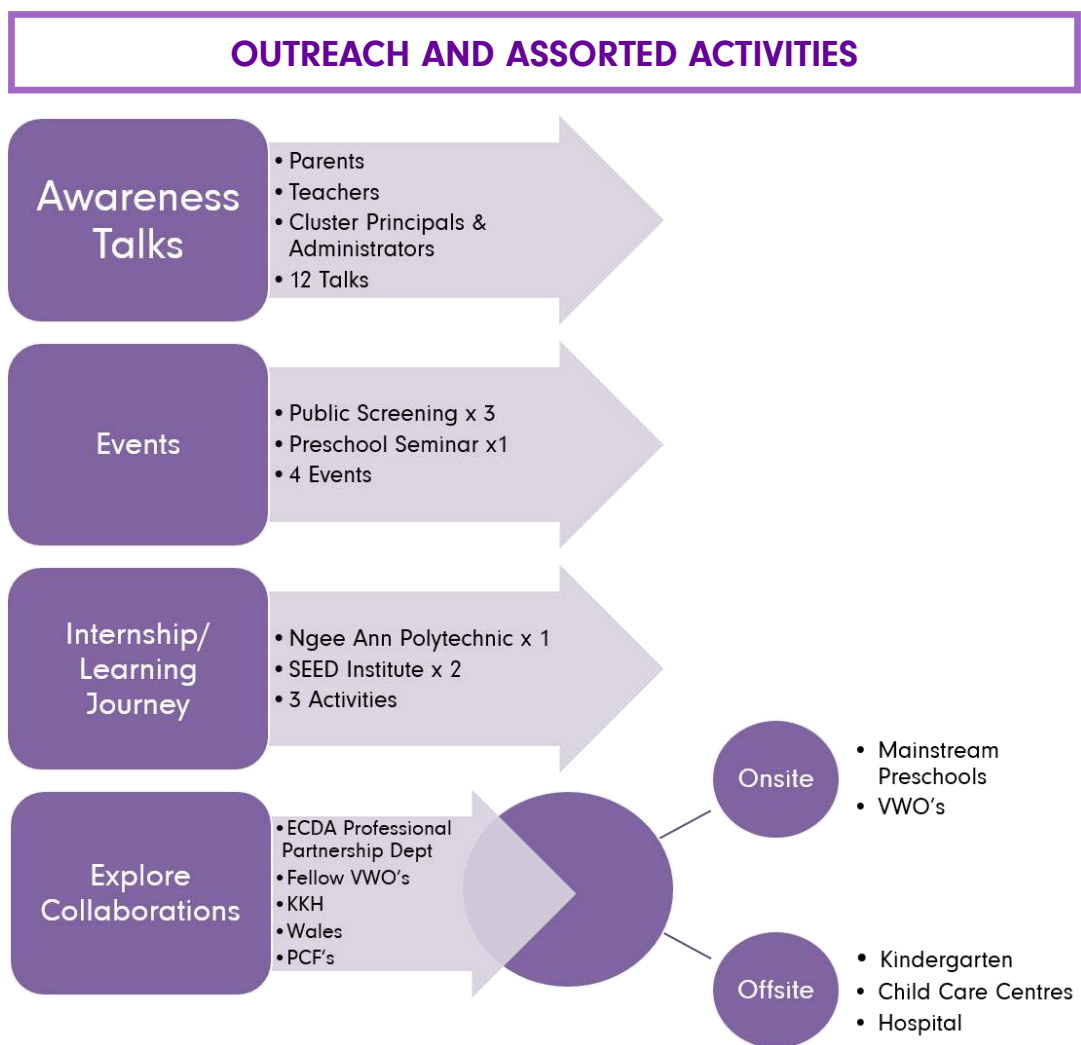


Figure 6. Summary of outreach and assorted activities

SEED Institute approached Preschool Programme to host a Learning Journey for a cohort of their advance certificate students. SEED Institute is Singapore's first National Continuing Education and Training Centre (CET) for early childhood educators, including people who are interested to become preschool teachers. The Learning Journey went well and all were impressed. A second request was made for December 2015. It went successfully well, too. Participants found the interactive dyslexia awareness talk meaningful. The practical tips and strategies, relating directly to the relevant age group that the participants were working with, proved to be well-received.

PROGRAMME EVALUATION DESIGN

Research design framework

- ◆ A Quantitative method was selected for this programme evaluation
- ◆ It used a combination of experimental and survey design

Research questions/research rationale

- ◆ The aim of this report is to find out
 - i. the effectiveness of the intervention Programme
 - ii. the responsiveness of students to the programme
 - iii. are there any gaps within the programme that are not meeting stakeholders' need

Rationale behind implementing research design

- ◆ This survey design is chosen for its feasibility and robust results.

Participants

- ◆ 213 pre-schoolers (K1s and K2s) were involved in this study. This sample size is not reflective of the programme's actual total enrolment.
- ◆ There were no control groups as it was of the view that it would not be ethical to deprive young children of the opportunity for intervention.
- ◆ These children were all selected for early literacy intervention because of assorted learning difficulties associated with learning differences.

Programme implementation/instruction

- ◆ Brief description of the programme structure

The Preschool Programme offers a 2-hour weekly phonics based literacy intervention programme for students ages between 5 to 7 years old. The programme follows a carefully structured scope and sequence designed by the Preschool Programme Team. It takes on a multi-sensory approach guided by Orton-Gillingham principles and underpinned by sound early childhood pedagogies.

Class size

Intervention classes are conducted in groups of up to five students to an Educational Therapist.

Data collection procedures

Pre-test post-test

- ◆ Description of the tests, how and why they were designed/chosen

Both pre and post-test are exactly the same in content. The pre-test collects baseline information on the student's initial literacy ability when he/she first commence intervention. The post-test measures the improvement, if any, made by the student.

The test consists of five components. Namely, knowledge of the alphabet in both upper and lower case, phonogram knowledge in letter sound association (phonics), sight words, reading and spelling. These five areas are fundamental to literacy acquisition, as such, it is important for our Educational Therapist to know what-the-child-knows and in which aspect is the child floundering so that intervention can fill in the "gap".

- ◆ Implementation of the tests

Tests may be implemented either individually, as a pair or group as appropriate to the teacher executing it.

- ◆ When were the tests implemented?

Pre-test is carried out during the student's first official session. Post-test is carried at the end of the calendar year to measure response to intervention made by the student.

Findings (Reporting only, no discussion)

Pre-test post-test

T-test (Paired Two Samples for Means) was used to measure student progress in the areas of alphabet knowledge, phonogram, learnt word knowledge (sight word), reading and spelling. Results of the t-test ($p < .001$) in tables 5.1 to 5.5 showed significant difference between the pre-test and post-test scores. Overall results, in the form of overall literacy gains, is shown in table 5.6.

Table 5.1 Results of Paired Samples t-test comparing pre-test and post-test for alphabet knowledge

Group	N	Mean	SD	df	p
Pre-test	213	46.93	23.82	212	<.001*
Post-test	213	64.05	16.36		

* $p < .001$.

Table 5.2 Results of Paired Samples t-test comparing pre-test and post-test for phonogram

Group	N	Mean	SD	df	p
Pre-test	213	16.47	8.47	212	<.001*
Post-test	213	23.67	4.77		

* $p < .001$.

Table 5.3 Results of Paired Samples t-test comparing pre-test and post-test for learnt word knowledge

Group	N	Mean	SD	df	p
Pre-test	213	13.32	15.14	212	<.001*
Post-test	213	24.46	17.43		

* $p < .001$.

Table 5.4 Results of Paired Samples t-test comparing pre-test and post-test for reading

Group	N	Mean	SD	df	p
Pre-test	213	1.66	3.31	212	<.001*
Post-test	213	7.33	5.39		

* $p < .001$.

Table 5.5 Results of Paired Samples t-test comparing pre-test and post-test for spelling

Group	N	Mean	SD	df	p
Pre-test	213	0.68	1.49	212	<.001*
Post-test	213	4.53	4.53		

* $p < .001$.

Table 5.6 Results of Paired Samples t-test comparing pre-test and post-test for Overall Literacy Gains

GROUP	N	MEAN	SD	DF	P
Pre-test	213	79.07	42.44	212	<.001*
Post-test	213	124.04	40.13		

* $p < .001$.

Pre-test post-test

Results of Paired Samples t-test comparing pre-test and post-test for:

Alphabet knowledge

This component comprises of the sequencing of the alphabet, and the writing of both upper and lower letters correctly. Findings showed that there was a significant improvement in Alphabet Knowledge from pre-test (M= 46.93, SD = 23.82) to post-test (M = 64.05, SD = 16.36), $t(212) = 9.81$, $p < .001^*$

Phonogram Knowledge

This component relates to letter-sound association. Findings showed that there was a significant improvement in Phonogram Knowledge from pre-test (M= 16.47, SD = 8.47) to post-test (M = 23.67, SD = 4.77), $t(212) = 8.94$, $p < .001^*$

Learnt Word Knowledge

Learnt word, also commonly known as sight words, refers to phonetically irregular words. Findings showed that there was a significant improvement in Learnt Word Knowledge from pre-test (M= 13.32, SD = 15.14) to post-test (M = 24.46, SD = 17.43), $t(212) = 7.78$, $p < .001^*$

Reading

Findings showed that there was a significant improvement in Reading from pre-test (M= 1.66, SD = 3.31) to post-test (M = 7.33, SD = 5.39), $t(212) = 8.54$, $p < .001^*$

Spelling

Findings showed that there was a significant improvement in Spelling from pre-test (M= 0.68, SD = 1.49) to post-test (M = 4.53, SD = 4.53), $t(212) = 1.28$, $p < .001^*$

Overall literacy gain

Findings showed that there was a significant improvement in Overall Literacy Gains from pre-test (M= 79.07, SD = 42.44) to post-test (M = 124.04, SD = 40.13), $t(212) = 5.16$, $p < .001^*$

The results show that children were able to better identify letters of the alphabet, sequence and write them. They could sound out letters with greater ease in letter-to-letter-sound association; that led to observable improvements in reading and spelling phonetically regular words, as reflected by the improvements found in their pre-post test scores for reading and spelling.

It may be seen overall that there are striking results from all aspects of the programme tested. This provides clear evidence of the effectiveness of the approach with 213 children.

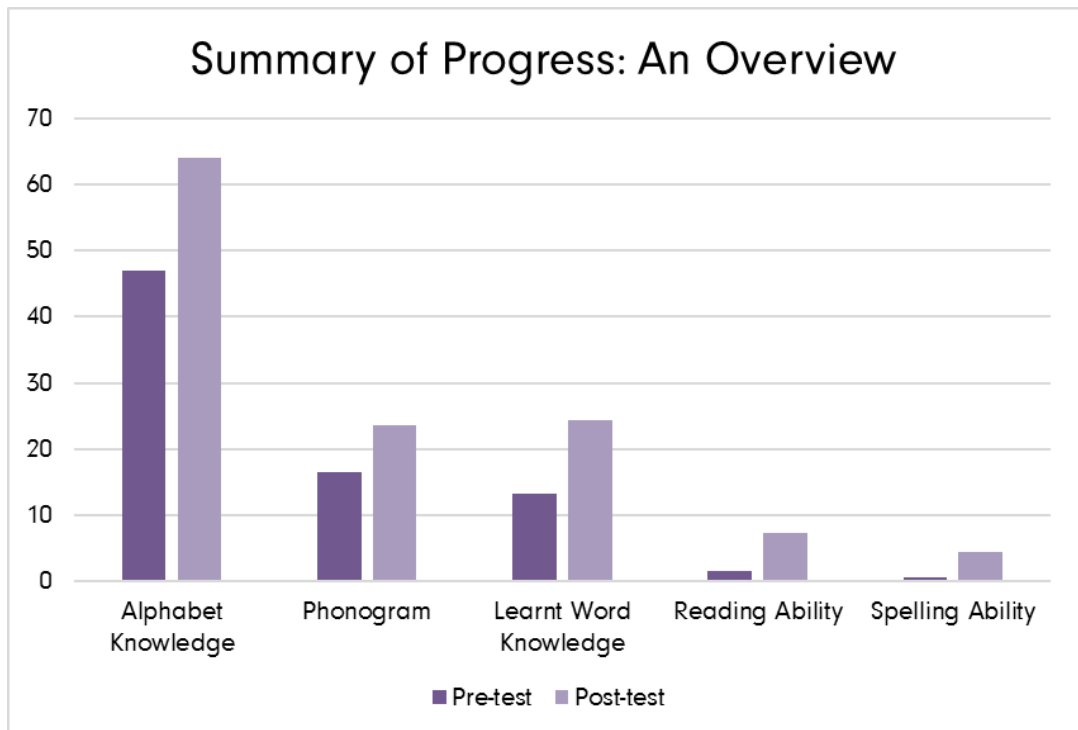


Figure 7. Overview of student improvement from DAS Preschool Programme

Other valuable information collected

Feedback forms, in the form of a Likert scale, were given to students, parents and teachers to collect information on their perception of the preschool programme.

STUDENT'S FEEDBACK

170 (out of 287) complete student responses were tabulated and analysed. Students were asked seven questions listed as follows:

1. How do you feel about coming to DAS Preschool Programme for classes?
2. How easy is it for you to sequence the alphabet?
3. How easy is it for you when you write (e.g. your name, copy writing)?
4. How much do you enjoy doing "words-to-read"?
5. How much do you enjoy doing "words-to-spell"?
6. How much do you enjoy doing "card drill" (letter-sound review)?
7. How easy is learning in school now or is it a "struggle" (i.e. I-don't-know-what-the-teacher-teaches)?

They were asked to rate between "I love it" to "Angry" by circling the emoticon shown below. To interpret the data, each emoticon was given a point to it:

- ◆ Five points were given to "I love it"
- ◆ Four points were given to "Happy"
- ◆ Three points were given to "It's ok (Neutral)"
- ◆ One point was given to "Angry"
- ◆ And two points were given to "Sad"



Figure 8. Student feedback form – emoticons to help students make responses

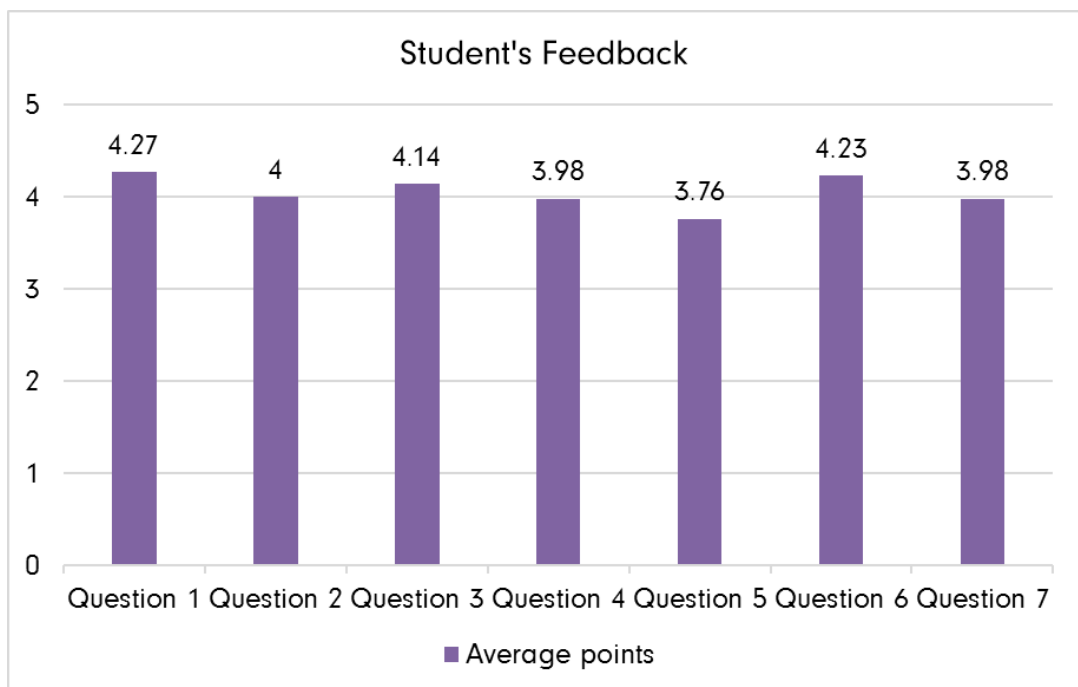


Figure 9.1 Average points from student's feedback

Q1: Are you happy coming to DAS for intervention?

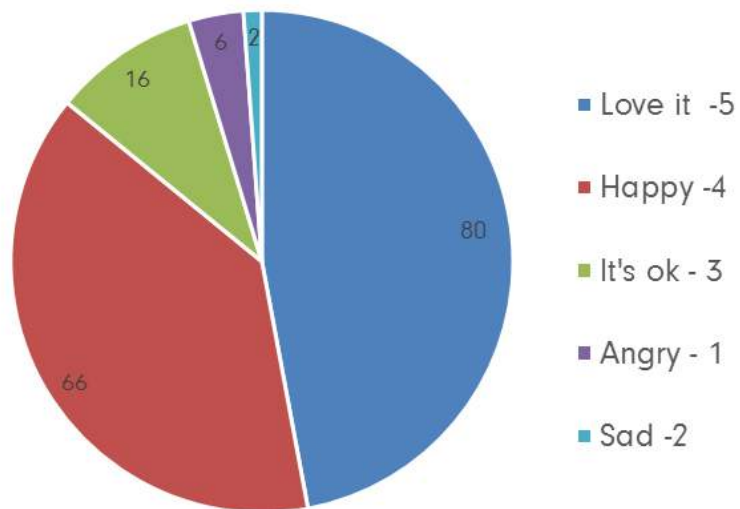


Figure 9.2. Breakdown of students' response about coming to DAS Preschool Programme for classes

Q2. Ease with letter sequencing

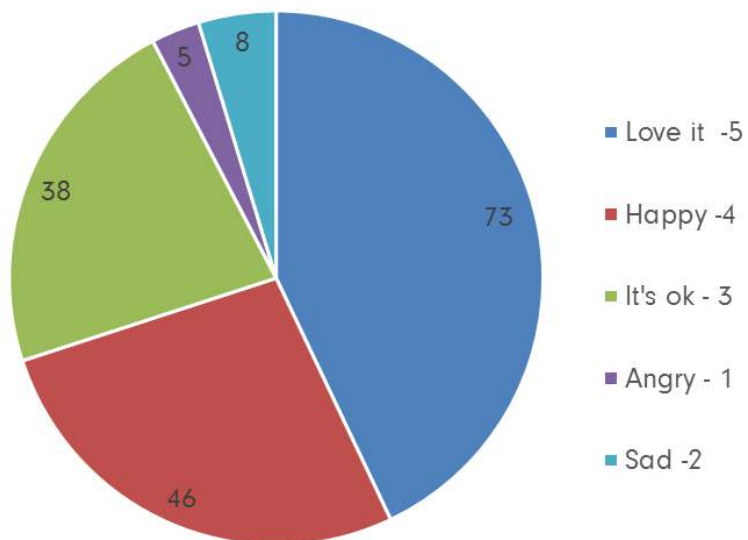


Figure 9.3. Breakdown of students' response to doing letter sequencing

The points were tabulated and averaged up for each question. The data collected from the feedback form is presented in Figure 9.1 Data analysis shows that children were generally “Happy” as they undergo intervention in the Preschool Programme. In addition, they seem to feel that programme helped them with school.

Per Figure 9.2, about 85% of the students were happy and love coming to class. Therefore, they were generally positive towards early literacy intervention. This optimism may possibly be one of the contributing factors to improved literacy scores found during pre-post tests.

Figures 9.3 and 9.4 reflect the rudimentary early literacy skills that all kindergarten students are expected to possess or have acquired by the time they are K2.

While some students have no difficulty with letter sequencing, many struggled. Figure 9.3 showed that when it came to sequencing the alphabet, 70% of the student fell into the category of happy-and-loving-it, while 22% found it “quite-ok” (i.e. not awful) in having to do so. About 8% felt miserable (i.e. angry or sad) with this challenge. In short, most have now either acquired the skill to do so successfully and independently or are now positive and receptive to this challenge.

Q3. Ease with tasks related to writing/copying

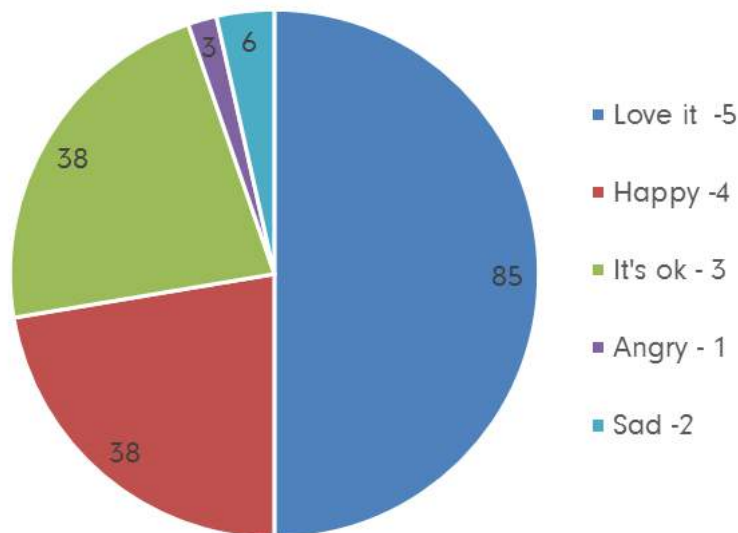


Figure 9.4. Breakdown of students' response to tasks related to writing

Figure 9.4 suggests that about 95% of the students felt more positive (and abled) when it came to writing their own name onto given worksheets and copy-writing related tasks. This is encouraging as many students came into the programme having difficulty in this area. (Being able to write your own name, any time when called upon, is the expected norm in mainstream preschool/kindergarten classrooms in Singapore.)

Phonological deficits, the difficulty associated in decoding nonsense words using conventional phonetic rules, and in the association of sounds to letters, is a characteristic of dyslexia. Early literacy intervention in this area means explicitly working with children in these challenging areas. Figures 9.5 to 9.7 capture students' "opinions" when it came to working with them on these challenging components.

Collectively from the pie charts below, figures 9.5 to 9.7, suggest that students felt the direct positive difference early literacy intervention made to their learning. Perhaps this is one of the contributing factors towards the literacy gains found in our pre-post tests results (see tables 5.2, 5.4 to 5.6).

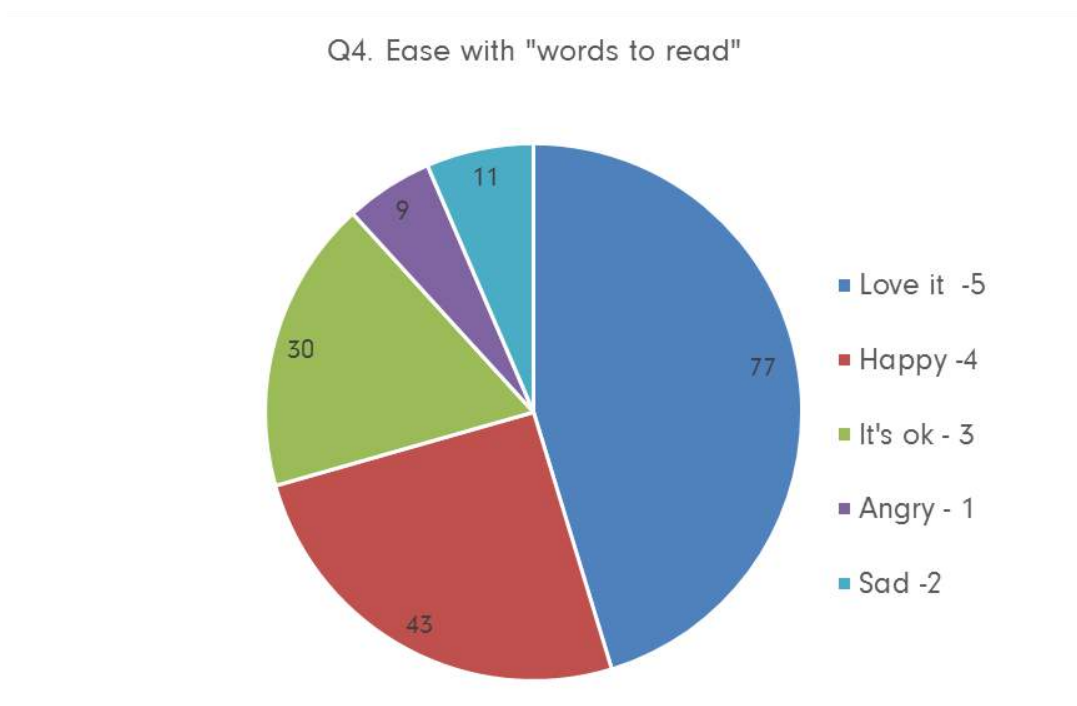


Figure 9.5. Breakdown of Student's Feedback about how they felt about doing "words-to-read"

Q5. Ease with "words to spell"

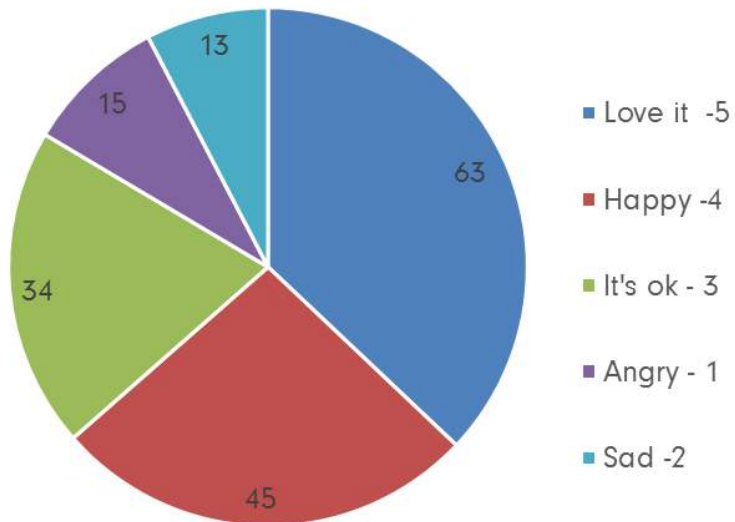


Figure 9.6. Breakdown of Student's Feedback about how they felt about doing "words-to-spell"

Q6. Ease with card drill (letter sound association)

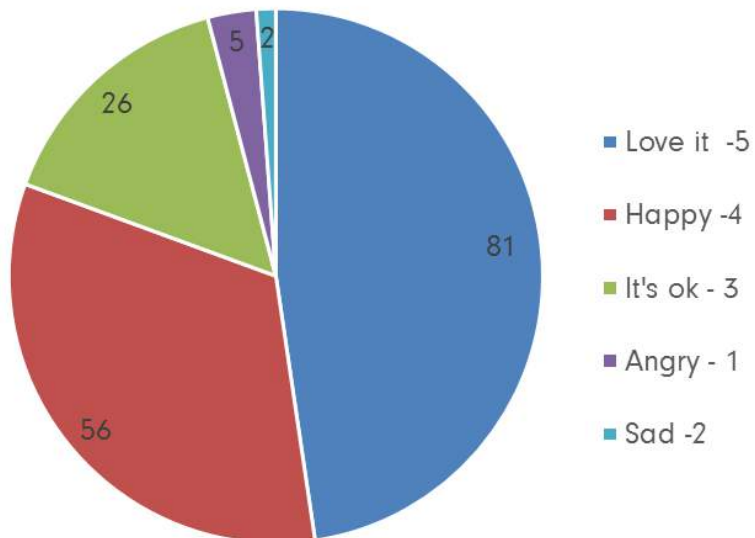


Figure 9.7. Breakdown of Student's Feedback about doing "card drill" (letter-sound review)

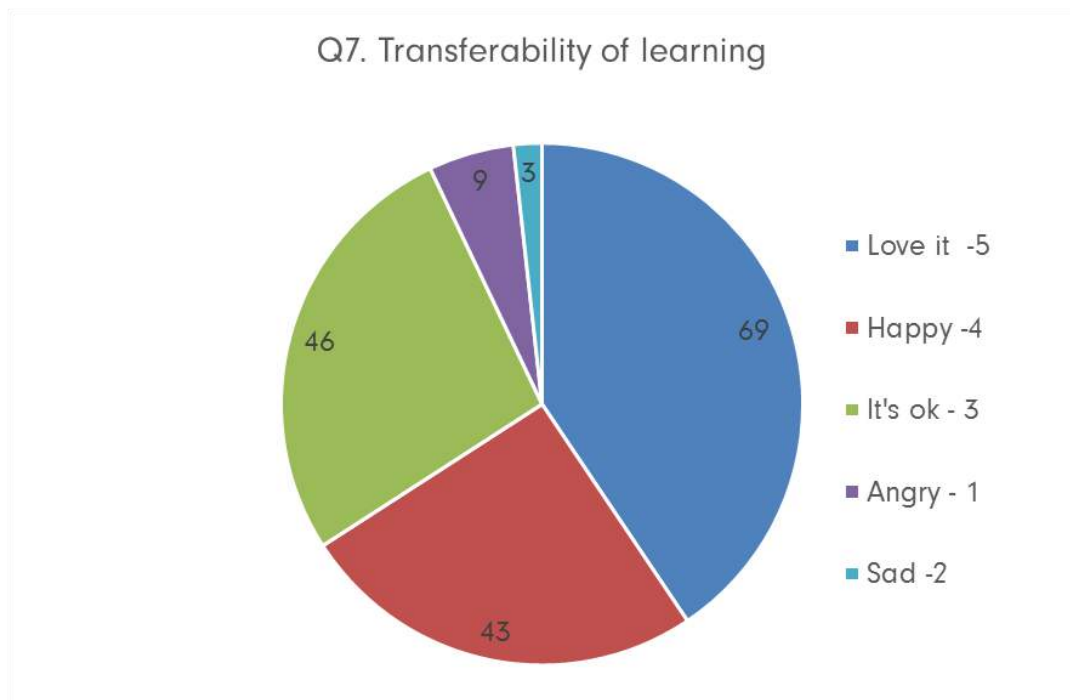


Figure 9.8. Breakdown of Student's Feedback about going to school and learning in their mainstream classroom

Based on figure 9.8, it would seem that children felt strongly about the positive impact and difference early literacy intervention made to young lives. (Let us hope that the support extended to them can be sustained beyond their time within our programme.)

PARENTS' FEEDBACK

Parent feedback forms were given at the end of the semester to find out their perception of the Preschool Programme. Their valuable feedback allows the Preschool team to identify any concurrent issues and make improvements to better the programme. 142 completed responses were analysed.

Parents were asked a total of nine questions, where they are given an option to rate between "Strongly Disagree" to "Strongly Agree". Different points were awarded to each option for data analysis:

- ◆ Five points for Strongly Agree
- ◆ Four points for Agree
- ◆ Three points for Neutral
- ◆ Two points for Disagree
- ◆ And one point for Strongly Disagree

1. My child appears more confident, happier.

Strongly Disagree Disagree Neutral Agree Strongly Agree

Figure 10. Parent feedback form (extract)

The points were tabulated and averaged up for each question. The data collected from the feedback form is presented in Figure 11

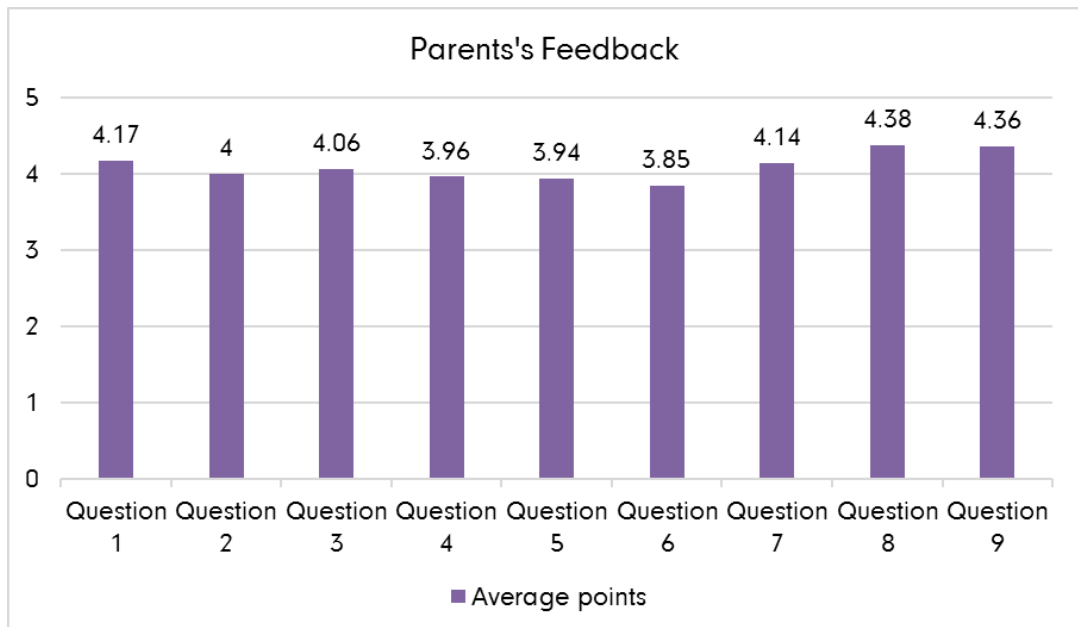


Figure 11. Average points from parent's feedback

The data presented in Figure 11 shows that parents had mostly seen an improvement in their child's literacy abilities as they underwent intervention at DAS. However, despite parents seeing observable improvements in all aspects of literacy, an average score of only 3.85 was gathered from Question 6.

According to analysis of parent responses to question 6 in figure 12, it would seem that 72.5% (agree and strongly) felt that there is improvement in this area while 24% remained neutral. Perhaps "neutral" meant "no comments". As such, contributing to a lower average score shown in figure 11.

Thus, more is needed to be done to address writing in the classroom (as inferred from Questions 6 on "I can see and/or my child's school teacher(s) tells me that my child's most significant/observable improvement is in writing – less laboriously as compared to before.").

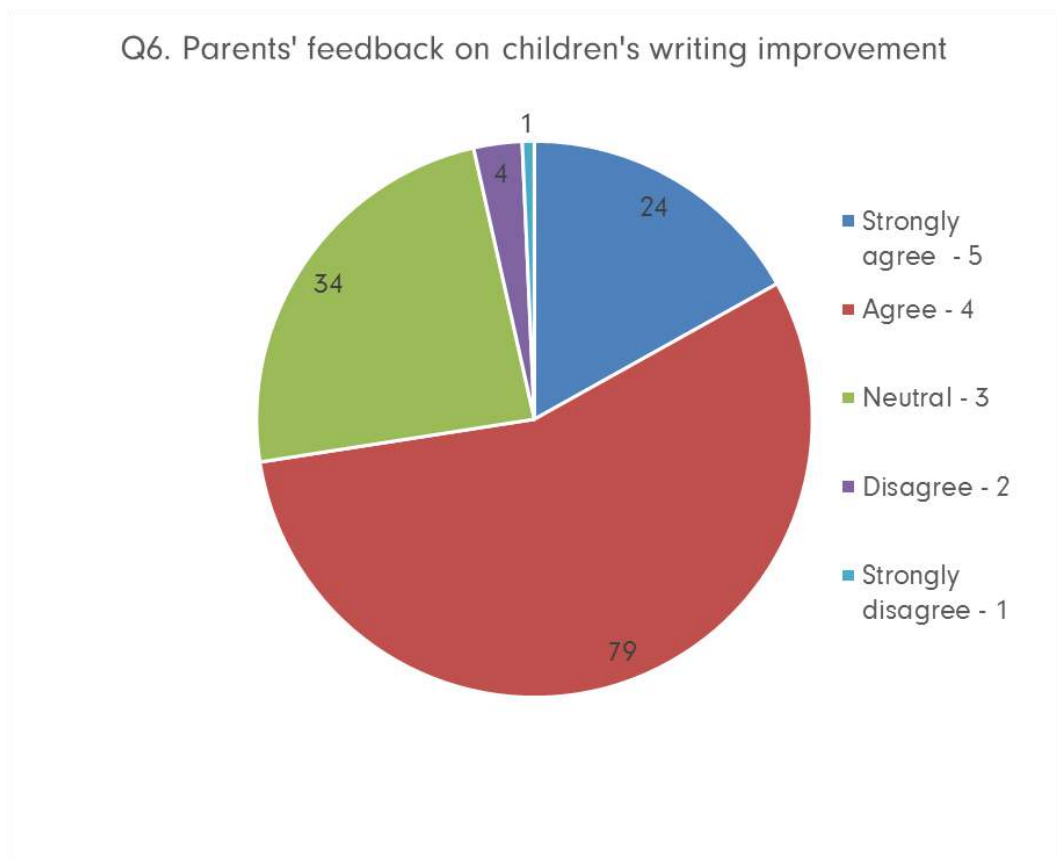


Figure 12. Breakdown of Parents' Feedback about regarding mainstream teachers' feedback to parents on students' improvement in the area of writing related tasks

TEACHER FEEDBACK FORM

A teacher feedback form in the form of a Likert scale was given. In this form, teachers assessed the finer aspects in the classroom, such as the soft skills (e.g. self-perception and self-esteem) of each child. Besides assessing students' literacy abilities from the pre and post-assessments at DAS, the teacher's feedback gives a broader perception of the child's holistic well-being and development. Each question can be rated from one to ten, with one being the least and ten being the most.

The points were tabulated and averaged up for each question. The data collected from the feedback form is presented in Figure 13.

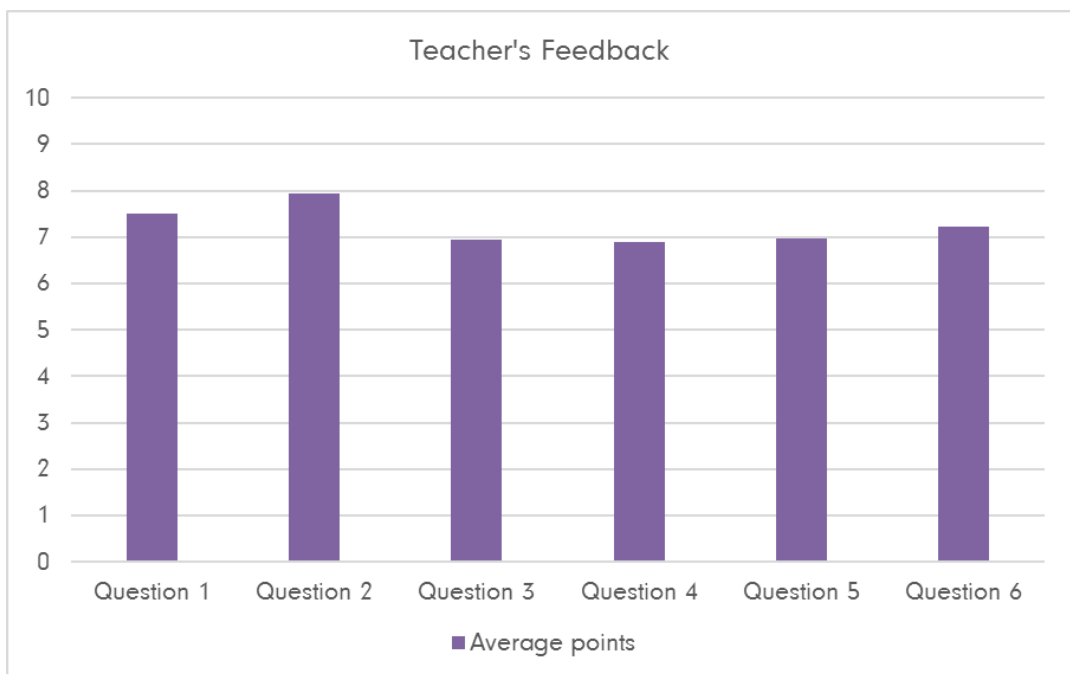


Figure 13. Average points from teacher feedback

From Figure 13, an average score of 7.245 were reflected in the results. Despite favourable results, according to teachers' collective perception in general, more can be done in the areas highlighted in questions 3 to 5, pertaining to progress of intervention efforts in the areas involving writing, sight word knowledge and reading. These will be areas that PP will need to continue to work on, identifying specific barriers to learning (Reid, 2013 p.32), coming up with solutions to remove these barriers, improving on learning outcomes/teacher satisfaction with students' learning progress. However, these efforts must be carefully balanced, keeping in mind the

motto "as fast as we can, as slow as we must" – never forgetting that the child/student is at the heart of all we do .

CONCLUSIONS

The findings from both Pre-test and Post-test suggest that intervention offered by the Preschool Programme is effective and students do respond to it. However, there may be a gap somewhere, be it in the curriculum and/or delivery resulting in an observably low and slow transfer of Alphabet Knowledge, Phonogram and Learnt Word Knowledge into Reading and Spelling ability . This may reflect the difficulty that children have transferring their knowledge from one realm to another, so that they have the basics of alphabet etc as outlined here, they find this more difficult to apply in a real world setting such as reading and spelling. Nevertheless, many children fail to acquire these basic grounding in order to develop their skills further, and the support offered by the PP team clearly facilitates improvement across all areas and provides a strong foundation for future learning.

ONGOING ANALYSES

Identification of the participants as dyslexic or non-dyslexic suggests a range of further analyses that can be undertaken in order to address some fundamental questions. These include the following; is preschool intervention more or less effective for children with dyslexia than those without? Much of the literature suggests that less specific problems respond more easily to intervention. Can we inoculate children at risk for dyslexia in the pre-school years by providing a structured and intensive support system designed to be fun, that can allow these children to build the basic blocks of their learning before they have an opportunity to fail? The research that Angela Fawcett has conducted in South Wales with over 1000 children suggests that this is indeed possible? It is well known that girls have an early advantage in language development, so will the data show that there is a gender difference in response to intervention? Finally, what is the effect of support over different time periods and can the optimum support period be identified from further analyses of this data? This data will be presented in a second article on the effectiveness of preschool intervention in Singapore, to be submitted to an academic journal.

FUTURE DIRECTIONS

Children are at the heart of what we do. Their best interest must come first. Teachers and educators are the arms and legs that make success attainable. As such, there are two significant upcoming tasks in 2016. One, improving the quality of learning and effective teaching within the classrooms. Two, to offer better support to preschool teachers both within DAS and island wide outside of our own organisation.

Thereby, gradually navigating the Preschool Programme into the position as being the nation's leading early literacy intervention and resource centre for learning differences/difficulties.

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ABOUT THE AUTHOR



WONG KAH LAI

Preschool Programme Manager

Wong Kah Lai is the Preschool Programme Manager at DAS. An enthusiastic and passionate educator with more than twenty years' experience in the field of early childhood education, Kah Lai taught young children, mentored teachers, supported parents and caregivers in a wide range of setting, from within the classroom to community outreach, while juggling her Diploma in Early Childhood Education from Wheelock College, and subsequent Bachelor of Education in ECCE from the University of South Australia. She completed her Masters in Teaching English to Young Learners from the University of York through distance learning whilst working full time as head teacher of a bilingual kindergarten in China.



DYSLEXIA ASSOCIATION OF SINGAPORE

HELPING DYSLEXIC PEOPLE ACHIEVE

DAS PRESCHOOL PROGRAMME

DAS Preschool Programme aims to help preschoolers who have a developmental delay in early literacy and may potentially be at risk of having dyslexia, develop the skills and strategies to become confident learners and achievers when they start primary school.

With the support from Income OrangeAid, bursaries are available for K1 & K2 students on the DAS Preschool Programme.



ABOUT INCOME ORANGEAID

OrangeAid is Income's community development and involvement arm. OrangeAid works with community partners through social investment in programmes that contribute to securing the future of children and youth from disadvantaged circumstances.

www.income.com.sg/orangeaid

WWW.DAS.ORG.SG

INCOME ORANGEAID FUND

Supporter of SES Preschool Programme

Income's community development and involvement arm, OrangeAid, focuses on empowering youth-in-need through education. Established in 2010, OrangeAid champions marginalised children and youth in Singapore. Under this initiative, Income commits 1% of its annual insurance operating profits to fund OrangeAid programmes. To date OrangeAid has disbursed more than \$5 million to over 5,000 children and youth through strategic community partnerships and programmes, and has touched 140,000 lives via health and life insurance coverage.

Visit www.income.com.sg/oraneaide for more information

PRESCHOOL PROGRAMME

**Specialised
Educational
Services**
UNLOCKING POTENTIAL



The aim of the SES Preschool Programme is to help preschoolers who are potentially at risk of dyslexia, or have developmental delay in early literacy, develop skills and strategies to become confident achievers when they enter primary school.

RECOMMENDED FOR

Preschoolers in Kindergarten One and Two who are at risk of dyslexia or having difficulties with reading, spelling and/or writing.

OUR APPROACH

Our programme helps preschoolers acquire a good foundation in alphabet knowledge and phonograms, leading up to learning sight words essential for reading. These abilities gear them towards reading and spelling readiness.

In class, your child will be taught rules, facts and generalisations about the English language, enabling them to read and spell more effectively. They will also be taught strategies to cope with letter reversals. The programme follows a prescribed scope and sequence for systematic, sequential and cumulative teaching.

Components covered in a typical lesson:

- Alphabet Knowledge
- Phonograms
- Learned Word Knowledge (e.g. said)
- Reading
- Spelling

Preschoolers will be advised to go for a School Age Psychological Assessment if they have not responded to appropriate instruction in the language when they turn six. Children diagnosed with dyslexia have the option to continue with the MOE-aided DAS Literacy Programme.



Find out more at www.ses.org.sg or 6444 5700

Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore.



ENGLISH EXAM SKILLS PROGRAMME

The aim of the programme is to provide students with direct support to better equip them with the knowledge, skills, strategies and attitudes to cope with the demands of the English language syllabus in school.

OUR APPROACH

The SES English Exam Skills Programme (EESP) provides an extension to what students have been taught in the MOE-aided Literacy Programme (MAP) and helps to put the skills learnt into practical use in their examinations. In class, students will be exposed to various language related knowledge and strategies to determine their needs in learning the language. Skills covered in a lesson will be reinforced in subsequent lessons to ensure reinforcement of concepts taught.

Components covered in the programme include:

1. Grammar
2. Comprehension
3. Editing
4. Synthesis & Transformation

Specialised Educational Services

English Exam Skills Programme

Edmen Leong

English Exam Skills Programme Manager

Dyslexia Association of Singapore

BACKGROUND OF THE SES ENGLISH EXAM SKILLS PROGRAMME

The English Exam Skills Programme (EESP) was established in 2013 with the goal of helping primary school students with dyslexia achieve in their school and Primary School Leaving Examinations (PSLE) – A high stakes examination every child in Singapore has to take that determines their entry to secondary schools.

The EESP team started off evaluating examination needs of Singaporean primary school students with dyslexia by analysing past examination papers. Through the analysis of these past papers, the team understands that students with dyslexia struggle with the Grammar, Editing, Synthesis and transformation, Cloze passage and Comprehension components of the PSLE paper.

The EESP team strongly believes that some of these challenging components can be taught, and that primary school students with dyslexia can acquire necessary skills that can be translated into the PSLE paper. The team has thus designed and developed a set of curriculum to address some of these components of the PSLE paper.

Careful considerations were taken into account in the development of the EESP ensuring that the curriculum adheres to the Orton Gillingham (OG) principles, that there is sufficient empirical evidence supporting the usefulness of concepts and skills taught and that students were able to transfer concepts and skills learned in their examination papers. A detailed description of the EESP curriculum processes and progress will be presented in the later sections of this report.

DESCRIPTION OF THE EESP

The EESP consists of curriculum designed for Primary school students from Primary 3 to Primary 6 in both Standard and Foundation streams. The Standard and Foundation streams are in accordance to the streams these students are placed in in their schools. Students in Primary 5 and 6 are placed into either the Standard or Foundation stream. Students in the Standard stream will take a Standard PSLE paper which is more challenging than the Foundation PSLE paper the students in the Foundation stream will take. Students enrolled in the EESP will be placed into classes according to streams. There are currently 3 different EESP streams: The Primary 3 and 4 stream, the Primary 5 and 6 Foundation stream and the Primary 5 and 6 Standard stream. For ease of reference, the 3 streams will be labelled as P3 and P4, Foundation, and Standard throughout this report. Topics covered in the EESP include Grammar, Editing, Synthesis and transformation and Comprehension. The distribution of topics covered in each stream is reflected in Table 1.

Table 1. The 3 EESP streams and the distribution of topics covered

P3 and P4	Foundation	Standard
Grammar Editing Comprehension	Synthesis and Transformation Editing Comprehension	Synthesis and Transformation Editing Comprehension

The Standard and Foundation streams were first developed in 2013 focusing on topics, skills and answering techniques closer to the PSLE examination format. While students were observed to perform in both the Standard and Foundation streams, teachers noticed that students were lacking in prior knowledge in basic grammar, comprehension skills and spelling rules. The P3 and P4 streams were thus implemented focusing on building up the language foundations of students. The distribution of topics covered in each stream are presented in Table 1.

All EESP lessons across streams adhere to the OG Principles. This means that lessons are multisensory, structured, progressive and emotionally sound. Lessons generally start off with an introduction of a skill or topic in an OG-based manner, and progresses toward application of skills taught into exam format question types. The EESP is thus a uniquely designed curriculum specifically catered for learners with dyslexia who are required to sit for the PSLE national examinations.

EESP classes are categorised into terms. There are 4 terms each year, and each term consists of a 10 1hr lesson cycle. With reference to Table 1, 3 components are

taught within each term according to the stream each student is placed in. For example, a Primary 5 Standard student would be taught topics in Synthesis and Transformation, Editing and Comprehension each term.

CURRICULUM DEVELOPMENT

Curriculum development process

The EESP curriculum developers used curriculum design processes adapted from Nation and Macalister (2010) and Richards (2001) as a guideline to ensure that the curriculum designed and administered is in line with the goals of the EESP. This involves an analysis of needs and situation of the EESP students and classroom, the planning of the goals and learning outcomes of the EESP, the curriculum and material design, the assessment of the progress of students in the programme and the evaluation of the EESP. An illustration of this curriculum design process is presented in Figure 1.

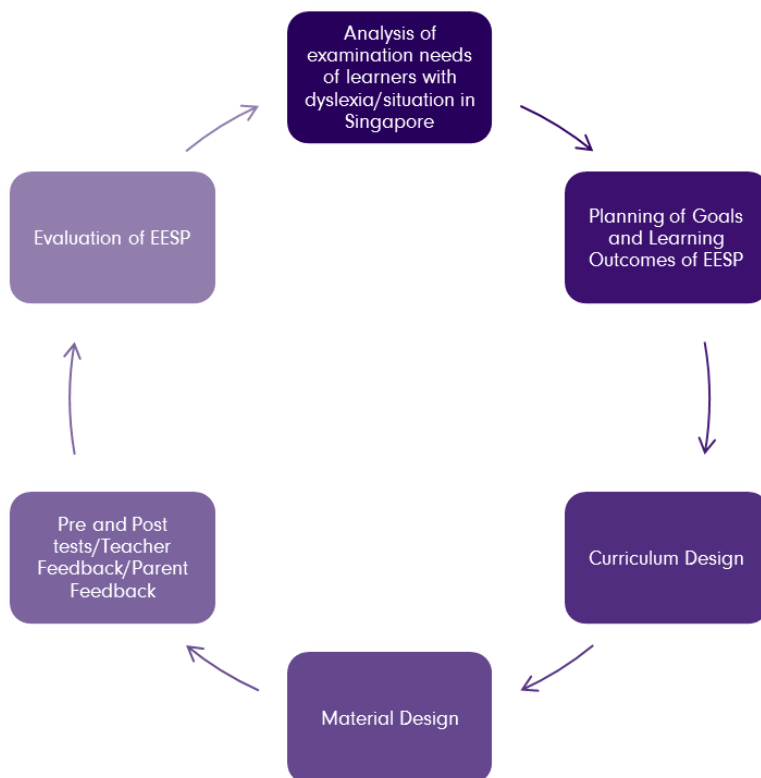


Figure 1. Curriculum design processes for the EESP, adapted from Nation & Macalister (2010), and Richards (2001)

Curriculum development progress

At the end of 2015, the EESP team has completed the development and the consistent evaluation and amendments of one year and one term's worth of curriculum for the Standard stream and the Foundation stream. The team has also completed one year's worth of P3 and 4 curriculum. A complete cycle of the curriculum of all 3 streams would consist of three 2-year cycles. A clearer illustration of this curriculum development progress is presented in Table 2.

Table 2. Curriculum development progress at the end of 2015

	Term1 Year 1	Term2 Year 1	Term 3 Year 1	Term 4 Year 1	Term1 Year 2	Term2 Year 2	Term 3 Year 2	Term 4 Year 2
Standard	✓	✓	✓	✓	✓			
Foundation	✓	✓	✓	✓	✓			
P3 and 4	✓	✓	✓	✓				

Examples of curriculum

As earlier mentioned, the selection and development of EESP topics adheres to the OG Principles. This means that lessons are taught in a very systematic and cumulative manner. Students are taught in small manageable steps with constant review and reinforcement of concepts. There should also be sufficient empirical evidence supporting the usefulness of concepts taught in the EESP. Examples of Synthesis and Transformation and Comprehension topics will be presented to show how the EESP curriculum adheres to the 2 mentioned guidelines.

Direct and indirect speech is one of the topics covered in the Synthesis and transformation component. Direct and indirect speech lesson examples are extracted and presented in Figures 2 through to 5 to illustrate how lessons in the EESP adhere to the OG Principles. In the direct and indirect speech topic, students are required to change a sentence in a direct speech form to its indirect speech form. For example, (with reference to Figure 2.), an example of a direct speech would be "Roy said, "I bought the tickets to the match yesterday"." Its indirect speech

form would be "Roy said that he had bought the tickets to the match the previous day." Considering the several changes students have to make in writing a direct speech sentence in its indirect speech form, it is challenging for students with dyslexia to manage such Synthesis and transformation examination questions. These difficulties were evident and presented in Leong (2015) where an example of a students' direct and indirect speech work was presented prior to the programme.

The EESP team designed direct and indirect speech lessons to abide by the structured, sequential and cumulative OG-Principle. Instead of presenting the direct and indirect speech topic in one lesson, EESP teachers teach the topic over a period of 4 lessons, teaching one necessary change at a time.

Figure 2 illustrates what was taught on the first of 4 lessons. Students were introduced to the direct speech and indirect speech topic, and informed about the several changes that must be made in order to change a sentence from a direct speech form to its indirect speech form. They however were not required to make any of these changes independently at this stage.

Activity 2. Spot the Difference

Identify the five differences between Direct and Indirect Speech.
Circle them.

Direct Speech	Indirect Speech
Roy said, "I bought the tickets to the match yesterday".	Roy said that he had bought the tickets to the match the previous day.

*Figure 2. Extract from a Synthesis and Transformation lesson
(Direct and Indirect Speech 1)*

Figure 3 illustrates what was taught in the second lesson. Students were only taught the changes in punctuation they will need to make.

Identify and circle the punctuation changes then choose the correct transformation by ticking the correct option.

1. Nora said, "The kitten is four months old".	<input type="radio"/> Nora said, "the kitten was four months old. <input type="radio"/> Nora said that the kitten was four months old. <input type="radio"/> Nora said that, The kitten was four months old.
2. Ben said, "Shaun took the keys to the car".	<input type="radio"/> Ben said that Shaun took the keys to the car. <input type="radio"/> Ben said that shaun took the keys to the car. <input type="radio"/> Ben said that, "Shaun took the keys to the car".
3. Father said, "The ice cream is melting".	<input type="radio"/> Father said that, "the ice cream was melting". <input type="radio"/> Father said that The ice cream was melting. <input type="radio"/> Father said that the ice cream was melting.

*Figure 3. Extract from a Synthesis and Transformation lesson
(Direct and Indirect Speech 2)*

Figure 4 illustrates what was taught in the third lesson. Students were only taught the changes in verb tense they will need to make.

Identify and underline the verb in each sentence then change it to the correct verb tense in the indirect speech form.

1. "I have been finding for my books since yesterday," Velda said to me.	_____
2. "He caught some grasshoppers just now," said Kian Hong.	_____
3. My grandfather told me, "They are building a new playground near our house".	_____

*Figure 4. Extract from a Synthesis and Transformation lesson
(Direct and Indirect Speech 3)*

Figure 5 illustrates what was taught in the fourth lesson. Students were only taught the changes in pronouns and time references they will need to make.

Put a triangle around the pronouns and change them accordingly.

- | | | |
|----|--|---|
| 1. | "The red Mazda car is ours," my neighbour said. | My neighbour said that the red Mazda car was _____. |
| 2. | "Jerry took my pocket money," Sally told her teacher | Sally told her teacher that Jerry had taken _____ pocket money. |

Put a rectangle around the time references and change them accordingly.

- | | | |
|----|---|---|
| 1. | "I am studying at the library now," Tina said. | Tina said that she was studying at the library _____. |
| 2. | "My mother is going to Australia next week," John said. | John said that his mother was going to Australia _____. |

*Figure 5. Extract from a Synthesis and Transformation lesson
(Direct and Indirect Speech 4)*

In each of these lessons, students were given practice examples designed by the EESP team. These examples only require students to make changes that they had been taught. For example, on the second lesson (Figure 3), students only need to make changes in punctuation. However, on the third lesson (Figure 4), students will be required to complete activities that require them to make changes in punctuation and verb tense. At the end of the 4 lessons, students will be required to answer actual direct and indirect speech questions in the PSLE examination format. This structured, sequential and progressive structure of the direct and indirect speech lessons adheres to the OG-Principles.

An example of a Comprehension lesson was also extracted and presented in Figure 6. In this Comprehension lesson, students were taught how to identify personal pronouns and how to use reference tracking to annotate and draw links between personal pronouns and their respective nouns. Past research revealed that the teaching of reference tracking skills while reading comprehension passages can impact inference forming skills (Pretorius, 2005; Walter, 2004) and can also be a mechanism for coherence building (Gernsbacher, 1990, 1997). These suggest that

students will understand comprehension texts better with the tracking of pronouns. Reference tracking of pronouns can also be useful since several PSLE questions also require students to identify who or what pronouns mentioned in texts refer to.

Jake was tired. **He** was hungry too. Lauren and I brought some food. **We** knew Jake was hungry.

“Those flowers look terrible! Please, will you water **them**,” said Grandmother.

Students should approach their teachers for help when **they** are faced with problems.

Figure 6. Extract from a Comprehension lesson (Personal Pronouns)

EESP DUAL SPECIALISTS

Teacher training for EESP dual specialisation

Educational therapists have to be trained before embarking on their journey as EESP dual specialist teachers. A total of 6 educational therapists were trained between August and September 2015 over 5 sessions. The training programme was conducted in collaboration with DAS Academy. New EESP teachers were provided with the opportunities to understand the theoretical background of teaching EESP students, and were also provided with guidance on PSLE topics during the dual specialisation training. These educational therapists were selected from a list of applicants, and had to be teaching at the DAS for at least a year prior to their application.

TEACHER INSETS

On top of the initial dual specialisation training for new EESP teachers, all EESP teachers have to attend teacher training INSETS before the start of each term. In 2015, 4 INSETS were conducted in December, March, June and September. During each session, EESP teachers will be given opportunities to share their experiences

and difficulties in their EESP classroom, updated on any latest administrative changes and briefed on topics that will be covered in the term to come.

MANPOWER FOR EESP

During the first 3 terms in 2015, there were a total of 12 EESP teachers. After the teacher training for dual specialisation in August 2015, there were a total of 18 EESP teachers across the 10 following centres - Bedok, Choa Chu Kang, Junction 8, Jurong Point, Parkway Parade, Queenstown, Rex House, Sengkang, Tampines, Woodlands.

EESP STUDENTS

EESP student enrolment

In 2015, student enrolment was at its highest in Term 3. Student enrolment generally increased across the terms from 128 students in Term 1, to 156 in Term 2, and 162 in Term 3. Similar to previous years, student enrolment drops in Term 4 because all Primary 6 students will complete the EESP and sit for their PSLE paper after the end of Term 3. The student numbers across 2015 are presented in Table 3.

Table 3. Student numbers across 2015

T1 2015	T2 2015	T3 2015	T4 2015
128	156	162	86

EESP bursary students

Across 2015, a total of 66 students in the EESP were on bursary. Table 4. presents the distribution of these bursary students.

Table 4. Distribution of bursary students in 2015

Bursary %	33%	50%	75%	90%	100%
No. of students	11	11	15	24	5

EVENTS

The EESP team members were involved in several Tips Talks and in the International Dyslexia Association (IDA) conference in 2015. A report of these events will be presented in the next 2 sections.

Tips Talks

Four Tips Talk sessions titled "Helping your child manage English Language Examinations from Primary 3 to PSLE" were conducted in 2015. The dates, venues, and speakers of each Tips Talk are presented in Table 5. The Tips Talk sessions were sessions that targeted DAS parents interested to know more about the PSLE and the EESP. The sessions were conducted in a lecture style talk where parents have opportunities to learn and ask more about the EESP. About 10 to 20 parents were present for each of these sessions. Parents who attended these sessions found it informative and helpful. They understood the needs of their children and how we can help them a lot better after the sessions. Some decided to enrol their child in the EESP after these Tips Talk sessions.

Table 5. Tips Talk sessions across 2015

Date	Learning Centre	Speaker
5th February	Sengkang	Edmen Leong
5th March	Woodlands	Edmen Leong
4th November	Choa Chu Kang	Siti Asjamiah
5th November	Bishan Junction 8	Tuty Elfira

IDA conference

Representatives from the EESP team had the opportunity to represent the team and the DAS in presenting a poster at the IDA conference, which was held at the Texan Gaylord Resort and Convention Centre in Grapevine, Texas from October 28 to 31, 2015. The poster presentation was on the study of the curriculum development processes and evaluation of the EESP in the year 2014. This study was published prior to the IDA conference by Leong (2015) in the Asia Pacific Journal of Developmental Differences (APJDD).

Several conference participants visited the EESP poster booth. Most of them were delighted to hear about the work the EESP is doing all the way back in Singapore and understood the difficulty students in the EESP face in doing well for their examinations. These visitors found value in the work the EESP team is doing.

Programme evaluation design

PROGRAMME EVALUATION DESIGN

The evaluation of the EESP predominantly follows a pre-test - post-test experimental design framework. Pre-tests and post-tests were conducted every term from Terms 1 to 3 in 2015 before and after a 10-lesson cycle respectively. In Term 4 2015, the EESP team had decided to conduct pre-tests and post-tests once every two terms. This was to provide an opportunity to evaluate the progress of students in the EESP over 2 terms, checking for the retention of knowledge and skills acquired over a longer period of time. Thus only a pre-test was conducted in Term 4 2015. Its matching post-test will be conducted in Term 1 2016. Since evaluation of progress will only be collected via pre-tests and post-tests once every 2 terms from Term 4 2015, EESP teachers had to conduct a feedback on their students' progress in Term 4 2015 to ensure that no valuable data will be lost at the end of that term. An illustration of this research framework is presented in Figure 7.

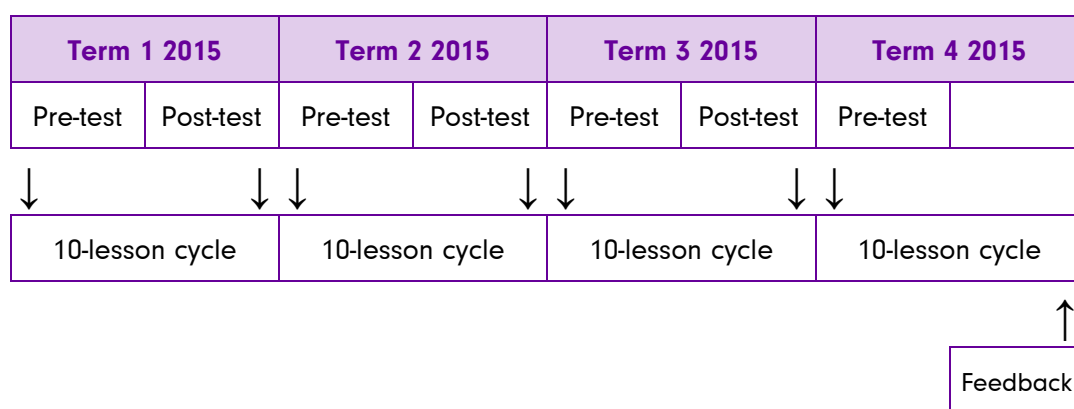


Figure 7. Research design framework for 2015

For a clearer understanding of the future direction in the EESP's research design, which was implemented at Term 4 2015, an illustration of the future research design framework is presented in Figure 8. Pre-test and post-test cycles start from Term 4 because this is when the Primary 6 students leave the EESP after their PSLE, and when a new batch of students enrolls in the programme. Pre-tests and post-tests will be conducted once every 2 terms, and EESP teachers will have to conduct a feedback on their students' progress every term throughout 2016.

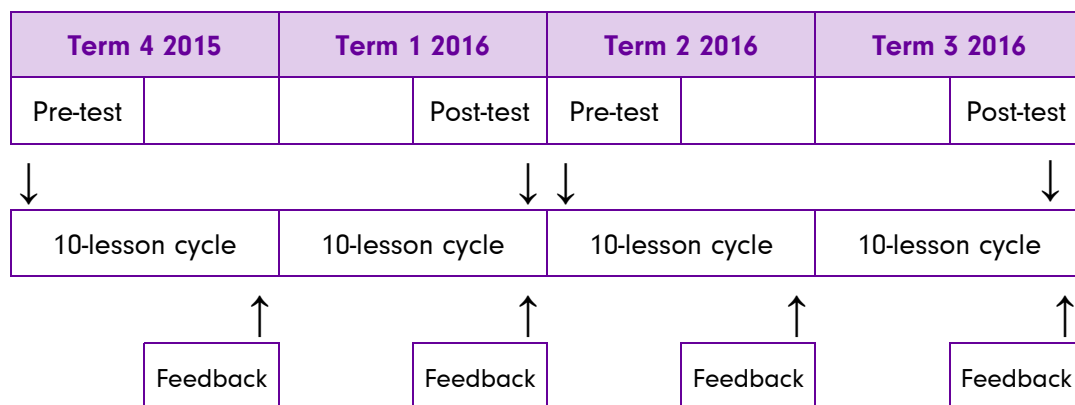


Figure 8. Future research design framework illustrating the change in data collection procedure.

In summary, results presented in this report for year 2015 would consist of 3 sets of pre-test and post-test data (Term 1, 2 and 3 2015) and 1 set of teacher feedback in the form of a survey (Term 4 2015). Results of this evaluation would thus be predominantly quantitative in nature.

Research rationale

The implementation of the above described research design was to ensure that the EESP is consistently reviewed and that the goals set for the EESP can be achieved. This consistent evaluation process that references the earlier mentioned curriculum development process adapted from Nation and Macalister (2010) and Richards (2001) assures students, teachers and other stakeholders the quality and the progress of the EESP. Evaluation of the results of the EESP also provides the EESP curriculum developers with a direction in their curriculum design, or suggests any possible changes that need to be in place should a particular goal or strategy not work.

Strengths and weaknesses of research design

With the implementation of this research design, EESP curriculum developers will be able to evaluate and improve in the curriculum and the current practices in the EESP. EESP teachers conducting the pre-tests and post-tests and the feedback forms would also have opportunities to reflect on the progress of their individual students.

The current research framework for the pre-tests and post-tests however follows a pre-experimental research design. There are currently no control groups in place to

confirm that any success of the EESP observed via the pre-tests and post-tests are controlled for. Thus, the use of a control group in the EESP research design will be taken into consideration in the coming years. Students selected for the control group will be students who participate in other DAS programmes to ensure that they are matched for hours of support to ensure that students are progressing not only because of the increased number of hours spent.

Participants

The participants of the EESP evaluation consist of a portion of students who are enrolled in the EESP. Most of the enrolled students were participants of this evaluation. Students who were not included in this study were students who were absent during the pre-test or post-test. There are 3 streams in the EESP, and results were collected across 4 terms in 2015. The number of participants for each stream across the 4 terms is presented in Table 6.

Table 6. Number of participants across the 3 streams and 4 terms

Term\Stream	Standard	Foundation	Primary3/4
Term 1 2015 (Pre-post)	46	18	14
Term 2 2015 (Pre-post)	57	13	27
Term 3 2015 (Pre-post)	66	2	23
Term 4 2015 (Feedback)	29	14	39

Data collection procedures

Pre-test post-test

Pre-tests and post-tests were administered at the start and end of each 10-week cycle each term to reveal possible positive impacts of the EESP curriculum on the students' progress in examination questions. Any significant improvements in the post-tests would suggest the progress of students after each term. A total of 3 pre-tests and post-tests were conducted for each stream in 2015. Once in each term from

Terms 1 to 3. The pre-tests and post-tests were designed by the EESP team to contain questions that are related to topics covered within each term. These test items are similar to the PSLE exam format and tests for each student's ability to translate the skills acquired during EESP lessons within each term into examination questions. Since the specific contents of each term are different, a different set of pre-tests and post-tests are used each term. These tests also differ in difficulty and number of items and score depending on the EESP stream.

TEACHER FEEDBACK OF STUDENTS' PROGRESS

The teacher feedback of students' progress is a survey conducted by each EESP teacher at the end of Term 4 2015. This survey consists of 6 items on a 5 point Likert scale and one open ended item. The 6 items consists of two questions for each of the 3 components covered within each stream. The 2 questions require teachers to rate how well each of their students understood skills taught and how well each of their students were able to apply the skills taught into actual examination based questions. The open ended item consists of opportunities for teachers to write additional comments about the progress of each student. A copy of the teacher feedback of students' progress is presented in Figure 9.

This teacher's feedback was conducted after the teachers complete their 10-week lesson cycle in Term 4 2015. Data collected from this survey will be able to evaluate each student's performance according to their teacher's perspectives.

Findings

Pre-test post-test

The mean percentage score of pre-tests and post-tests conducted were tabulated across all streams and terms and illustrated in Figures 10 to 12. Figures presented showed that on an average, students generally perform better in their post-tests when compared to their pre-tests. Figures 10 and 12 showed that students in the Standard stream and the P3/4 stream performed poorer in both their pre-tests and post-tests in Term 3 2015 as compared to the earlier terms. This was due to tougher topics taught in both streams during that term. Despite these tough topics, students in these two streams were still able to improve significantly.

Figure 9. Teacher Feedback on Student's Progress

EESP - EdT's Feedback on Student's Progress

Name of Student: _____ Name of EdT: _____ Stream: _____ Term/year: _____

Understanding of skills taught	Editing Require more time and reinforcement before understanding skills taught	0	Able to understand some skills taught	1	Able to understand half of the skills taught	2	Able to understand most skills taught	3	Very familiar with all skills taught	4
	Editing Require more time and reinforcement before being able to apply skills taught	0	Able to apply some skills taught into written activities	1	Able to apply half of the skills taught into written activities	2	Able to apply most skills taught into written activities	3	Very familiar with application of all skills taught into written activities	4
Understanding of skills taught	Comprehension Require more time and reinforcement before understanding skills taught	0	Able to understand some skills taught	1	Able to understand half of the skills taught	2	Able to understand most skills taught	3	Very familiar with all skills taught	4
	Comprehension Require more time and reinforcement before being able to apply skills taught	0	Able to apply some skills taught into written activities	1	Able to apply half of the skills taught into written activities	2	Able to apply most skills taught into written activities	3	Very familiar with application of all skills taught into written activities	4
Understanding of skills taught	Synthesis & Transformation (P5/6 Std/Fdn) OR Grammar (P3/4) Require more time and reinforcement before understanding skills taught	0	Able to understand some skills taught	1	Able to understand half of the skills taught	2	Able to understand most skills taught	3	Very familiar with all skills taught	4
	Synthesis & Transformation (P5/6 Std/Fdn) OR Grammar (P3/4) Require more time and reinforcement before being able to apply skills taught	0	Able to apply some skills taught into written activities	1	Able to apply half of the skills taught into written activities	2	Able to apply most skills taught into written activities	3	Very familiar with application of all skills taught into written activities	4
Additional Comments	Editing / Comprehension / Synthesis & Transformation / Grammar / Others (Circle one or more)									

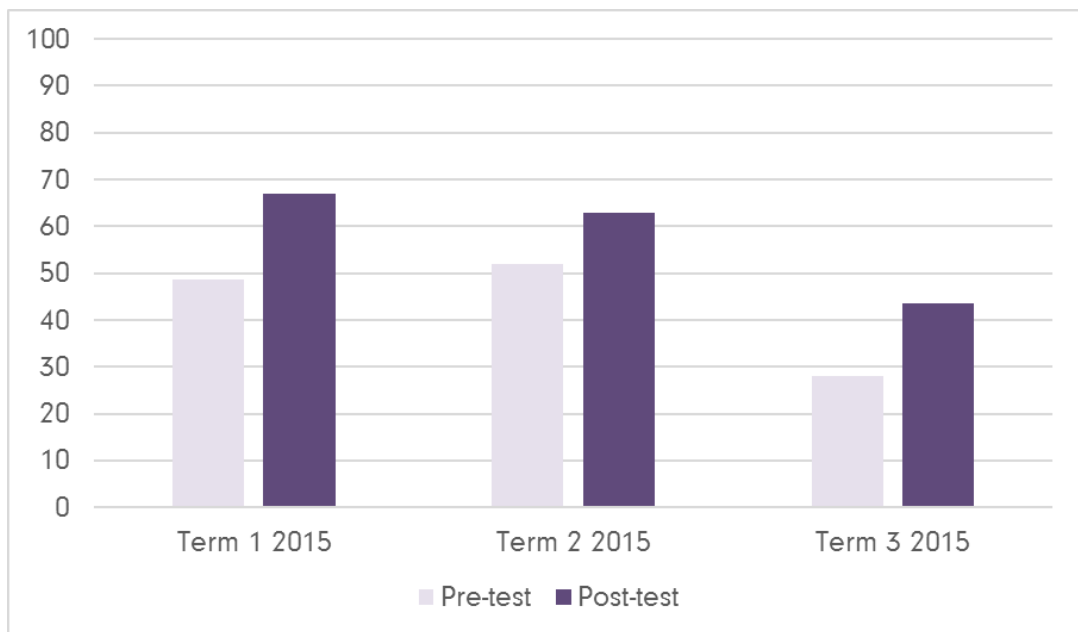


Figure 10. Comparison of pre-tests and post-test of Standard stream students

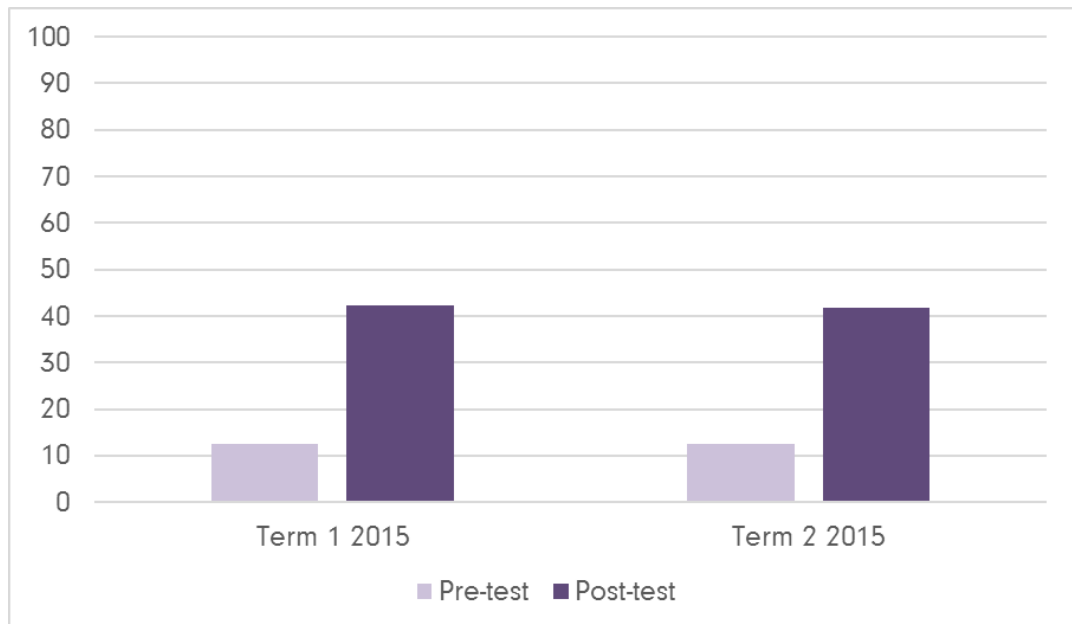


Figure 11. Comparison of pre-tests and post-test of Foundation stream students

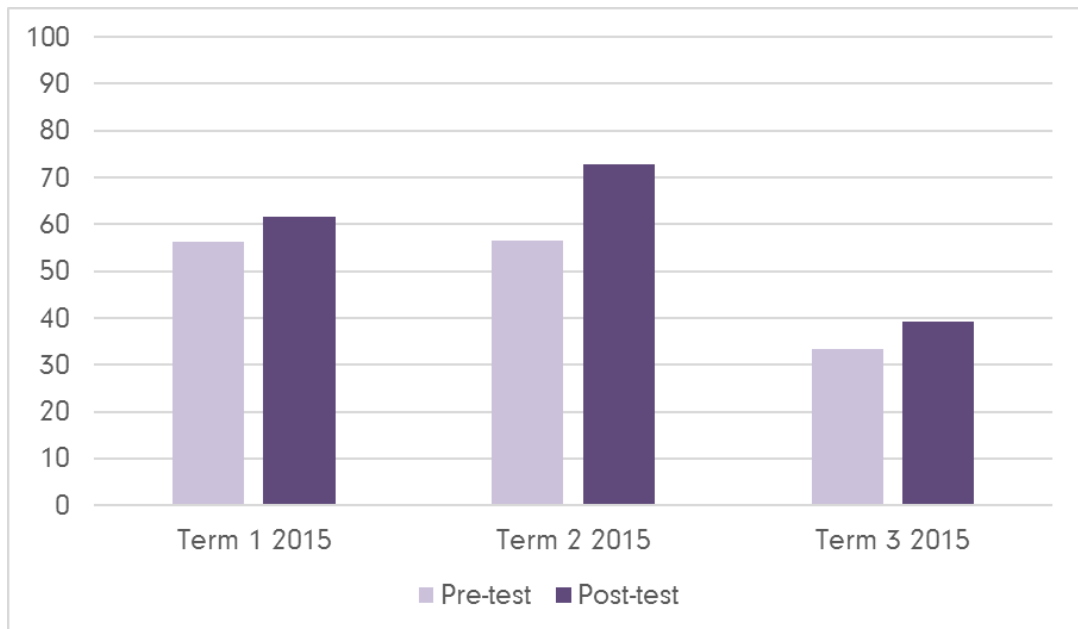


Figure 12. Comparison of pre-tests and post-test of Primary 3/4 stream students

The better performance in students' post-test scores had to be justified. Thus, a total of 8 t-tests were conducted to compare the pre-test and post-test results of the Standard, Foundation, and P3 and 4 stream from Terms 1, 2 and 3 in 2015. Results of these t-tests will be presented in the subsequent paragraphs and tables. No t-test was conducted for the Foundation students in Term 3 2015 since there were only 2 students in this group. Their pre-tests and post-tests however will be briefly described. All t-tests conducted were paired samples t-tests.

The first t-test was conducted comparing the pre-test and post-test scores of Standard students in Term 1 2015. The results of the t-test ($p < .01$) suggests that there is a significant difference between the pre-test and the post-test scores of this group of students.

The second t-test was conducted comparing the pre-test and post-test scores of Foundation students in Term 1 2015. The results of the t-test ($p < .01$) suggests that there is a significant difference between the pre-test and the post-test scores of this group of students.

Table 7. Results of Paired Samples t-test comparing pre-test and post-test scores of Standard students in Term 1 2015.

Group	N	Mean	SD	df	p
Pre-test	46	37.06522	14.6	45	<.001***
Post-test	46	50.84786 Students in Term 1	9.99		

*** $p < .001$.

Table 8. Results of Paired Samples t-test comparing pre-test and post-test scores of Foundation students in Term 1 2015.

Group	N	Mean	SD	df	p
Pre-test	18	3.39	3.22	17	<.001***
Post-test	18	11.39	4.53		

*** $p < .001$.

The third t-test was conducted comparing the pre-test and post-test scores of P3 and 4 students in Term 1 2015. The results of the t-test ($p = .17$) suggests that there is no significant difference between the pre-test and the post-test scores of this group of students. A huge difference in the standard deviation scores are also reflected in Table 9, indicating a big difference in pre-test and post-test scores between these students.

Table 9. Results of Paired Samples t-test comparing pre-test and post-test scores of P3 and 4 students in Term 1 2015.

Group	N	Mean	SD	df	p
Pre-test	14	9	3.49	13	.17
Post-test	14	9.89	13.98		

The fourth t-test was conducted comparing the pre-test and post-test scores of Standard students in Term 2 2015. The results of the t-test ($p < .01$) suggests that there is a significant difference between the pre-test and the post-test scores of this group of students.

Table 10. Results of Paired Samples t-test comparing pre-test and post-test scores of Standard students in Term 2 2015.

Group	N	Mean	SD	df	p
Pre-test	57	9.88	3.74	56	<.001***
Post-test	57	11.93	3.76		

*** $p < .001$.

The fifth t-test was conducted comparing the pre-test and post-test scores of Foundation students in Term 2 2015. The results of the t-test ($p < .01$) suggests that there is a significant difference between the pre-test and the post-test scores of this group of students.

Table 11. Results of Paired Samples t-test comparing pre-test and post-test scores of Foundation students in Term 2 2015.

Group	N	Mean	SD	df	p
Pre-test	13	4.15	1.28	12	<.001***
Post-test	13	13.77	6.60		

*** $p < .001$.

The sixth t-test was conducted comparing the pre-test and post-test scores of P3 and 4 students in Term 2 2015. The results of the t-test ($p < .01$) suggests that there is a significant difference between the pre-test and the post-test scores of this group of students.

Table 12. Results of Paired Samples t-test comparing pre-test and post-test scores of P3 and 4 students in Term 2 2015.

Group	N	Mean	SD	df	p
Pre-test	27	13	4.14	26	<.001***
Post-test	27	16.74	4.63		

*** $p < .001$.

The seventh t-test was conducted comparing the pre-test and post-test scores of Standard students in Term 3 2015. The results of the t-test ($p < .01$) suggests that there is a significant difference between the pre-test and the post-test scores of this group of students.

Table 13. Results of Paired Samples t-test comparing pre-test and post-test scores of Standard students in Term 3 2015.

Group	N	Mean	SD	df	p
Pre-test	66	6.47	4.29	65	<.001***
Post-test	66	10.02	4.57		

*** $p < .001$.

No t-test was conducted to compare the pre-test and post-test scores of the 2 Foundation students in Term 3 2015. However, their pre-tests and post-tests were also marked. These 2 students answered 6 and 11 items out of 29 items correctly in their pre-test. The same two students answered 14 and 18 items out of 29 items correctly in their post-test.

The last t-test was conducted comparing the pre-test and post-test scores of P3 and 4 students in Term 3 2015. The results of the t-test ($p < .01$) suggests that there is a significant difference between the pre-test and the post-test scores of this group of students.

Table 14. Results of Paired Samples t-test comparing pre-test and post-test scores of P3 and 4 students in Term 3 2015.

Group	N	Mean	SD	df	p
Pre-test	23	6.70	2.53	22	0.006**
Post-test	23	7.83	1.99		

** $p < .01$.

A summary of the all t-test results are presented in Table 15. Out of all t-test conducted, all provided significant results except the comparison between the pre-test and post-test of Primary 3/4 students in Term 1 2015. No t-test was conducted for Foundation students in Term 3 2015.

Table 15. Summary of t-test results

Term\Stream	Standard	Foundation	P3 and 4
Term 1 2015 (Pre-post)	***	***	-
Term 2 2015 (Pre-post)	***	***	***
Term 3 2015 (Pre-post)	***	N.A.	**

*** $p < .001$, ** $p < .01$

TEACHER FEEDBACK OF STUDENTS' PROGRESS

Results of the teacher feedback conducted in Term 4 2015 was consolidated. The averages of the teachers' feedback of their students across the streams were recorded in Table 16. and presented in Figure 13.

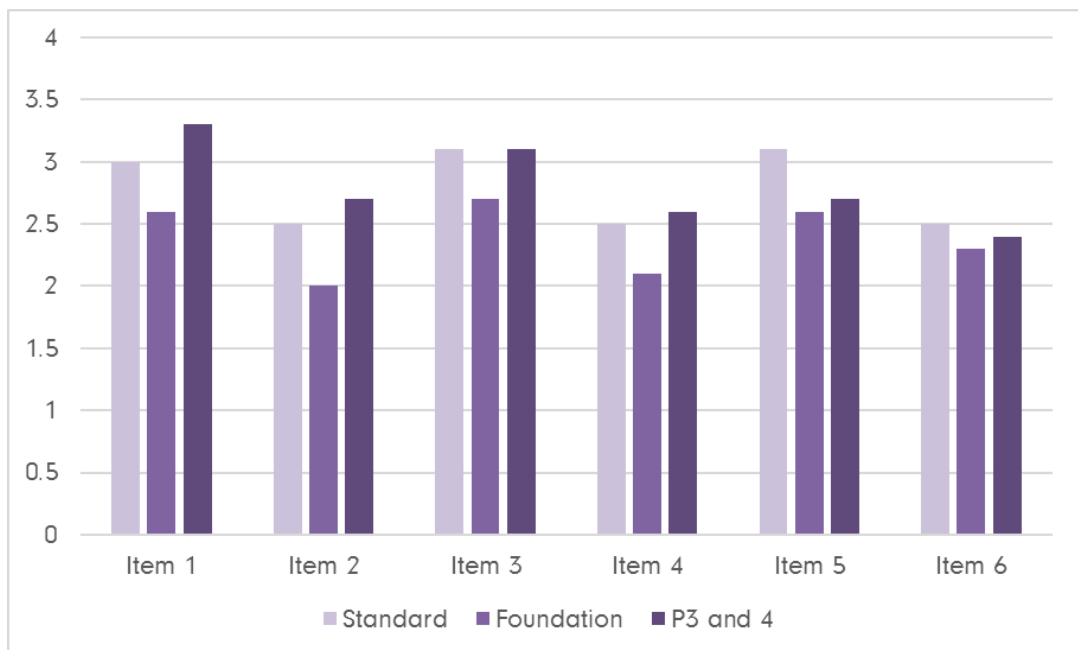


Figure 13. Results of average teacher feedback in Term 4 2015

Legend for Table 16 and Figure 13

*Items:

Item 1: Understanding of editing skills taught

Item 2: Application of editing skills taught

Item 3: Understanding of comprehension skills taught

Item 4: Application of comprehension skills taught

Item 5: Understanding of synthesis and transformation (standard or foundation) / grammar (P3/4) skills taught

Item 6: Application of synthesis and transformation (standard or foundation) / grammar (P3/4) skills taught

*Score based on a scale of 0 to 4 where:

0 = Require more time and reinforcement before understanding/being able to apply skills taught

1 = Able to understand/apply some skills taught

2 = Able to understand/apply half of the skills taught

3 = Able to understand/apply most skills taught

4 = Very familiar with (application of) all skills taught

Table 16. Results of average teacher feedback in Term 4 2015

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Standard	3	2.5	3.1	2.5	3.1	2.5
Foundation	2.6	2	2.7	2.1	2.6	2.3
P3 and 4	3.3	2.7	3.1	2.6	2.7	2.4

Results from the feedback suggest that all of the students in the EESP were able to understand and apply at least half of the skills taught during Term 4 2015 since the average rating across all items for all components was above 2. It was also observable from the data that Foundation students were rated poorest followed by the P3 and 4 students and with Standard students performing best at understanding skills and applying skills taught. Lastly, the data revealed that all students performed better at understanding skills than at applying skills taught.

Out of the 82 copies of teacher feedback collected, 45 comments of students were recorded in item 7 of the teacher feedback survey. These comments were carefully read to observe any underlying patterns on the teachers' comments of each student's progress. Relevant phrases used by teachers in their comments on item 7 were consolidated and categorized into relevant categories for observation. These categories are presented in Table 17. together with the frequency of each comment observed

Table 17. Categories of comments observed in the teacher feedback survey

Positive comments observed		Negative comments observed	
Comment	Freq	Comment	Freq
Independent/steady/improving	17	Reinforcement needed	5
Understood concepts very well	12	Confused at times	3
Strong in vocabulary knowledge	1	Short attention span/distracted	3
Puts in a lot of effort	1	Careless	2
		Slow/takes time to understand	2
		Poor attendance	2

This feedback collected from Item 7 revealed that most of the comments from teachers were positive. It was mentioned 17 times that 17 different students were independently and steadily completing the work that they have been given. Twelve students were commended on understanding their concepts very well. Some negative comments were also observed with 5 comments on students needing reinforcement, 3 comments on students being confused during lessons, and 3 comments on students showing signs of distraction.

DATA ANALYSIS AND DISCUSSION

Pre-test post-test

Results from the t-tests of the pre-tests and post-tests as summarized in the earlier Table 15. and Figures 10 to 12 suggests that there was significant progress in students after the EESP across all terms. This progress was also observed in the 2 Foundation students who completed their pre-test and post-test in Term 3 2015. These reveal the effectiveness of the EESP in 2015. This significant progress however was not observed in the Term 1 2015 P 3 and 4 pre-test and post-test when the P3 and 4 stream was first introduced. The difference in standard deviation scores observed in this t-test suggests that some P3 and 4 students benefited a lot more than others within this term.

It was revealed that lessons designed for P3 and 4 students in Term 1 2015 were over ambitious. Students were required to remember too many concepts and skills within the term. The EESP team has since made amendments to the P3 and 4 curriculum in accordance to the programme evaluation process (Figure 1). The significant improvements in the P3 and 4 results in Terms 2 and 3 suggest that the implementation of the programme evaluation process is valuable and necessary. Similar findings were established when the EESP was first implemented.

The earlier programme evaluation conducted for an older group of children revealed that the approach we adopted when the programme first started was also too ambitious. The curriculum development team was later able to adapt the curriculum to something more suitable for the students. These processes reveal how the team was able to adapt their teaching approach based on the results to achieve greater success.

Teacher Feedback of Students' Progress

Results of the Teacher Feedback of Students' Progress suggests that teachers are confident of their students' progress in Term 4 2015. The weaker scores of Foundation students, average scores of P3 and 4 students, and better scores of

Standard students can be predicted since students in the Standard stream generally perform better both at school and in EESP classes. The reason behind P3 and 4 students scoring between the Standard and Foundation students could be that the P3 and 4 students consist of potential Standard and Foundation students that have not been streamed. This information collected confirms our need to manage the difficulty of the EESP curriculum specific to each stream.

The results showing that students generally perform better at understanding skills than applying skills suggest the importance of moving students beyond understanding. While it is important to understand concepts, the PSLE paper requires that students are able to apply what they understand in a written script. Students will only be awarded with scores if they are able to apply what they understand in their examination paper.

The comments of the teachers on students from the teacher feedback also provided very valuable information. The high frequency of comments emphasizing on the progress in students improving and showing independence reinforces the success in the EESP curriculum, it is however important to take note of how some students need more guidance and also help with managing their confusion and lack of concentration in the EESP classroom. These comments thus provide valuable information for improvements that could be implemented in future terms.

Other valuable information collected

PSLE Results 2015

The purpose of the EESP is to provide examination support for students at the DAS leading to their PSLE paper. Thus, it is important to have a record of how students who were in the EESP fare in their PSLE paper. In 2015, a total of 83 EESP students sat for the PSLE paper. Of the 83 students, 54 students reported their English grades. Fifty students reported their overall PSLE scores, and 54 students reported the secondary school streams they got into. Students who sat for the PSLE would be given grades ranging from A* to U, A* being the best grade. These grades are calculated based on how these students fare in comparison to all PSLE candidates throughout Singapore in 2015. These grades would then play a role in the secondary school streams these students will get into. There are three typical secondary streams in secondary schools. The Express stream (Exp), the Normal Academic stream (NA), and the Normal Technical stream (NT). Exp being the most competitive and NT being the least.

Out of the 54 students who reported their PSLE grades, 47 students were from the Standard stream. Most of these students got grades ranging from A to C, with one

student getting a D grade. Table 18. presents the distribution of grades of the 47 Standard stream students. There were 7 Foundation stream students who reported their PSLE grades. Four of these students were graded G3, and 3 of them were graded G4 (Students in the Foundation stream are given grades, G1, G2, G3, G4 and U; U being ungraded).

Table 18. EESP student grades for PSLE

Grade	A* (≥91)	A (75-90)	B (60-74)	C (50-59)	D (35-49)	E (20-34)	U (<20)
No. of Students	0	6	12	28	1	0	0

Of the 50 students who reported their overall PSLE scores, Standard stream students scored between 144 and 237 for their overall PSLE score. Foundation stream students scored between 117 and 136.

Out of the 54 students who reported the secondary school streams they got into, all of the students were either in Exp, NA, or NT. Three of these students were given opportunities to take selective subjects in both Exp and NA. Table 19. presents the distribution of streams EESP students got into in their respective secondary schools.

Table 19. Secondary school streams of EESP students after 2015 PSLE

Sec. sch. stream	Exp	Exp/NA	NA	NT
No. of Students	16	3	23	12

CONCLUSIONS

This report and its results describe the processes of the EESP in 2015, revealed its progress and success in providing students with skills necessary for their school examinations, records the Primary 6 students who completed the programme and progressed into secondary school, and provides curriculum developers with future directions in curriculum design and implementation for the EESP.

FUTURE DIRECTIONS

The future directions of the EESP team include the completion of a 2-year curriculum cycle for Standard, Foundation and P3 and 4 streams. Upon the completion of these 3 sets of curriculum, the team plans to work on improving the teaching processes in the EESP classroom. For this to be in place, the team will be looking into frequent EESP class observations and interview sessions with EESP teachers. The team also plans to improve on the current research design practices by providing a control group in future studies, implementing an iPad testing system and exploring possible qualitative research methods. These future plans would provide the EESP with more robust data for its programme evaluation. The integration of technology in testing provides students and teachers with more time for the delivery of the curriculum.

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ABOUT THE AUTHOR



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Specialised Educational Services

UNLOCKING POTENTIAL

ENGLISH EXAM SKILLS PROGRAMME

The aim of the SES English Skills Programme (EESP) is to provide students with direct support to better equip them with the knowledge, skills, strategies and attitudes to cope with the demands of the English language syllabus in school.

OUR APPROACH

The English Exam Skills Programme (EESP) provides an extension to the MOE-aided DAS Literacy Programme (MAP). Students will be exposed to various language components and will be equipped with strategies to cope with their English examinations.

The components covered in our programme include:

- Grammar
- Editing
- Synthesis & Transformation
- Comprehension

RECOMMENDED FOR

Students with difficulties in various English exam components such as Synthesis & Transformation and Comprehension.



ENTRY CRITERIA

- Primary 3 & 4 students
- Primary 5 & 6 Standard and Foundation students
- Students should have reasonable reading fluency

The curriculum is carefully designed and frequently evaluated by the EESP team to ensure that it caters to the students' needs and school curriculum demands. Lessons are in line with the MOE English Language Syllabus, and in reference to the Orton-Gillingham principles.



Find out more at www.ses.org.sg or 6444 5700

Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore.

Specialised Educational Services

UNLOCKING POTENTIAL

MATHS PROGRAMME

OUR APPROACH

SES Maths Programme through the Essential Maths and Advanced Maths Curriculum, helps to bridge the gap between your child's ability and the mainstream syllabus by addressing areas they are weaker in and strengthening the students mathematical problem solving strategies through metacognition which involves thinking and understanding

This is done through a C-R-A (Concrete-Representational-Abstract) approach and Polya's Four step process approach (1945): Understand the problem, Plan a strategy, Solve the sum and Check the workings. Every stage of learning ensures that the child links mathematical ideas in a progressive and cumulative way. The methodology applied constantly keeps in touch with the mainstream school math syllabus, with the aim of bridging the gap between the student's ability and mainstream syllabus.

RECOMMENDED FOR

Students with dyslexia have specific areas of difficulty that can affect their mathematical performance such as poor short term and working memory, reversals in words and numbers, problem with sequencing and difficulty with reading word problems. These difficulties can impede a child's ability to understand concepts, do calculations and apply to what they have learnt to word problems. Some of the more common difficulties include counting forward and backward, understanding of number relationships, place value, times table facts and following multi-step calculations.

Specialised Educational Services

Maths Programme

Anaberta Oehlers-Jaen¹ and Rebecca Yeo²

1. Programme Director of SES Maths, Assessments and Specialist Tutoring and Head of DAS International

2. Senior Educational Therapist

Dyslexia Association of Singapore

BACKGROUND OF SES MATHS PROGRAMME

The SES Math Programme commenced with the Essential Math Programme which was officially launched in 2009, but work on its development started much earlier. The curriculum was developed by a team of experienced educational therapists who were passionate about teaching mathematics. The rationale behind this programme was due to requests from parents for a dyslexia-friendly mathematics intervention for their children. Parents cited that their children had problems understanding mathematics concepts in school, performing mathematics algorithms and procedures accurately, experienced difficulty with retrieving math facts quickly and solving word problems. These issues can be attributed to their dyslexia (Jordan, Wylie, & Muthern, 2010; Träff & Passolunghi, 2015). This programme was thus developed to address this need.

The SES Maths curriculum which is also evidence based, serves to meet the diverse needs of our learners. The Maths curriculum depending on the entry level of the students initially focuses on concept mastery and understanding through the Essential Maths Curriculum. As the student progresses on the curriculum the focus then shifts to teaching the understanding of Advanced problem solving using heuristics at Primary 5 & 6 through the newly developed and trailed Advanced Maths Curriculum in 2015.

The SES Maths Programme takes into consideration the specific areas of difficulty that students with dyslexia would experience, which can affect their mathematical performance such as poor short term and working memory, reversals in words and numbers, problem with sequencing and difficulty with reading word problems.

These difficulties can impede a child's ability to understand concepts and to carry out mathematical procedures accurately. Some difficulties students with dyslexia face in mathematics include counting on and counting back, understanding number relationships, place value, times table facts and following multi-step calculations.

RESEARCH ON DYSLEXIA AND MATHS LEARNING DIFFICULTIES:

In the extract from Yeo, R., Bunn, T., Abdullah, A., Bte Shukri, S. A. & Oehlers-Jaen, A. (2015) Evaluating the progress of dyslexic children on a small-group maths intervention programme. *Asia-Pacific Journal of Developmental Differences*, 2(2), 144-157.

We had reviewed research data on Dyslexia and Maths Learning Difficulties and it suggests that estimates of the prevalence of dyslexia vary, depending on the definitions and statistical cut-off points used, but 3-6% of the general population is perhaps a conservative estimate (Hulme & Snowling, 2009, p38).

Estimates for dyscalculia, or maths learning difficulties also vary and are less widely agreed. Shalev's research (Gross-Tsur, Manor & Shalev, 1996) in an Israeli context suggests 5-7% of the population, and studies in other countries (eg Lewis, Hitch & Walker, 1994, in the UK) suggest a similar range. Research on co-morbidities between these and other learning difficulties now strongly suggests that, far from the expected rate of co-occurrence of 0.3% (5% x 6%), the actual prevalence of children with both difficulties is much higher, perhaps 3%.

The SES Math Programme caters to this need and as at December 2015 supports 266 dyslexic children to cope with their learning difficulties and to maximise their true potential.

ENROLMENT

The SES Maths Programme in 2015 saw an increase in student enrolment within the year from 181 students in January 2014, to 266 students in December 2014, who received support for their Maths difficulties, in addition to receiving DAS MAP remediation classes for Dyslexia. This suggests continued growth and expansion for 2016 as the waitlist in December 2015 was at 50 students.

Bursary for SES Maths Students

Due to financial constraints, some families are unable to afford the non-subsidised Maths Programme, even though they require support additional support in Maths. The Maths Bursary therefore helps to support students who require further financial assistance.

Table 1. Statistical Information on the SES Maths Programme

	January 2015 Term 1 Week 1	December 2015 Term 4 Week 10	January 2014 Term 1 Week 1	December 2014 Term 4 Week 10
Number of students	181	266	94	209
Number of students on the waitlist	28	50	68	30
Number of trained therapists	34	37	18	34
Number of currently practicing therapists	27	23	12	27
Number of Learning Centres with Maths resource provision	12	12	12	12
MATHS PRACTICUM - 2015 (PCC-Professional Certificate Course in Numeracy Support)		1		
Number of Workshops		4	5	5
Number of Maths Insets for Dual Specialists		4	4	3
Number of TIPS Talks Conducted		4	3	4

SES Maths is pleased with the results for 2015 which has shown that 57% of students which is 155 of the 266 students on the SES Maths programme have benefitted from receiving up to 100% bursary based on means testing. Students and parents have shown their appreciation and good progress through thank you letters to the Maths team of Specialists.

DAS through its fundraising efforts will continue in 2016 to raise funds for the SES Maths programme so that more students are able to benefit from form Maths remediation.

Table 2 Statistics on the SES Maths Bursary 2014

	End Dec 2015	End Dec 2014
Enrolment as at Term 4 Week	266	209
No of bursary approved		
Maths	167	100
Value of bursary		
Maths	\$229,070	\$114,003
Budget	\$237,898	\$ 160,500
Utilised	96%	71%
% of Maths students receiving Bursary	57%	50%

OVERVIEW OF THE SES MATHS PROGRAMME

Programme Description

The SES Maths Programme, is recommended for students with dyslexia who have specific areas of difficulty that can affect their mathematical performance such as poor short term and working memory, reversals in words and numbers, problem with sequencing and difficulty with reading word problems.

The methodology applied, constantly keeps in touch with the national maths syllabus, with the aim of bridging the gap between the student's ability and mainstream syllabus by addressing areas they are weaker in.

In 2015, the main curriculum adopted in the Maths programme is the Essential Maths Curriculum.

The teaching methodology for the Essential Maths Curriculum is based on the needs

**ESSENTIAL
MATHS
FOCUS ON
CONCEPT
MASTERY AND
UNDERSTANDING**

of the child, with a strong emphasis on concept-building, addressing areas of skill deficit. The teaching methodology incorporates the principles of the Orton-Gillingham approach which have been shown to be effective in helping students with dyslexia when it comes to learning. These principles are language based; cognitive; structured, sequential and cumulative; simultaneously multisensory; diagnostic-prescriptive; and to work according to the students' pace and readiness (emotionally sound).

The topics covered in the Essential Maths curriculum include the four operations of whole numbers (addition, subtraction, multiplication, division), measurement (length, mass, volume, time), geometry, fractions, decimals, percentage and ratio.

Differentiation in teaching approaches

The Essential Math Curriculum is unique in that it is able to cater to the needs of the diverse group of students coming through our doors. It reinforces foundational concepts that would address the needs of our students who had more severe difficulties with mathematics to build number sense.

These concepts included counting forwards and backwards, skip counting, number bonds, and alternative strategies for remembering the times tables. As some of these concepts overlapped with the content covered in the Essential Maths curriculum,

The teaching approaches and resources for existing concepts are also expanded to enable us to better support the needs of the students in the average band and those who are slightly weaker.

This integration allows for flexibility for the Maths teachers to incorporate elements that are relevant and developmentally appropriate for the students, supporting them in the mainstream curriculum. This enhances the current Essential Maths Programme in terms of scope, reliability and expertise.

how

The DAS Essential Maths Curriculum is carried out

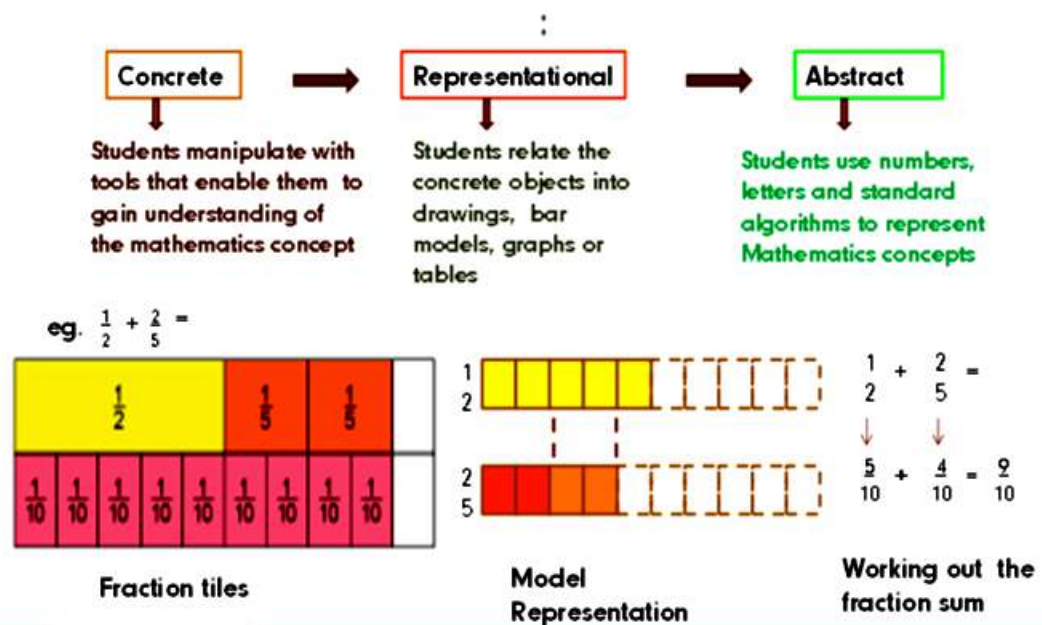


Figure 1. Concrete-Representational-Abstract (C-R-A) approach

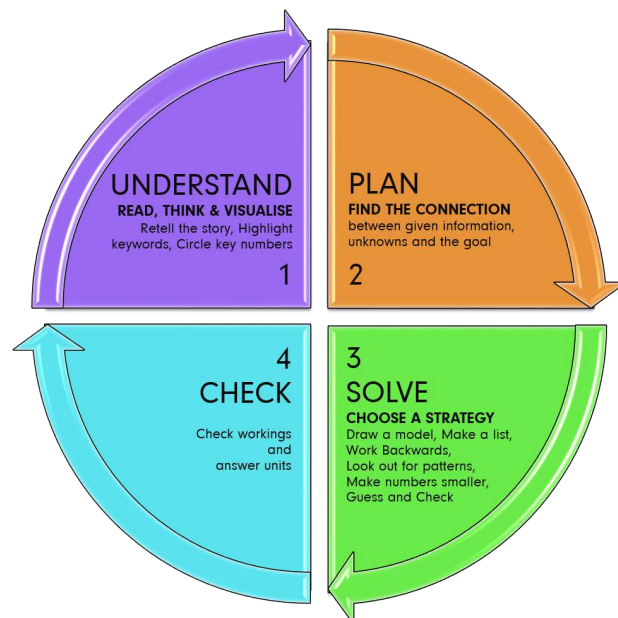


Figure 2. Polya's Four step process approach (1945)

ESSENTIAL MATHS PROGRAMME (CURRICULUM)

Theoretical Framework & Teaching Approaches

Teaching progresses in developmental stages:

1. Concrete Stage – use of tangible manipulatives
2. Representation Stage – use of pictures and 2D drawings
3. Abstract Reasoning Stage – use of symbols and word problems

Every stage of learning ensures that the student links mathematical ideas in a progressive and cumulative way. The teaching methodology is multisensory in its delivery and allows students to gain hands on experience with maths concepts. It is imperative that a student is equipped with foundational maths skills, such as basic computation, in order to progress toward higher order mathematical thinking.

Through the approach adopted on the Essential Maths Curriculum, , we aim to strengthen their foundations for confidence in higher-level maths, and thereby bridge the gap between the student's maths abilities and the demands of the school mathematics syllabus. Our students are also taught to solve problems using Polya's Four Step Process approach - understand the problem, plan a strategy, solve the sum and check the workings.

TOPICS COVERED IN THE ESSENTIAL MATHS CURRICULUM:

Primary 1 to Primary 6

- | | |
|---|--------------|
| ◆ Four operations of Whole Numbers (Addition, Subtraction, Multiplication & Division) | ◆ Geometry |
| ◆ Time | ◆ Ratio |
| ◆ Fractions | ◆ Percentage |
| ◆ Decimals | |

ENTRY CRITERIA

The entry criteria is monitored and reviewed based on student results in school exams as well as the profiles of students.

Primary Entry Criteria

1. Primary School students (P1 to P6)
2. Current or ex-student of DAS with a valid diagnosis of Dyslexia.
3. Students scoring the following grade on their most recent exam paper:

P1 to P4:	Below 50%
P5 to P6 (Standard):	Below 59%
P5 to P6 (Foundation):	Open to all foundation students

Exit Criteria

Students should be expected to:

1. Score at least 80% on the programme's annual performance test which is conducted in Term 4.
2. Consistently achieve at least 60% in school exams for at least 3 consecutive terms.
3. Students leave the programme at the end of the P6 year.

THE SES MATHS 2015

PROGRAMME EVALUATION

Through the annual evaluation exercise we conduct it is hoped, we would both measure progress reliably and at the same time be a guide to teaching priorities across topics. It is our intention that through this annual exercise the Maths division is able to respond to the learning needs of our students facing Maths difficulties. At the same time we can be reflective and be ready to change the way we evaluate our students in order to achieve positive intervention results.

DESIGN RESEARCH FRAMEWORK

This is a quantitative study to measure the effectiveness of our instruction, specifically the Essential Maths curriculum, on our students' procedural knowledge in mathematics. The Essential Maths curriculum is currently the main curriculum used in the DAS Maths programme since it started in 2009. In this study, procedural knowledge is operationalised as how accurately students are able to execute mathematical operations in a structured and sequential manner (e.g. how to do long division)". This study also looks at students' ability to solve closed routine word problems. Closed routine word problems are content-specific, and they usually have only 1 correct answer, which can be derived using a fixed number of ways from the data provided in the question.

The research on dyslexia and mathematical difficulties has consistently shown that students with dyslexia struggle with specific aspects of mathematics, such as arithmetic fact fluency, multi-digit operations and problem solving. This is largely attributed to the poor phonological processing that is characteristic of dyslexia (De Smedt & Boets, 2010; Dirks, Spyer, & de Sonnevile, 2008; Evans, Flowers, Napoliello, Olulade, & Eden, 2014). The study by De Smedt & Boets (2010) showed that adults with dyslexia not only retrieved fewer facts from memory, they also took longer to do so and to perform single digit arithmetic questions even after speed of digit identification was controlled for.

Interestingly, different types of arithmetic tasks affect people with dyslexia differently. When children with dyslexia were asked to perform multiplication tasks (which involve fact retrieval) and subtraction tasks (which involve quantity-based procedural strategies), they performed more poorly in the multiplication tasks (Boets & De Smedt, 2010). This is because these two types of tasks activate different parts of the brain (Boets & De Smedt, 2010; Evans et al., 2014). Tasks that require fact retrieval utilize the left perisylvian language areas, which are under-activated in people with dyslexia. In contrast, tasks involving quantity-based procedures involve the intraparietal sulcus, which is intact for people with dyslexia. Since phonological awareness make use of the same areas involved in fact retrieval, a strong link between phonological awareness and arithmetic fact retrieval has been established. It can thus be concluded that people with dyslexia would find mathematical tasks involving fact retrieval such as multiplication to be difficult.

Problem solving is another area that people with dyslexia struggle with. At the primary school level, mathematics problems are usually presented in the form of word problems. In order to solve word problems, the solver must first be able to read and comprehend what the problem is about, transform his or her understanding of the text into a mathematical model, select and carry out a strategy to solve the problem, and finally encode the final answer in a mathematically acceptable manner (Clarkson, 1991).

There are two main reasons why people with dyslexia would struggle with such an activity. First of all, people with dyslexia usually find it difficult to read because of their condition. The difficulty experienced is positively correlated with the severity of their condition. Secondly, word problems are often loaded with key information which are essential for solving the problem. Being able to decode and understand what the context of the problem is about requires a lot of work on the working memory, which is a weakness for many people with dyslexia. Therefore, even if they are able to read, the students may not have an accurate understanding of what they are reading. Due to the difficulties they face in reading and comprehending the question, problem solving becomes a tedious and tiring activity.

Besides obtaining students' scores on mathematical knowledge, it is also important to note how students' beliefs about mathematics affect their behaviour towards mathematics. Current research about the relationship between attitudes towards mathematics and mathematics performance has produced inconsistent findings (Fan, Quek, Zhu, Yeo, Pereira-Mendoza & Lee, 2005; Ma & Kishor, 1997). However, information about students' attitudes can provide useful insights about how students behave when they have to do mathematics. Models of attitudes in social psychology suggest that attitudes consist of three inter-connected components: affect, behaviour and cognition. When people have a positive affect towards a particular event (e.g. mathematics), they tend to engage in it more and think positively about it. On the other hand, people who have a negative emotional response towards the same event will tend to avoid it and think negatively about it.

People's attitudes are usually not set in stone, and they can be reframed through experiencing the event differently. Based on this train of thought, we hypothesize that students showing a more positive attitude towards mathematics would enjoy mathematics more, show a willingness to engage in it and demonstrate positive thinking about the subject, while the opposite is true for students showing a less positive attitude towards mathematics.

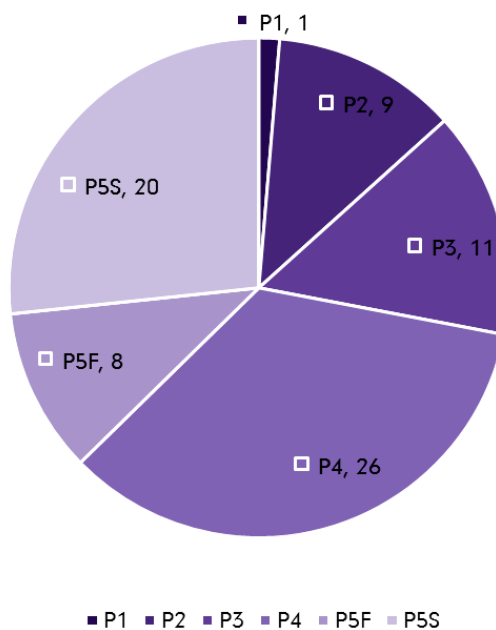
The current study utilizes a repeated measures design. We collected students' scores on a formal paper and pen assessment (Yeo, Bunn, Abdullah, Bte Shukri & Oehlers-Jaen, 2015), as well as their responses on an attitudinal survey twice within a six-month period. This report will focus on the results of students' mathematical performance in the written task. The results of students' attitudes will be shared in a subsequent study.

We did not consider the use of a true experimental design, which would include a control group, as there were logistic constraints in assessing the students prior to the start of intervention. Having an equivalent control group would also mean delaying the placement of students who need our intervention, which is considered unethical. Thus in this study, the participants act as their own controls where their post-test performance is compared against their pre-test scores.

Participants

The participants selected for this study are students who have been on the programme for at least six months. The rationale for this specification is to allow students sufficient time to benefit from the programme so that their scores would be a more accurate reflection of the effects of the intervention. Since they are existing students on the programme, they share a general profile of having a diagnosis of dyslexia, and have experienced a pattern of failure in school examinations. A total

Breakdown of participants (n = 75)

*Figure 3. Breakdown of participants by grade levels*

of 75 participants took part in this study. The chart below shows the breakdown of the students by their grade levels.

This study was compulsory for all students on the programme, and parents were informed that the purpose of testing was to evaluate their child's progress on the programme. The test results formed part of the student's progress report, and were shared with his/her parents during a parent-teacher meeting.

Programme implementation and instruction

Prior to the start of the programme, the areas of strengths and weaknesses in conceptual and procedural knowledge are assessed through their performance on an in-house designed profiling test or their school test papers. Using the analysis, students are placed into classes of similar ability.

The class sizes range between 2 to 4 students, and they occur once a week. Currently, the math programme is offered in all 13 learning centres at the DAS. The distribution of currently practicing math dual- specialists can be found in Table 3 on the following page.

Table 3. Distribution of Currently Practicing Math Dual-Specialists

Learning Centres	Number of Currently Practicing Math Dual-Specialists
Ang Mo Kio	1
Bedok	2
Bishan	3
Choa Chu Kang	1
Chinatown Point	1
Jurong Point	2
Parkway Parade	2
Queenstown	2
Rex House	0
Sengkang	4
Tampines	2
Woodlands	3
Yishun	1

Based on the analysis of students' needs, the teacher decides what concept to teach in each lesson. A typical lesson would begin with a review of a concept taught previously (about 10-15mins), followed by the introduction of a new concept (20mins), and application of consolidated skills into word problems (20mins). The teachers are given flexibility and choice to decide how they would want to review concepts.

Examples of the strategies used are games, performance tasks, and worksheets. Each new concept was introduced using the concrete-representational-abstract approach. The teacher could demonstrate what the concept meant by using appropriate concrete manipulatives that are provided within the learning centre and equivalent pictorial representations.

Each learning centre is equipped with a wide range of concrete manipulatives that teachers and students could use for learning. Examples of such resources include

base-ten linking blocks, magnetic fraction tiles and geoboards. Some learning centres are also equipped with technological tools such as SMART boards and iPads which teachers could use to present content or to get students to practice their learning.

After demonstrating the concept, teachers could arrange for students to practice the concept in groups or individually with guidance. Once the teacher is certain that the student has grasped the concept, individual work is provided for the student to demonstrate his or her understanding and skills at the abstract stage.

The Polya's 4-step problem solving (Polya, 2004) is introduced explicitly to the students during the problem-solving segment of the lesson. Students are first shown how to solve an example question using the four stages *Understand*, *Plan*, *Solve* and *Check*. It should be noted that although the problem solving stages here are explained sequentially, problem-solving is usually iterative, requiring students to work back and forth through the stages before they can arrive at a solution.

In the *Understand* stage, students are taught how to read the problem intentionally, by asking themselves questions on who is involved in the question and what the question is about. Students are also taught how to annotate the questions to keep track of important names, number relationships and what the question wants.

In the *Plan* stage, students are guided as to what they can do with the information from the question. Most of the time, students will be required to demonstrate their understanding of the question using a pictorial representation (e.g. model drawing). These pictorial representations act as an external sketchpad which helps students to make sense of the question without relying too heavily on their working memory. It may also help to bring out information that was implicitly stated in the question, which may not be obvious to the solver had he/she not drawn the diagram. From the diagram, students would be able to generate a plan on how they would move forward to solve the problem.

This leads them to the third stage, *Solve*. In this stage, students carry out their plans and evaluate their success in solving the problem. They are also required to check back and forth to ensure that they have carried out their plan as how they intended.

Finally, once they have arrived at a solution, they are required to *Check* that their solutions make sense in light of the context of the problem, that their answers are accurate using strategies such as working backwards or using a different strategy to solve the problem. Students are also encouraged to check that they have transferred numbers accurately from the question to their working steps, in their calculations, and in between working steps.

Once teachers have demonstrated the problem-solving stages with the students using one question, they provide students with similar practice questions for them to apply the same thinking process. Typically, about 2 to 3 questions are covered within this section.

Data collection procedures

Instrument

The Dyslexia Association of Singapore Annual Testing Maths Programme (DASAT-MP)

The DASAT-MP was a tool designed by the DAS Math team in 2013 to evaluate students' ability to perform mathematical computations and apply skills taught to simple routine word problems. The tool was a comprehensive set of topical tests that covered calculation questions and word problems separately within each topic. They were designed with reference to the 2007 national primary mathematics syllabus and the topics included in the tool were addition, subtraction, multiplication and division of whole numbers; fractions; geometry; decimals; percentage; and ratio. More information about the tool could be found in Yeo et al.'s paper (2015).

FINDINGS

Results on the DASAT-MP

The data on the DASAT-MP was analysed using a paired samples t-test for each grade level. Only topics that were covered at the particular grade level were included for analysis. The tables and graphs on the following pages summarises the quantitative analysis of the scores by grade levels.

DISCUSSION

The trend in the data shows that across all levels, students generally performed better at the post-test than at the pre-test. However, many of the improvements in the post-test were not statistically significant, especially at the lower levels (i.e. from primary one to primary three). One reason could be because at the lower levels, students are only beginning to learn about the basic fundamentals of mathematics. Studies have shown that people with dyslexia need more revision and repeated exposure to a concept as compared to a person without dyslexia before they can fully grasp it.

At the P3 level, students were shown to perform more poorly for fractions at the post- test level. This is because of the long duration between which they are first

Table 4. Progress of P1 student across the topics

Topics	N	Pre-test		Post-test	
		Mean	SD	Mean	SD
Addition	1	15.0	N.A.	92.3	N.A.
Subtraction	1	55.6	N.A.	66.7	N.A.
Multiplication	1	65.6	N.A.	100	N.A.
Division	1	100	N.A.	100	N.A.
Time	1	100	N.A.	85.0	N.A.
Geometry	1	100	N.A.	100	N.A.

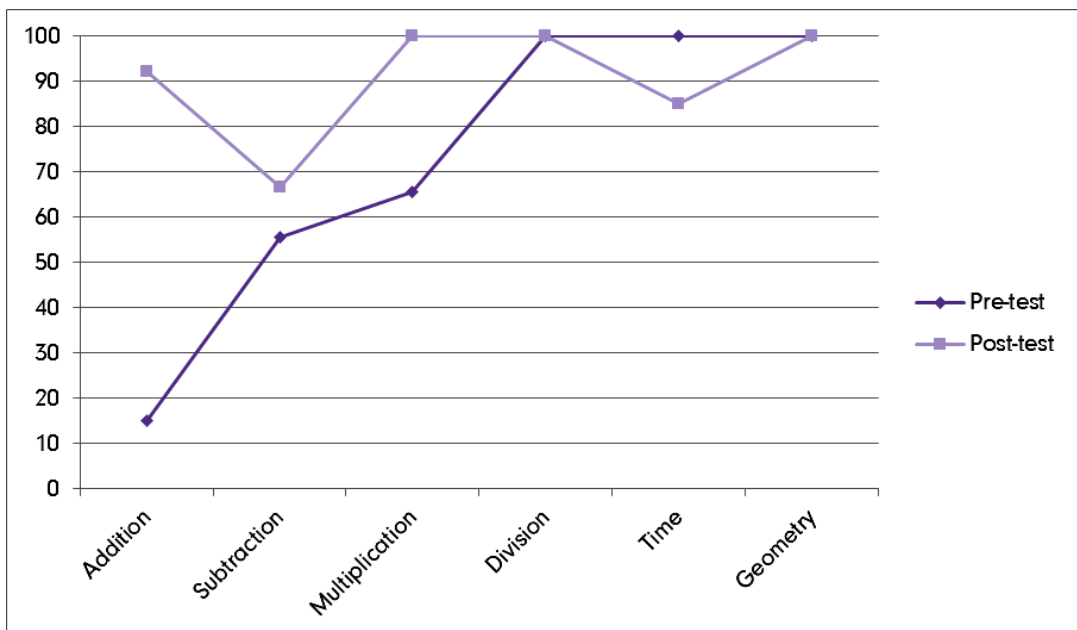


Figure 4. Progress of P1 student across the topics.

Table 5. Progress of P2 students across the topics

Topics	N	Pre-test		Post-test		df	p
		Mean	SD	Mean	SD		
Addition	9	80.6	11.8	82.9	11.4	8	.743
Subtraction	9	76.7	9.2	78.7	16.2	8	.706
Multiplication	9	67.4	34.4	84.9	14.0	8	.067
Division	9	37.1	39.3	58.3	27.6	8	.115
Time	9	57.4	23.9	68.3	27.0	8	.055
Fractions	9	64.2	36.7	69.2	29.5	8	.700
Geometry	9	92.0	12.2	80.6	19.1	8	.055

Note. * $p < .05$

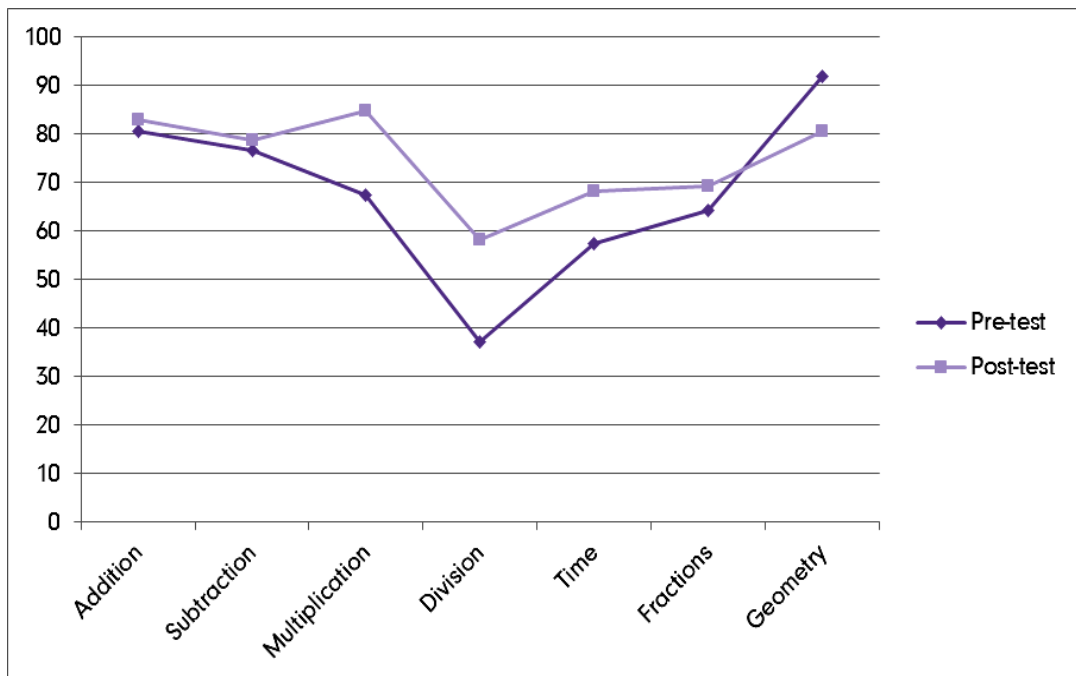


Figure 5. Progress of P2 students across the topics.

Table 6. Progress of P3 students across the topics

Topics	N	Pre-test		Post-test		df	p
		Mean	SD	Mean	SD		
Addition	11	90.2	10.9	91.5	9.5	10	.563
Subtraction	11	86.0	15.6	86.4	14.1	10	.953
Multiplication	11	90.9	13.6	89.7	13.1	10	.733
Division	11	64.8	25.8	77.6	19.0	10	.018*
Time	11	66.4	26.8	74.6	18.5	10	.203
Fractions	11	62.6	18.7	40.8	37.5	10	.057
Geometry	11	80.9	19.7	48.1	40.4	10	.019*

Note. * $p < .05$

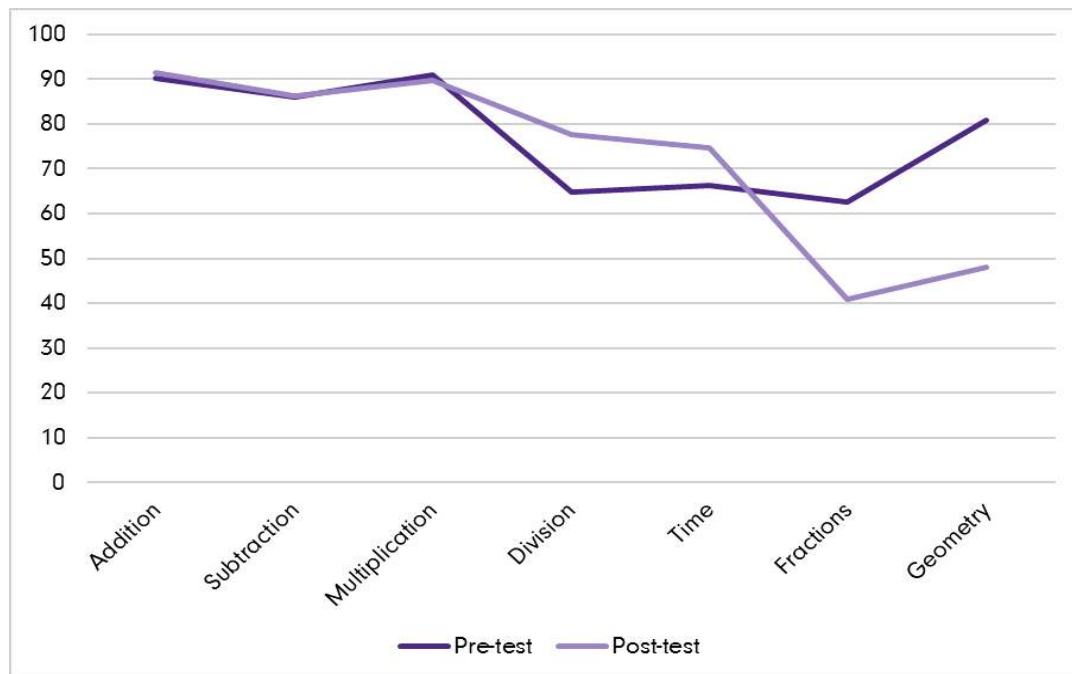


Figure 6. Progress of P3 students across the topics.

Table 7. Progress of P4 students across the topics

Topics	N	Pre-test		Post-test		df	p
		Mean	SD	Mean	SD		
Addition	26	85.4	13.5	87.4	13.9	25	.575
Subtraction	26	81.7	18.7	90.7	16.1	25	.042*
Multiplication	26	81.8	17.8	77.5	11.8	25	.240
Division	26	69.2	22.4	77.8	24.2	25	.040*
Time	26	77.5	14.8	91.6	20.0	25	.006*
Fractions	26	48.6	30.5	73.4	26.8	25	.000**
Geometry	26	51.6	35.8	91.7	6.4	25	.000**
Decimals	26	36.6	31.0	52.2	35.8	25	.028*

Note. * $p < .05$, ** $p < .001$

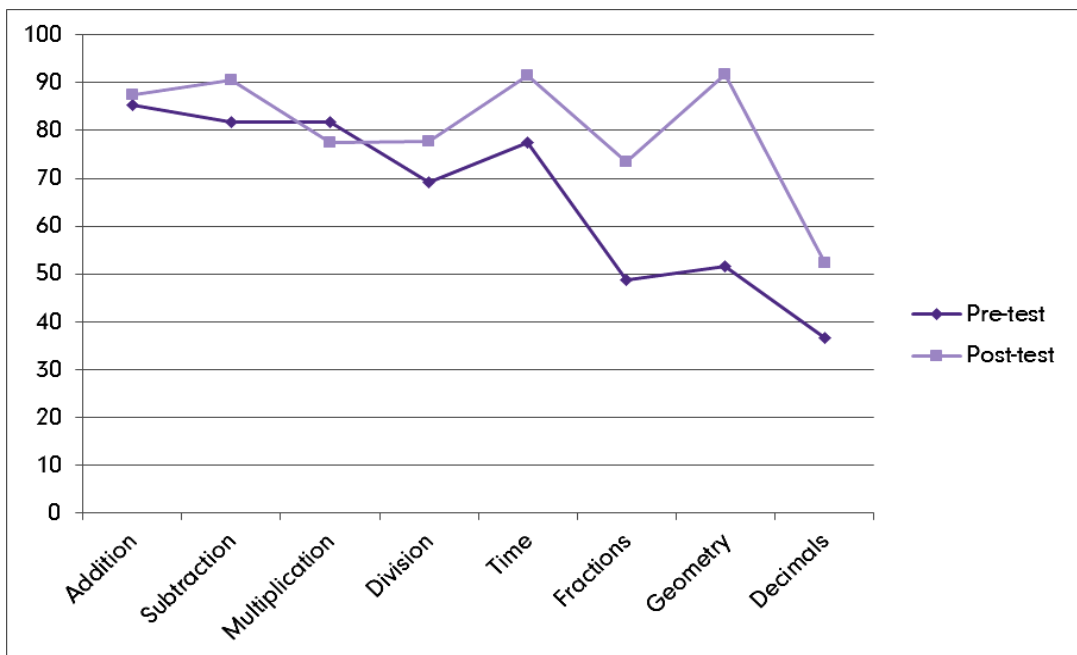


Figure 7. Progress of P4 students across the topics

Table 8. Progress of P5F students across the topics

Topics	N	Pre-test		Post-test		df	p
		Mean	SD	Mean	SD		
Addition	8	72.3	14.5	86.7	10.1	7	.085
Subtraction	8	74.6	10.4	86.5	13.3	7	.029*
Multiplication	8	80.9	16.8	68.4	10.4	7	.146
Division	8	66.0	17.4	77.0	14.8	7	.101
Time	8	86.3	15.5	94.2	8.1	7	.190
Fractions	8	57.4	18.9	86.3	12.8	7	.017*
Geometry	8	89.4	9.6	94.4	8.2	7	.268
Decimals	8	65.1	27.6	82.8	14.6	7	.147

Note. * $p < .05$,

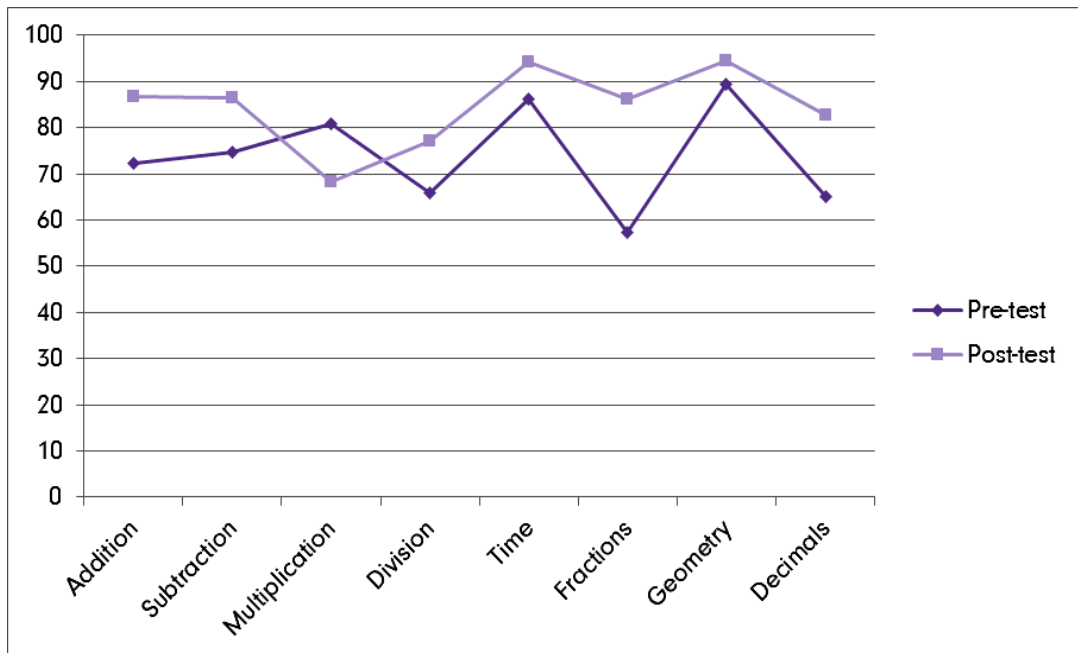


Figure 8. Progress of P5F students across the topics.

Table 9. Progress of P5S students across the topics

Topics	N	Pre-test		Post-test		df	p
		Mean	SD	Mean	SD		
Addition	20	93.2	7.8	93.0	9.5	19	.953
Subtraction	20	84.2	14.5	94.6	8.2	19	.026*
Multiplication	20	80.3	14.5	90.6	9.8	19	.005*
Division	20	73.5	23.5	85.4	18.2	19	.054
Time	20	90.5	22.0	97.9	4.7	19	.109
Fractions	20	74.1	25.9	84.8	15.5	19	.045*
Geometry	20	87.9	22.4	96.8	6.5	19	.069
Decimals	20	63.2	32.7	91.0	7.6	19	.001**
Percentage	20	45.0	26.8	70.5	28.4	19	.004*
Ratio	20	43.3	38.2	38.8	42.6	19	.521

Note. * $p < .05$, ** $p < .001$

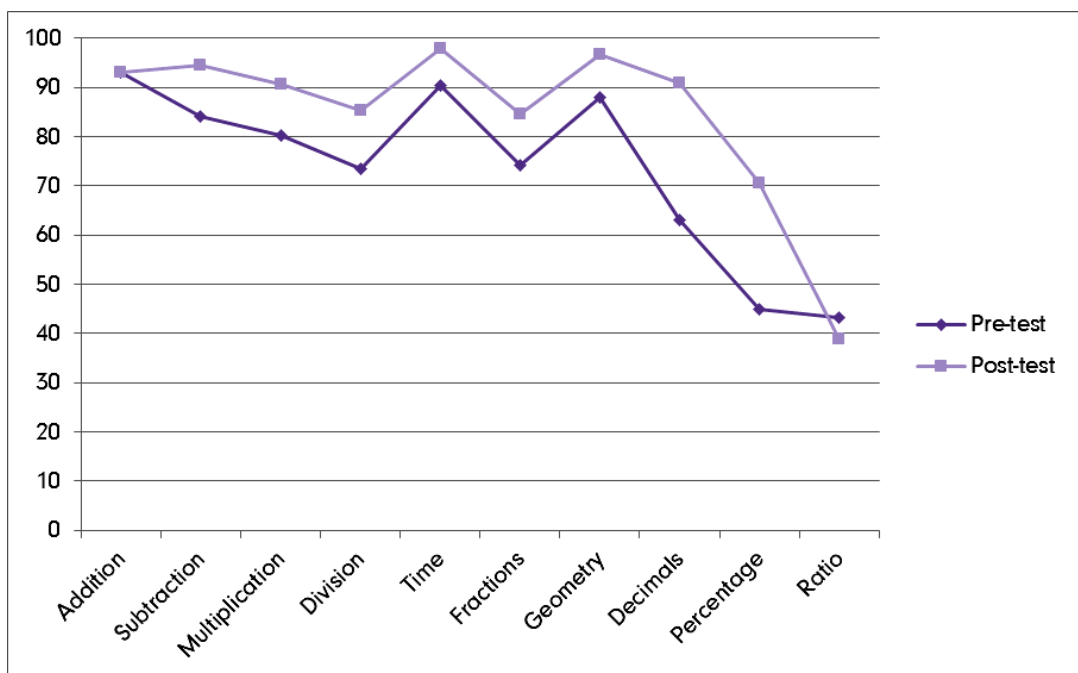


Figure 9. Progress of P5S students across the topics.

introduced to fractions in P2 and when the topic is revisited in P3. P2 is the year when students are first introduced to the idea of fractions. In P2, students are introduced to the concept that fractions comprise of equal parts of a whole. Multiple concrete representations are used to illustrate this, allowing students to see that the idea of “equal parts” and “whole” are important when talking about fractions. Fractions are also presented in a pictorial form, allowing students to visualize clearly the relationship between the concrete manipulatives, pictorial representation and the abstract symbol of fractions.

At the P2 level, students are required to express parts of a whole as a proper fraction, to compare and order unit fractions (one part of the whole), as well as to add and subtract like fractions (i.e. fractions with the same denominator). At P3 level, students are required to build on their knowledge in P2 to perform more complicated procedures such as making equivalent fractions, changing fractions to their simplest form, adding and subtracting unlike fractions, and comparing and ordering unlike fractions. Based on the locally-published textbook series *My Pals Are Here*, the topic of fractions is usually taught in the second part of the year for both P2 and P3. Since students with dyslexia forget easily, students would have forgotten what they have learned in the previous year if the concepts were not revisited frequently.

Therefore, before introducing new fraction concepts at P3, teachers should consider revising the fraction concepts at P2 first to ensure students’ conceptual understanding of fractions at the foundational level. They should also make an effort to draw out the connections between similar topics (e.g. division and fractions), so that students will not see Maths as a compartmentalized subject where the parts are distinct from each other.

A consistent finding from the scores of the P4 and P5F students show that students performed more poorly on the topic of multiplication at the post-test. An investigation into the primary school mathematics curriculum revealed that this drop could possibly be attributed to students’ weaknesses in mastering the multi-digit multiplication concept which is currently introduced at primary four. Multi-digit multiplication using the traditional algorithm requires not just the retrieval of multiplication facts, but requires the solver to perform multi-step procedures while holding on to the multiple in one’s head in order to add on any number that may have been carried over from a previous computation.

This is highly strenuous on the limited working memory of an individual with dyslexia and is in line with current research that shows that students with dyslexia have difficulties with arithmetic fact retrieval (Vukovic, Lesaux, & Siegel, 2010). Furthermore, current methods to teach multiplication still heavily rely on arithmetic fact retrieval,

which is difficult for people with dyslexia. In addition, despite the variety of approaches developed to teach multi-digit multiplication, the number of steps needed to reach the final solution still requires many steps and is taxing on the working memory. Therefore, future research should look into alternative ways of helping students with dyslexia retrieve their multiplication facts without the need for verbal memory, perhaps tapping into other modes of learning such as using visuals.

There is also a need to help students break down the task of long multiplication into smaller manageable steps, so that it is less taxing on the working memory. However, with that said, teachers should learn to be more open in accepting alternative strategies that would enable the student to reach the same answer. This would encourage students to be more willing to accept and use strategies that are non-traditional but are helpful for them to complete mathematical tasks that are difficult for them such as long multiplication.

Through this study, the researchers have come to a better understanding of our students' needs and have identified some areas to improve our pedagogy. In closing, we would also like to highlight areas which we could improve on in terms of research design. Firstly, while the current tests do provide us with students' mathematical performance in the various topics, it is too time consuming to conduct on a regular basis. It currently takes between one to two hours to administer the test, depending on the child's level, and this is usually done during lesson time. In addition, since marking is done manually, it takes up more of the teachers' administrative time which could be put to better use. Therefore, we are looking to develop a test that would allow us to measure procedural knowledge and problem solving skills in a shorter period.

Secondly, the current tests do not explicitly evaluate students' conceptual understanding. A better way to test this would be to use alternative assessment methods such as journaling, which would require students to express their understanding of math concepts in words and pictures. Given that the student with dyslexia has problems with spelling and writing, perhaps we could explore alternative modes such as having them express verbally, through drawing or by making a physical model of their understanding of math concepts. Students' conceptual understanding could then be evaluated using a rubric. The advantages of such an approach are that they are non-threatening and teachers would be able to clearly identify the areas that students show misconceptions in, and tackle them effectively.

Thirdly, the current design is subject to many sources of error. Given that multiple teachers are involved and that students may be taught different topics depending on the class they are in, there is a chance that students may be tested on topics they

have not been taught, even at the post-test level. It is also possible that perhaps students have been taught a particular topic, but they were only assessed at a later stage, where retrieval would come in as a confounding variable. Therefore, to prevent such sources of error from contaminating the data, our recommendation would be for teachers to conduct a pre-test of a particular topic just before they start on that topic, and conduct a post-test of that topic only after they have completed it. This would give a clearer indication of the effectiveness of the teaching for that particular topic.

In addition, in order to increase the validity of our analysis, we are currently exploring the use of a control group. These students would be students with dyslexia, but are not on the Math programme. These students will be students who will benefit from an additional hour at the DAS, but are already attending another SES programme (e.g. Chinese or English Exam Skills). The students will not be receiving intervention, but only the pre-test and the post-test so that we can evaluate the impact of our Maths support as compared to school support, other tuition and normal maturation.

Finally, we are also looking to explore the effectiveness of our programme on non-dyslexic students in 2017, who show difficulties in the area of mathematics.

PROGRAMME DEVELOPMENT FOR 2016:

THE ADVANCED MATHS CURRICULUM TRIAL 2015 & ADVANCED MATHS

The new Advanced Maths Curriculum was developed and trailed over 20 weeks in Term 2 2015 (the results of which are detailed in this report).

Objective of the Advanced Maths Curriculum

As the student progresses on the Essential Maths curriculum, the focus shifts to solving word problems using heuristics. The Advanced Maths curriculum was specially designed to address the learning needs of the P5 and P6 Standard Maths students in solving word problems by teaching them problem-solving heuristics to solve complex word problems systematically and logically integrating POLYA's 4-step processes with C-R-A and the Orton Gillinham principles.

**ADVANCED
MATHS
CURRICULUM
FOCUS ON
SOLVING
WORD
PROBLEMS
USING
HEURISTICS**

Who are the students in the Advanced Maths Curriculum?

DAS students taking P5 and P6 Standard Mathematics in school, who have good computational skills and a firm understanding of concepts related to P5 and P6 Standard Maths topics on Whole Numbers, Fractions, Decimals, Percentage, Ratio and Algebra. This is demonstrated by their performance in the Multiple Choice Questions and Short Answer questions of Paper 1 of the exam paper. Students who have difficulty comprehending and solving the complex word problems are suitable for the programme.

Objectives of the Advanced Maths curriculum

The focus of the Teaching Approaches in the Advanced Maths Curriculum is aimed at promoting higher level thinking skills in students by exposing them to a variety of routine and non-routine problem types. The Advanced Maths Programme is not a preparation course for the Primary School Leaving Exam (PSLE).

Results from the Pre and Post Tests trial conducted for the Advanced Maths Curriculum Terms 2-3 2015 (20 weeks)

P6 ADVANCED MATHS

Comparison between P6 Pre-test and Post test scores Terms 2-3 2015 (20 weeks)

Analyses: A total of 13 P6 students preparing for their PSLE in Standard Maths participated in the pilot run. The students were from Bishan, Parkway Parade and Yisun Learning Centres. At the start of the Advanced Maths Programme, the students did a 30-minute Pre-test. After 20 weeks of intervention they sat for the post test. The results as shown in Figure 10, showed marked progress thus providing evidence that the programme had indeed benefitted the students in the trial run.

P5 ADVANCED MATHS

Comparison between P5 Pre-test and Post test scores P5 - Term 4 2015 (10 weeks)

Analysis: 18 P5 students from Bishan, Sengkang, Tampines, Jurong Point, Woodlands and Yishun were recommended by their Maths EdTs to participate in the pilot run of the Advanced Maths Programme in Term 4, 2015. Results from the pre and post test indicated that progress was made after 10 weeks of intervention as seen in the bar chart in Figure 11.

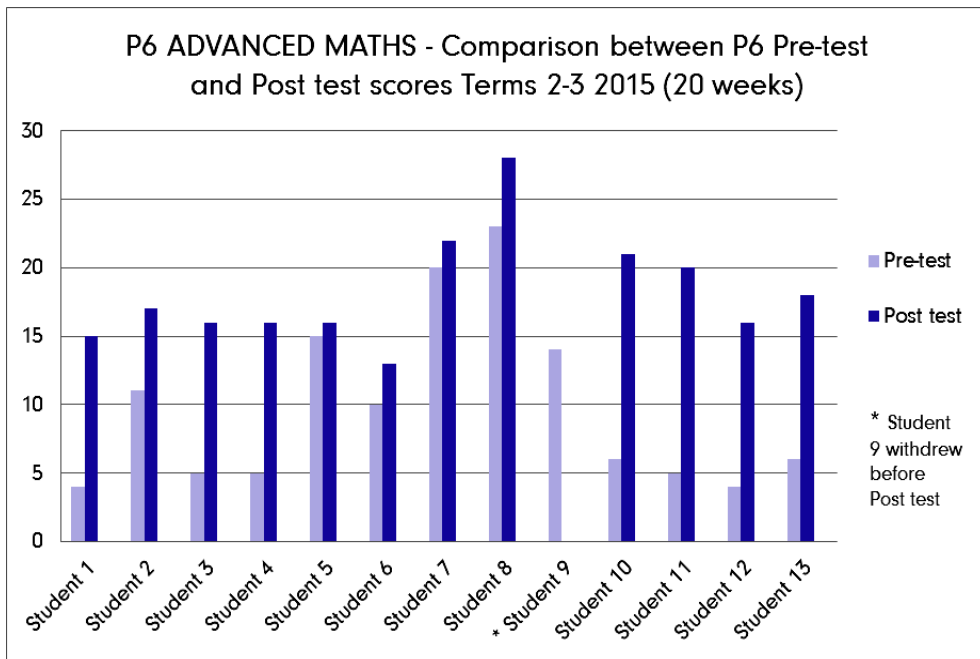


Figure 10. P6 Advanced Maths – Comparison between P6 Pre-test and Post Test scores Term 2-3-2015 (20 weeks)

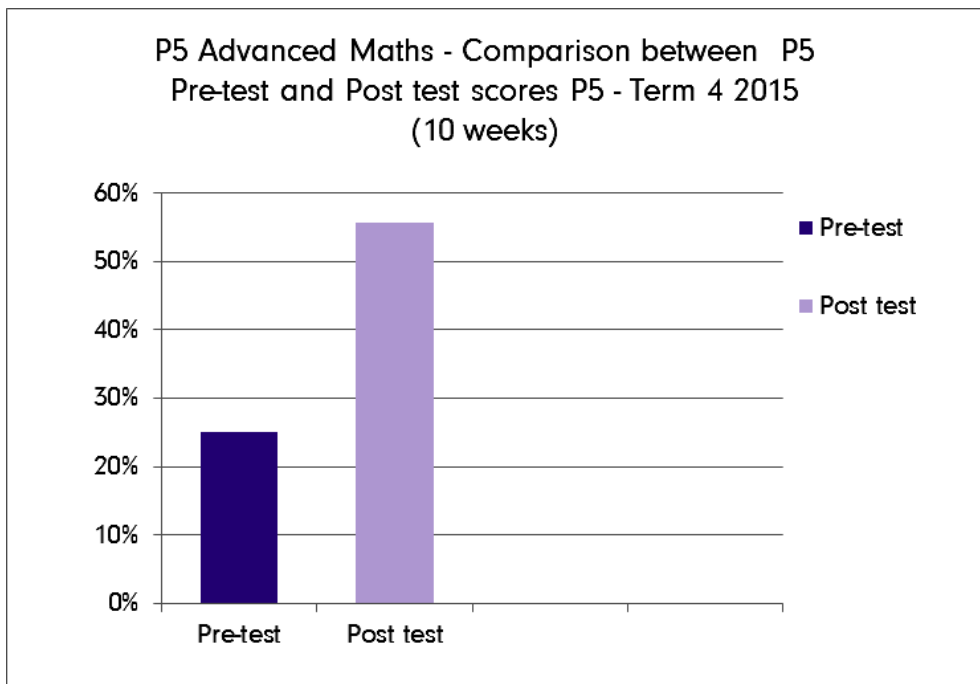


Figure 11. P5 Advanced Maths- Comparison between P5 Pre-test and Post Test scores

Primary 5 Standard End-of-Year Exam Scores 2015

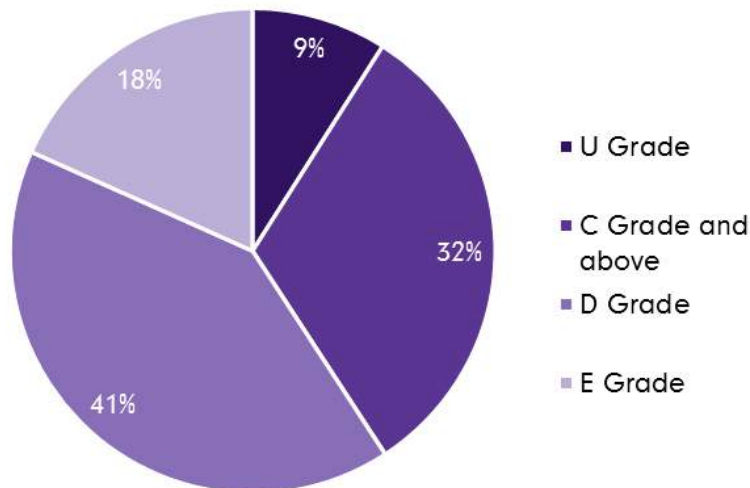


Figure 12. Primary 5 Standard End –of- Year- Exam Scores 2015

Performance in school for Primary 5 Standard students

In order to ensure the selection of suitable students for the Advanced Maths a further random sample of 26 P5 Standard students' final year school exam results were collected at the end of 2015. However, only 22 score were taken into account. This is done mainly to analyse the average scores for students who were able to join the new Advanced Maths Programme. From the data, we found that 72.7% of our students in the Primary 5 Standard cohort in 2015 attained a pass of D grade and above. Out of that, half scored a C grade and above. However, about 9% of that whole cohort scored an 'Ungraded Grade' and had to take Foundation Maths in Primary 6.

Overall, this is quite a positive set of data as most of our students began the programme with failing scores but managed to improve or maintain their scores in the P5 level which is much harder than when they were in primary 4. On the other hand, this gives us an opportunity to relook into how we can further support students who are already passing as well those who are in the lower 10% of the group.

FUTURE DEVELOPMENTS FOR THE ADVANCED MATHS CURRICULUM

In 2016, The Advanced Maths Curriculum will enter the soft launch stage of the Pilot run. The official launch of the Advanced Maths Programme is planned to take off in Term 4 2016.

Rationale for the soft launch-

- a) Further refinement and enhancement of the teaching and testing materials - Teaching Approaches, Student Worksheets and Mastery Reviews
- b) Training for all Maths EdTs on content, pedagogy and delivery of the Advanced Maths curriculum.
- c) Trial with a larger pool of suitable students.
- d) Fix standard entry criteria for future students to come on the Advanced Maths Curriculum.

PSLE Results: Analysis of the PSLE scores (2015)

For 2015 the Maths Core team conducted an analysis of the PSLE 2015 results. The purpose of this analysis was to look into the results our Primary 6 students achieved at the Primary School Leaving Examination after receiving Maths remediation. At the same time as the Maths expands to introduce the Advanced Maths Programme, information on the results of the PSLE was critical. Based on their Primary 4 results, students are streamed into Primary 5 Standard (Higher Ability) or Primary 5 Foundation Stream (Lower Ability). At Primary 5 again based again on their final exam result a student from the foundation stream may be able to move to the standard stream in a particular subject. They may also take English or Mathematics at the Standard or Foundation level.

We were however unable to differentiate between standard and foundation for this year as the data received was just for the total group of 78 students who sat for their PSLE exams. We managed to get data on 38 students of the results from our teachers who filled in the scores on the excel spreadsheet.

It is most encouraging however to note that 31 of the 38 students who responded passed their Maths PSLE, when they were previously failing poorly.

PSLE Math Students 2015 : 73
Total number of students results : 38 : Total

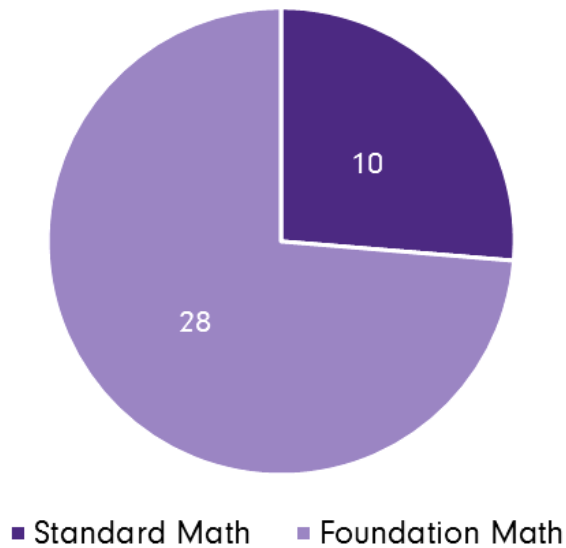


Figure 7. PSLE Maths Students 2015

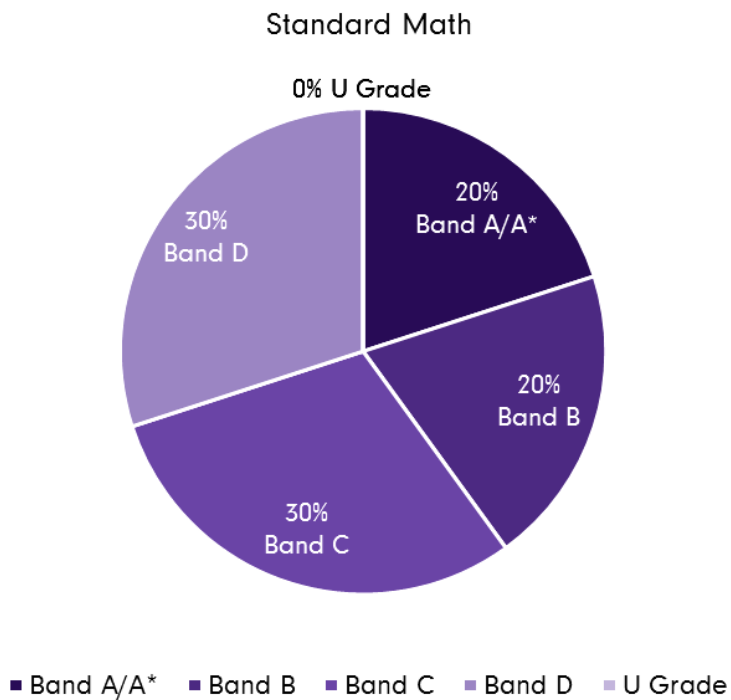


Figure 8: Standard Math Bands

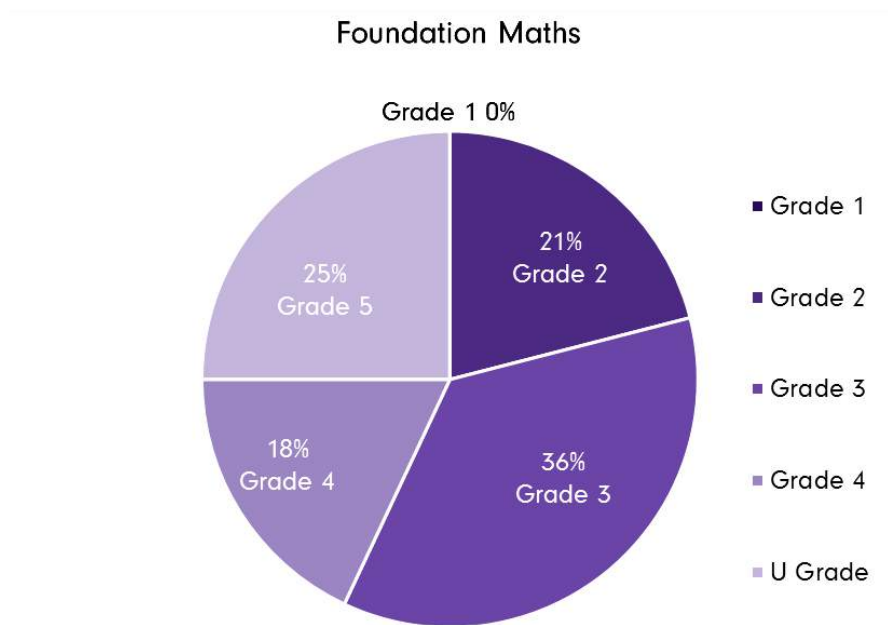


Figure 9. Breakdown of scores on Foundation Maths

Attendance of P6 students on the Maths programme

25 out of 28 students showed regular attendance for Maths classes. Of the 25 who were regular attendees, 5 were not promoted (80% accuracy). Of the 3 who were not regular, only 2 were not promoted. (66.67% accuracy). This suggests that attendance although strong, is not a significant predictor of whether student will be promoted to secondary level.

Duration on the programme

- ◆ The logistic regression analysis shows that the variable duration could not further enhance the accuracy of the prediction of whether student will be promoted
- ◆ The relationship between duration and grade was positive but not significant ($r = .110$, $p = .585$)
- ◆ Duration is not a significant predictor of whether student will be promoted to secondary level.
- ◆ There is a significant relationship between Annual Test scores and PSLE grades ($r = .601$, $p < .05$).

Results for the Foundation stream:

Possible factors for the results of the sample size of 10 students suggest that the following reasons compounded to the 75% pass rate as compared to the Standard students who achieved a 100% pass rate. It is also noted that of the 7 foundation students with U grades, 6 have only been on the SES Maths programme for 10 months or less.

Other factors that may have also contributed could be:

- ◆ Poor attendance
- ◆ How long the student has been on the programme
- ◆ Cognitive ability of the students – relationship with Annual Testing scores and the PSLE results could be further explored.
- ◆ Difficulty of the exam paper

QUALITY ASSURANCE: MATHS 2015

Objective

To ensure that teaching follows the scope and sequence and teaching approaches as outlined in the DAS Maths Curriculum and meets the standards as defined by the Quality Assurance Marking Rubric, there are observations which are conducted once a year. Maths Dual Specialists who had been teaching Maths for at least a year submitted videos of their recorded Maths lessons. These were observed by the Maths Core Team members and graded for Quality Assurance.

Findings from the QA 14/15 audit:

In our annual QA Audits 14/15 the following results were found for our Maths Dual Specialists

- ◆ Teaching was not consistent across levels.
- ◆ Teaching methodologies / concepts taught were inconsistent.
- ◆ Terminology used was different.
- ◆ There is therefore inconsistent delivery amongst the current 23 actively teaching Maths Dual Specialists.

It is our attention with QA to ensure that all our Maths Dual Specialists have the background teaching pedagogy and are enabled to support our DAS (SES Maths students) attending MOE schools.

EVIDENCE-LED IMPROVEMENTS TO THE DAS MATHS PROGRAMME

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Dyslexia Association of Singapore

Abstract

A case study on The Teaching of Maths to Students with Dyslexia: A Teachers' Perspective by authors Muhamad, Walker and Rosenblatt, drafted in 2015 and published in the Asia Pacific Journal of Developmental Differences, Vol. 3, No. 2, 2016, looked at the perceptions of three DAS Maths teachers and how they viewed the teaching process.

Four main challenges for Mathematics teachers emerged from the analysis of the qualitative structured interviews that were conducted in the research by Muhamad et al. Namely, inadequate training, content area language barriers, cognitive style implications and their impact on maths learning, and addressing and remediating students' anxiety towards learning maths and the impact on their self-esteem. Of interest to the Maths team in particular was "inadequate training" which was cited as one of the challenges faced by the teachers interviewed. This paper therefore aims to highlight the training pathways for DAS Maths Teachers which are currently in place since Muhamad et al., (2016), conducted the case study and teacher interviews in 2014.

Keywords: maths, dyslexia, teacher training

We would not hesitate to agree with Muhamad, Walker and Rosenblatt (2016), that teacher training and support are important aspects of professional development. However, it is especially important for teachers working with our profile of students with co-morbidities to understand the connection between mathematics difficulties their students face and dyslexia which are often overlooked. The learning needs of students with dyslexia are often unmet in the regular mathematics classrooms (Malmer, 2000). This is we believe the most challenging aspect which our teachers face and the task of the Maths team in supporting the Maths teachers with the necessary tools to assist their students to bridge the gaps in their understanding of Maths concepts.

Teacher Feedback on their training needs:

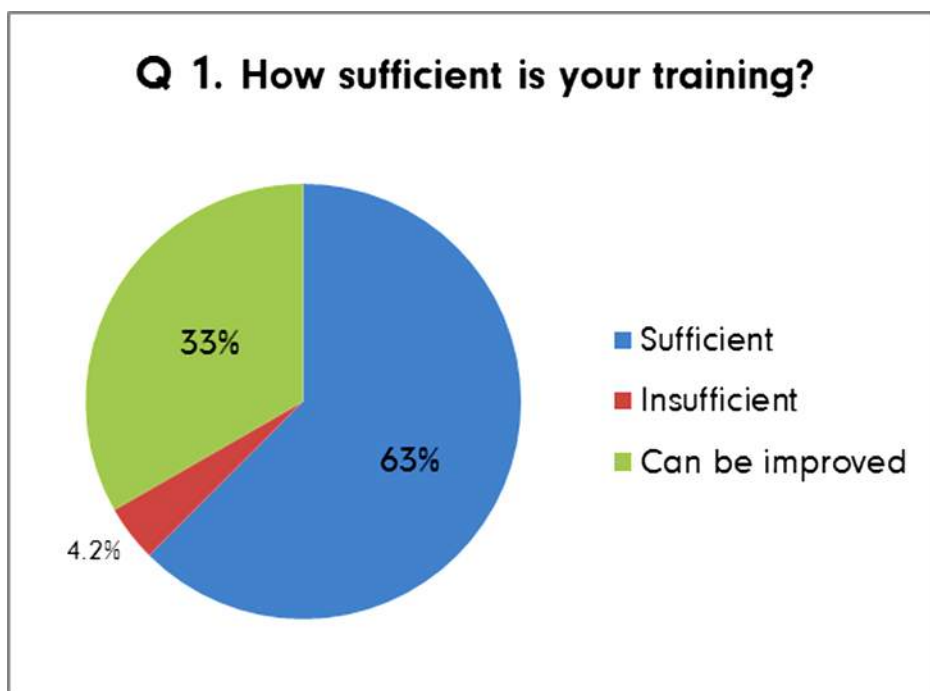
In April 2016, the Maths team conducted a survey for all our Maths teachers in order to understand their views towards training, their students' confidence, and their challenges.

Findings from the 2016 Maths teacher survey:

No of participants: 24 DAS Maths Dual Specialists who were actively teaching Maths classes. They varied in terms of teaching experience, and length of service as an Educational Therapist at DAS.

Q1. How sufficient is your training?

Training can of course always be improved but it appears that most Maths teachers are happy with what they have received or are currently receiving.



Q2. What additional training do you think would help you become more competent in teaching Maths?

For this question the replies were coded:

Marshall Cavendish Training

The Marshall Cavendish Course was mentioned as benefiting:

“Courses like the Marshall Cavendish is great”

Others cited training by topics and methodology such as the Marshall Cavendish course whereby the course is topical.

Heuristics

Further information on Heuristics and differentiated instruction and structured teaching approach, came up several times. One participant indicated more sharing of information amongst other teachers. Understanding the processes

Q3. How do you think Mathematics should be taught? (Give a specific example to illustrate)

CRA Approach

Adopting the CRA Approach was the response for almost 19 out of the 24 participants.

“I believe that Mathematics should be taught with the CRA approach. In that sense, students are able to slowly progress to the abstract stage.”

From the survey the teachers are clearly strongly in favour of the CRA approach, which they see as applying multi-sensory teaching through the use of manipulative.

The other responses were looking at working on problem sums with increasing difficulty and teaching of the concepts.

Q4. Do you believe your students' difficulties in maths have any impact on their confidence in doing maths?

This question confirms that teachers have a very strong belief that confidence is affected by difficulties that children experience in Maths

Q5. What are the challenges you face when teaching maths?

This question was very helpful in pointing to the problems of differentiation when teaching even in small groups of students.

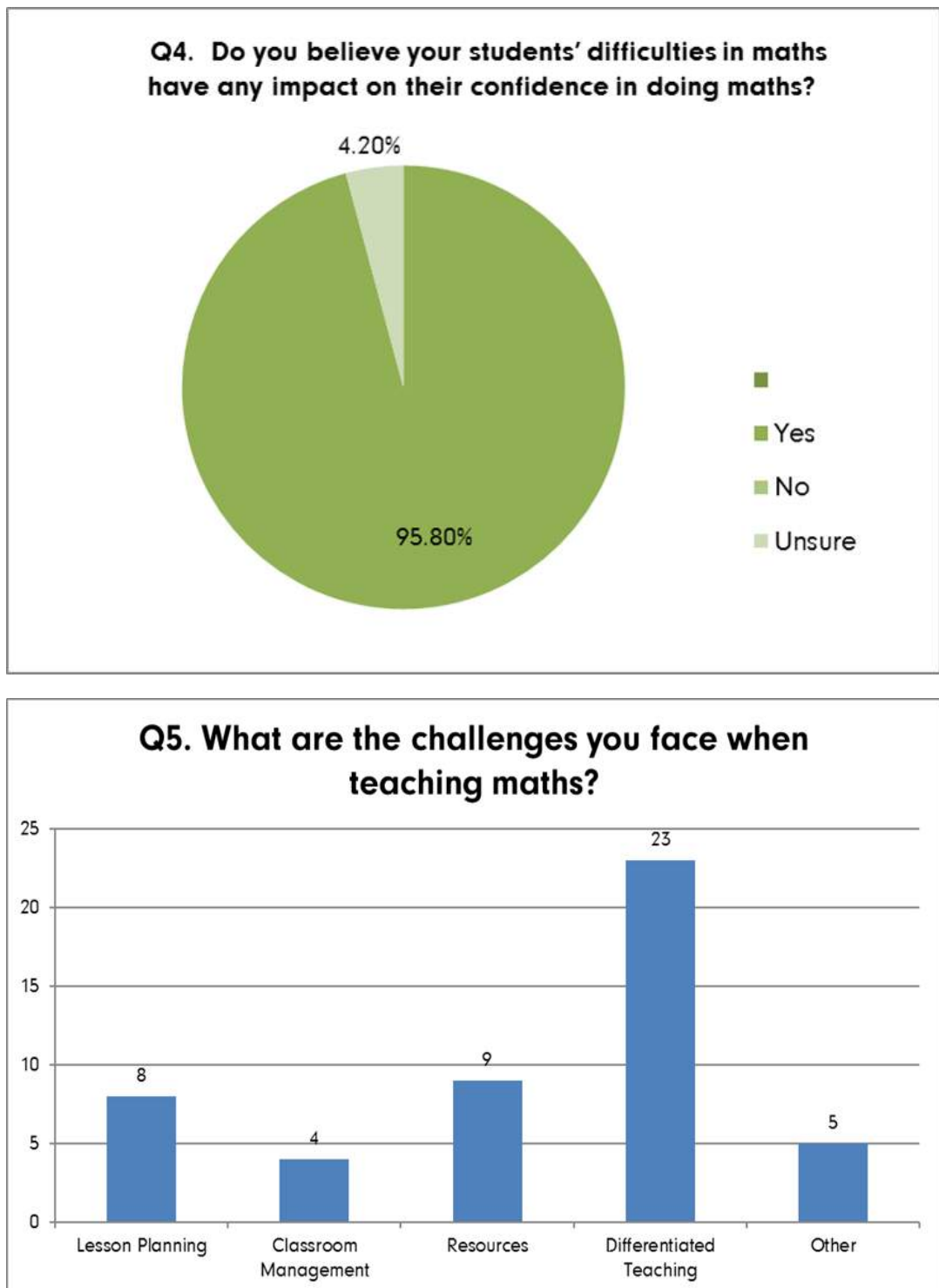


Figure 5. Challenges in teaching Maths

Finding resources and lesson planning are also important but do have the same priority as how to differentiate. This might be a focus for further training.

Most of the participants responded that they had insufficient time to conduct the lessons as the students pass was slow and that 1 hour was insufficient and suggested 2 hours instead.

Lesson Planning

Some participants wanted to have more support in lesson planning.

“What to include or what not to include in each component of the lesson plan”

Differentiated Instruction

Teaching the students strategies and differentiated instruction, in catering to the different learning styles and needs of their students was another theme.

Language of Maths

*“How to teach the language aspect of Maths especially for the lower primary”
“The teaching problem sums featured several times and model drawing”*

TEACHER TRAINING: 2015

Maths Practicum

Selected DAS Educational Therapists are required to attend the Certificate in Dyscalculia and Numeracy (delivered by the DAS Academy) and the Maths Practicum and Mentoring (by the Maths Core Team). All of our Maths Dual Specialist have been teaching on our DAS Main Literacy Programme for at least a year. The Maths practicum aims to equip the Educational Therapists with practical hands-on skills to plan and teach essential maths concepts to students with numeracy difficulties integrating the Gillingham principles (Gillingham and Stillman, 1997) with the CRA approach and Polya’s four step processes (Polya, 1945) in supporting students with Maths learning difficulties.

As at December 2015 the DAS has trained 34 Educational therapists. We currently have 27 teachers who are practicing.

MATHS PRACTICUM - 2015

(PCC–Professional Certificate Course in Numeracy Support)

A total of 3 DAS Educational Therapists (EdT) in Term 2, 2015, Wks 2 - 6, were trained to become Maths Dual Specialists.

Objective

- ◆ To train the selected, confirmed Educational Therapists with at least one year experience in teaching MAP to become Maths Dual Specialists to facilitate the increasing number of students who had been enrolled to be placed into classes and be provided with the right instruction so as to benefit effectively from our remediation programme.
- ◆ To equip the EdTs with practical hands-on skills to plan and teach essential maths concepts to students with numeracy difficulties integrating the ELA principles and the CRA approach.

Procedure

Each Trainee EdT is assigned to an experienced Maths supervisor EdT preferably at the same centre. Training is for a period of 5 weeks after which the trained EdT is ready to teach Maths classes.

Training Pathways: 2016/17

The SES Maths programme which started in 2009, is very much curriculum based, supporting DAS students with Dyslexia with persistent Maths difficulties. Our current programme is well received and has shown improvement rates by our students who attend classes of a minimum of 6 months (Yeo et.al., 2015; Bunn, 2014).

It was felt however that enhancements toward Maths Dual Specialists Professional Development could still be made for the benefit of our dyslexic students. As the programme enrolment grows and more Dual Specialists are required, attention to Quality Assurance is vital.

Key areas that have been identified:

- ◆ A customised training programme to meet the needs of Maths Dual Specialists teachers from Dyslexia Association of Singapore (DAS).
- ◆ Training that enhances their teaching practice and up-grade their content knowledge in primary Mathematics so that they can help students to improve their learning.
- ◆ The approach should be based on the teaching approaches and

methodologies adopted and practised widely in Singapore public schools.

- ◆ To ensure the consistency and continuous improvement of content delivery and development.
- ◆ To provide continuous long-term support for our EdTs in the area of lesson planning, delivery and classroom management

Proposed Future Professional Development for Maths Dual Specialists 2016/17:

- ◆ SES Maths has proposed for all our Maths EdTs to be trained by Marshall Cavendish for a 120-hour credit course that leads to the Professional Certificate in Mathematics Teaching (Primary) to fill in the gap to their current curriculum content knowledge.

Proposed Maths Training Pathway for DAS Maths Dual Specialists 2016/17

DUAL SPECIALIST TEACHER TRAINING PATHWAY	
Certificate in Numeracy & Dyscalculia by DAS Academy for all Maths Dual Specialist ✓ Start Teaching	◆ PCC run by the Maths Core Team (5 weeks of mentoring) ◆ Compulsory Insets ◆ Annual Testing ◆ Quality Assurance Audits
ENHANCED TRAINING PATHWAY: 2016	
Certificate in Numeracy & Dyscalculia by DAS Academy ✓ Start Teaching	◆ PCC run by the Maths Core Team (5 weeks of mentoring) ◆ Compulsory Insets ◆ Annual Testing ◆ Quality Assurance Audits
Certificate in Mathematics Teaching (Primary) by Marshall Cavendish Run: (April 2016 to March 2017)	◆ 120 hours / 1 year of training. (Max 40 participants)
Specialist Certificate in Mathematics Teaching (Primary) for Core Team Members & selected Dual specialists by Marshall Cavendish (January 2018)	◆ 60 hours of training

1. Improve teacher competency and competence. Maths Dual Specialists are to be trained to deliver / P1 - P6 topics based on the current syllabus / requirements by MOE.
2. Training to be provided by a leading Maths Training & Maths Publisher, Marshall Cavendish leading to the Professional Certificate in Mathematics Teaching (Primary). The certification will commence 14th April 2016 and will be completed by 1st March 2017.
3. Applying these learned approaches to the SES Maths teaching Model and Framework adopting the CRA Approach / Polya's 4 Step / OG Principles will enhance the Quality Assurance which SES Maths considers key performance indicators.

QUALITY ASSURANCE AUDITS: ESSENTIAL MATHS 2014 & 2015

Objective:

To ensure that teaching follows the scope and sequence and teaching approaches as outlined in the DAS Maths Curriculum and meets the standards as defined by the Quality Assurance Marking Rubric, there are observations which are conducted once a year.

In 2014, Quality Assurance observations were conducted for the Maths Dual Specialists. The observers comprised of at least two Maths Core Team members so as to have inter-rater reliability. This is to ensure consistent ratings and to minimise any bias that may be present.

The DAS Maths programme which is very much a curriculum based programme, supports DAS students with Dyslexia with persistent Maths difficulties who are attending Ministry of Education schools. Our current programme is well received and has shown improvement rates by our students who attend classes of a minimum of 6 months (Yeo et al, 2015; Bunn et al., 2014).

Maths Teacher's Training

Key areas for teacher training that have been identified through the Quality Assurance following the DAS Maths Evaluation reports in the 2014 and 2015 DAS Handbook. (Bunn et al., 2014; Yeo et al., 2015a)

A customised training programme and pathway to meet the needs of Maths Dual Specialists teachers, from the Dyslexia Association of Singapore (DAS) was then identified as a key initiative in order to level up all the teacher's Maths teaching skills and knowledge of the syllabus.

Teacher Training 2015

At the end of 2015 we had 27 trained and practicing Maths Dual Specialists who would have attended the Certificate in Dyscalculia and Numeracy from the DAS Academy as well as the Professional Certificate in Numeracy Support conducted by the Maths Core Team.

Rationale of the Professional Certificate in Numeracy Support

1. To train the selected, confirmed Educational Therapists with at least one year experience in teaching MAP to become Maths Dual Specialists to facilitate the increasing number of students who had been enrolled to be placed into classes and to be provided with the right teaching instruction on Maths procedures so as to effectively the students from our remediation programme.
2. To equip the Educational Therapists with practical hands-on skills to plan and teach essential maths concepts to students with numeracy difficulties integrating the Essential Literacy Approach (ELA) principles and the CRA approach.
3. Each Trainee Educational Therapist is assigned to an experienced Maths Supervisor Educational Therapist preferably at the same centre. Training is for a period of 5 weeks after which the trained Educational Therapist is ready to teach Maths classes.

Findings from the Annual Quality Assurance Audits 2014 / 2015

It is our intention with Quality Assurance (QA) to ensure that all our Maths Dual Specialists have the background teaching pedagogy and are enabled to support our DAS Maths students attending MOE schools. The following were some of the findings which the Maths team noted during the annual QA Audit.

1. Teaching was not consistent across levels.
2. Teaching methodologies / concepts taught were inconsistent.
3. Mathematics terminology used was different.
4. There is therefore inconsistent delivery amongst the current 25 actively teaching Maths Dual Specialists.

Main training targets which were identified for Maths Teachers

1. Training that enhances their teaching practice and up-grade their content knowledge in primary Mathematics so that they can help students to improve their learning.
2. The approach should be based on the teaching approaches and methodologies adopted and practiced widely in Singapore public schools.
3. To ensure the consistency and continuous improvement of content delivery and development.
4. To provide continuous long-term support for our Educational Therapists in the area of lesson planning, delivery and classroom management

Timeline:

The Maths team then identified that training should be provided by leading Maths Training & Maths Publisher, Marshall Cavendish who have the resources and knowledge of the Ministry of Education (MOE) curriculum and teaching pedagogy.

All of our Maths Educational therapists are to be trained by Marshall Cavendish for the 120-hour credit course. The Educational therapists will receive the Professional Certificate in Mathematics Teaching (Primary). The certification which commenced on the 14 April 2016 will be completed by 1 March 2017.

Rationale for the enhancement to the Maths Training Pathway

The Professional Certificate in Mathematics Teacher (Primary) aims to fill in the gap to their current curriculum content knowledge and level up the knowledge for all our Maths Dual Specialists. The Marshall Cavendish Certificate in Mathematics Teaching (Primary) will also better prepare the teachers to teach our students on the upcoming Advanced Maths Programme which will be launched in Term 4, 2016.

The Advanced Maths Programme is a programme catered to address the learning needs of the Primary 5 and Primary 6 Standard Maths students who are struggling with the more complex word problems by teaching them appropriate problem-solving heuristics.

Improve teacher competency and competence.

Maths Dual Specialists through the certification are to be trained to deliver / Primary 1 – Primary 6 topics based on the current syllabus / requirements by Ministry of Education (MOE). Maths teachers through applying these new post training teaching approaches and strategies which are aligned to the current mainstream curriculum will allow for the better teaching of the DAS Maths teaching Model and Framework.

It is our aim therefore, through enhancements of the DAS Maths teacher training pathway we endeavour to bridge the gap between mainstream mathematics classrooms and small group Maths remediation at the DAS.

IN SUMMARY AND FUTURE DIRECTIONS

For 2016, the Maths Core team have identified a comprehensive training programme for our maths teachers. The Maths teachers training pathway is in line with the DAS commitment to provide continued teachers' professional development.

In summary, the Certificate in Mathematics Teaching (Primary) by Marshall Cavendish will be the highlight for the 2016 teacher training that will enable our teachers who support students on our DAS Maths programme to deliver a higher quality of teaching and adopting the teaching practice aligned with MOE Maths curriculum.

Through the enhanced training provided for our Maths teachers it is our intention that through the research based teaching of the CRA approach and Polya's four step processes adopted at DAS Essential Maths, we will strengthen our student's foundation for confidence in higher-level maths, and thereby bridge the gap between the student's maths abilities and the demands of the school mathematics syllabus so that all Dyslexic students may have the opportunity to achieve in both Literacy and Numeracy.

Through our Programme Evaluation we will continue to work on further enhancements that will meet the needs of our ever-changing population. We would like to thank Muhamad et al.; (2016), for the invaluable feedback on the support required by teachers, especially those who may not be trained school teachers. This allows for us to take a closer look at the Professional development of our teachers and share our enhancements to the training pathway.

Refer to: Appendix C: Survey and Interview with the DAS Math teachers

TEACHER INSETS: 2015

Date	Title	Speaker
14/10/15	Maths Annual Testing/PTC	Siti Aishah and Rebecca Yeo
30/9/2015	NIE Training: Some Model Drawing Techniques for Ratio and Proportion	NIE trainer
2/9/2015	Sharing of maths strategies for lower-functioning students	Siti Aishah, Tarsheeni Rajoo, Rebecca Yeo & Sok Yin Ho
11/3/2015	Steve Chinn's test and Resources	Tim Bunn, Aishah Abdullah (Albel) and Siti Aishah

REFLECTION ON OUTREACH EFFORTS

2015 has been a year for raising awareness for our maths programme to our own DAS staff, parents and the Ministry of Education, as well as exploring the needs of the maths programme.

One of the highlights for 2015 was the invitation by the Ministry of Education Maths Curriculum planning and Development team lead by Dr. Ridzuan to share on our SES Maths services at the DAS and at the same time, and in turn they shared with the Maths core team recent changes in the Singapore maths syllabus as well as the direction that the curriculum was headed. This was significant as it signalled that MOE has taken notice of the support given to students with Maths learning difficulties at the DAS and wanted to learn more about how we support these students. For the full list of outreach events, refer to Appendix B. Reflection on INSETS & Teacher Training:

Additional insets for the Advanced Maths Training and Technology have been planned to supplement the robust training plan that has been identified for our Maths teachers. As compared to previous years, we only have about 1 or 2 insets a year for our teachers and in 2015, we have increased that to 4 a year. At the same time, we have been keeping in close contact with all our teachers through frequent dissemination of information online as well as acquiring their feedback. Subsequently, we have also redesigned our training plan for our teachers from a 'touch and go' approach to insets to providing more in depth training for 2016 onwards through more focused insets.

FUTURE DIRECTIONS IN MATHS TRAINING

For 2016, the Maths Core team has identified a comprehensive training programme for our maths teachers. This plan is in line with the DAS focus on teachers' professional development.

In summary, the Certificate in Mathematics Teaching (Primary) by Marshall Cavendish will be the highlight for 2016 teacher training that will enable our teachers who support students on our SES Maths programme to deliver a higher quality of teaching adopting the teaching practice aligned with MOE schools. At the same time integrating the evidence based CRA and Poly's 4 step processes that are the key elements of the maths programme. Hence, this will encompass most of our teacher insets for the whole year as it will cover the relevant content knowledge as well as pedagogical content knowledge which they require.

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APPENDIX A:

Development stages of the Advanced Maths Curriculum

1. Extensive Research on Word problem type concepts covered in P5/P6 Standard Maths in mainstream

School syllabus was carried out by the Advanced Maths team at the initial stage of planning.

Research Materials -

- a) A variety of school used textbooks and workbooks eg. 'My Pals are Here'
- b) Students' school prepared worksheets
- c) Students' school exam papers
- d) Maths Guide Books

2. The selected concepts for the Planned Advanced Maths Curriculum are:

The concepts are further subdivided under the P5/ P6 levels.

- | | |
|-------------------------|---------------------------|
| ◆ Equal, Remainder | ◆ Rate |
| ◆ Transfer, Proportions | ◆ Algebra |
| ◆ Simultaneous | ◆ Average |
| ◆ Repeated Identity | ◆ Constant Difference |
| ◆ Simultaneous | ◆ Sets |
| ◆ Volume | ◆ Penalty Charge |
| ◆ Excess and Shortage | ◆ Union and Intersection. |

3. Selection of heuristics- About 11 problem solving techniques were identified and included in the teaching Approaches:

Act it Out, Draw a model- Part-Whole/Before After, Make a systematic list, Draw a diagram, Look for a pattern, Guess and Check, Work backwards, Simplify the problem, Restate the problem, Units x Value.

4. Design of the Teaching Approaches -

The Teaching Approach for each concept is elucidated comprehensively in a guide for direct, explicit teaching by the EdT to deliver the heuristics of the concept effectively (refer to Appendix A).

5. Learning, Practice and Testing

The try-share-learn-apply approach was designed to teach students how to solve closed-ended process problems such as those found in the curriculum. Teachers first present a problem to students and provide them with the opportunity to attempt the problem on their own (Try stage). Subsequently, students are given the opportunity to share their solutions to their peers, as well as their thinking processes as they were solving the problem (Share stage). After each sharing, their classmates and the teacher could ask questions to clarify doubts if any surface. Following this, the teacher will also share his/her approach to solve the problem, which is also stated in the teaching approach.

At this stage, the teacher demonstrates positive problem solving behaviours such as making annotations, thinking aloud, and checking the solution. The teacher may also draw out similarities and differences between his/her solution and the students' solutions, and explain the validity of the solution (Learn stage). Now, the students are ready to apply their learning to solve similar problems. Students are given a booklet of about 5 word problems to work out as practice (Apply stage).

To ensure that the programme is cumulative, the last word problem is done the following week as a review of the approach that was taught in the previous week. This is followed by a Mastery test on that concept taught. When the students demonstrate that they have achieved mastery of the concept, another concept will be introduced to them.

Students' performance in the Mastery reviews forms the basis of their semestral PTC report.

APPENDIX B: EVENTS / TIPS TALKS WORKSHOPS / SEMINARS

	Date	Name of Event	Trainers	Feedback/Remarks	Crowd
1.	5/3/2015	Discovery of Fraction Word Problems	Shuyi Tam	Better understanding of how to explain to my child.	20
2.	13/5/2015	MOE Sharing of Maths Curriculum with CPDD	Core Maths Team	Beneficial with new things learnt from both parties.	
3.	3/6/2015	Skills for Math Problem Solving (Standard) – (REX)	Albel Abdullah & Nur Alia	I can write my working on the whiteboard and I feel like I can teach other kids. Now I like to do problem sums.	10
4.	5/6/2015	Breaking the Code in Word Problems (CCK)	Rebecca Yeo		20
5.	6/6/2015	SES MATH Talk for DAS Open House (BJ8)	Siti Aishah	Useful information and tips given.	10
6.	25/6/2015	Let's Learn Maths Through Real Life Examples! (TPN)	Samunn		15
7.	8/7/2015	SES Inset day	Core Maths Team	Colleagues have a better understanding of what is the SES Maths programme is all about and is more confident to share about the programme to the public.	Staff
8.	8/9/2015	DAS Education Day	Core Maths Team		
9.	20/10/2015	Strategies to help your child with confusing maths concepts (WDL)	Albel Abdullah		17
10.	26/11/2015	Fun with heuristics to solve challenging Maths Word Problems (BJ8)	Albel Abdullah and Siti Aishah	The workshop is fun. The sums are easy to do.	15

APPENDIX C:

Survey and Interview with the DAS Math teachers

SURVEY ON MATH TEACHING AT DAS

1) How sufficient is your training in equipping you to teach your learners? *

☐ Sufficient ☐ Can be improved ☐ Insufficient

2) What additional training do you think would help you become more competent in teaching Maths? *

3) How do you think Mathematics should be taught? (Give a specific example to illustrate) *

4) Do you believe your students' difficulties in maths have any impact on their confidence in doing maths? *

☐ Yes ☐ No ☐ Unsure

5) What are the challenges you face when teaching maths? (You can tick more than one) *

<input type="checkbox"/> Lesson planning	<input type="checkbox"/> Differentiated teaching
<input type="checkbox"/> Classroom management	<input type="checkbox"/> Differentiated teaching
<input type="checkbox"/> Resources (e.g. manipulatives)	<input type="checkbox"/> Other

6) If you answered "other" in Q 5, please state what other challenges you face when teaching maths.

APPENDIX D:

PARENT AND STUDENT FEEDBACK:

(All the names of both parents and students have been anonymized)

Parent and student of Rebecca Yeo: Maths Dual Specialist & Core Team member:

Dear Teacher Rebecca

Thank you for teaching my son, Lee Chong Jun in the Maths programme. He has shown improvement during in past few months. I am glad that my son had passed his CA2 paper. You are a good, patience and reliable teacher. We truly appreciate your hard work and guidance that coach my son well.

Thank you very much.

Patricia Teo

Parent of Student, Lee Chong Jun

Dear Teacher

Thank you for teaching me in Maths. I am happy to enjoy being in your class. It is fun and interesting during the class. Your explanation is clear and let me understand easily.

Thank you teacher Rebecca

Student, Lee Chong Jun

Students of Maths Dual Specialist: Siti Mariam Binte Daud

"I wish Math lessons do not have 'Time' but I like to learn in DAS because it makes it easy."

"I think we should have exams at DAS so we could be better and get sweets."

"I like it because it's fun."

"I like the teacher and the classmates and the class is awesome. The teacher is kind and the teacher teach very well. And her advice helps."

Parent and Students of Aishah Abdullah (Albel) Lead Educational Therapist and Maths Specialist

Dear Ms Albel,

I wish to take this opportunity to thank you for your effort, care and guidance given to my son Daniel Toh during the last one term.

This year, Daniel has experienced a tremendous improvement in his math exam

scoring 71/100 as compared to before usually obtaining about 50/100.

Your partnership helps us a lot, as you have given additional effort and time to coach him to improve patiently.

Once again, we thank you and DAS for providing a good environment for my son to progress. Wishing you a good term break to rest and rejuvenate.

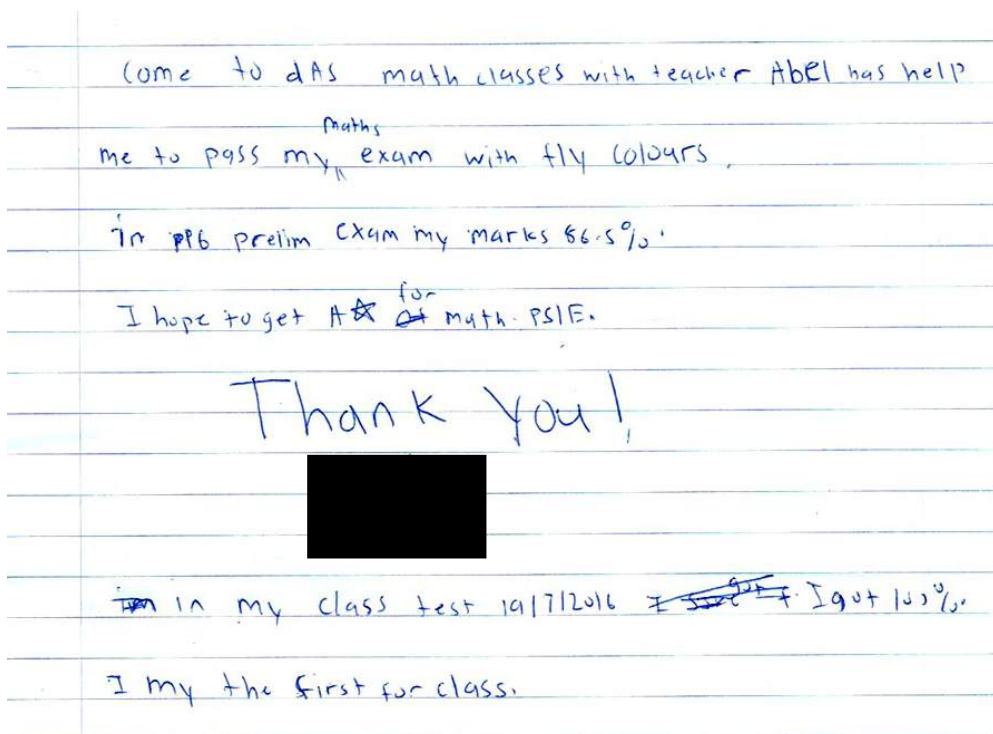
We look forward to create more success with you next year.


Best Regards

Mr Toh (Maths Parent)

P6 Student

"Before I came to DAS Maths class, I used to score 7 out of 100 marks and I got a U grade. When I joined DAS for Maths, I have improved quickly. At SA1, I got 39 marks. At Prelim, I have achieved 53 marks. I hope to get better marks in PSLE this year. Thank you DAS for your help."



Come to das math classes with teacher Abel has help
me to pass my ^{Maths} exam with fly colours.
In P6 Prelim Exam my marks 56.5%
I hope to get A⁺ ~~A~~ for math PSLE.
Thank you!

In my class test 19/7/2016 I ~~scored~~ ^{got} 100%
I my the first for class.

Dear Officer in Charge,

I would like to express ~~my~~ my deepest gratitude to Ms Abel who had taught my son [REDACTED] for Maths. He is currently awaiting for his PSKE results. I had saw vast improvements in his studies for his MATHS ~~plim~~ preliminary examinations.

[REDACTED] had improved alot since he attended DAS two years back from Mr Sree, ~~and~~ Ms Nitya, (current English teacher and Ms Abel (his Math teacher). His self esteem has grown tremendously. His confidence improved ~~ex~~ especially he had achieved one of the top students in his class.

There is no words that I could express my happiness seeing my son's overall improvement in all aspect. Mental & emotional. Thank you. [REDACTED]

Dear Teacher Abel,

~~Thank~~ Thank you for teaching me in my math

you have ^{an} helped me scored marks from failing to 74/100 at prelim examination

I have improved tremendously in my Maths. I wish I can continued in secondary school to improved further in my math. I really appreciate all your effort and patience to teach me

ACKNOWLEDGEMENTS

The comprehensive SES Maths Evaluation 2015 report would not be possible without the team effort provided by the following people:

SES Director: Nor Ashraf Bin Samsudin

SES Maths
Programme Director: Anaberta Oehlers-Jaen

Core Maths Team
Members: Aishah Abdullah, Siti Aishah Binte Shukri, Rebecca Yeo

Maths Evaluation
Report: Rebecca Yeo

- ◆ Analysis and collation of data of the Pre-post Test analysis 2015
- ◆ Analysis of the PSLE results for the Standard and Foundation students (2015)

Contribution to
SES Maths: Dr Tim Bunn

ABOUT THE AUTHORS



ANABERTA OEHLERS-JAEN

Programme Director of SES Maths, Assessments and Specialist Tutoring and Head of DAS International

Ms Anaberta Oehlers-Jaen made a career switch from the Robinson's group of companies as Group Merchandise Controller to join the DAS in 2005 as an Educational Therapist. She holds a Masters Degree in Special Needs from NTU, BA (English Language and Literature) from SIM, a Postgraduate Certificate in Teaching and Learning in Higher Education from the London Metropolitan University as well as a Cambridge International Diploma for Teachers and Trainers (Dyslexia), along with Early Childhood Diplomas. She has Fellow status at RETA Registrar of Educational Therapists (Asia) and is also a Senior Educational Therapist.

For 4 years, she was the Preschool Manager of the DAS Preschool Service actively involved with children at risk of literacy delay. Anaberta who is also actively involved in research has also delivered at conferences in Singapore and Hong Kong. Her recent paper in 2014 was on the Programme Evaluation for Specialist tutoring as well as actively, overseeing the development of the Maths Programme.

Her background of more than 15 years in the retail service line, has translated her into adopting a high level of professional service for both the students and parents through Specialist support and Assessments. She hopes to share the same philosophy which she has embraced at the DAS as her personal ethos in helping all children achieve in her current portfolio both in Singapore and the region.



REBECCA YEO

Senior Educational Therapist, Core Team Member

Ms Rebecca Yeo is a Senior Educational Therapist and a member of the Maths core team at the DAS. She has more than 5 years of experience in teaching literacy and mathematics to students with dyslexia. As a core team member, Rebecca has helped with the development of the Essential Maths and Advanced Maths curricular as well as the training of new Math dual specialists at the DAS. In addition, she has conducted student workshops and talks with parents to provide them with strategies to help their children with Mathematics at home. She has also presented at a regional conference (SENIA, February 2016) and a conference in Singapore (Unite SpLD, June 2016). Rebecca holds a Bachelor of Psychology from James Cook University, a Postgraduate certificate in Specific Learning Differences from the London Metropolitan University and a WSQ ACTA certification in Training and Assessment. Rebecca is also a member of Register of Educational Therapists (Asia) and is currently pursuing her Masters of Education (Mathematics) at the National Institute of Education.

Specialised Educational Services

UNLOCKING POTENTIAL

PSYCHO-EDUCATIONAL ASSESSMENTS

Educational Psychology assessments usually consist of 1-3 sessions with the psychologist working with the child. What is done and how much is needed depends on the age of the child, the purposes of the assessment and the kinds of strengths and weaknesses the child has. The aim is to start with the concerns about learning or behaviour expressed by parents, teachers or sometimes the child and to try to provide sympathetic but objective information about the child's background abilities and current academic skills, and then evaluate whether there are serious difficulties and how great are the problems for the child, the parents and any teachers and tutors involved. Psychologists try to provide advice about the best curriculum options (if there are any) and then about how teachers, tutors, parents and the child themselves can help the child most effectively. Usually this is a "snapshot" at a particular time, but the psychologist will learn more about the history of help to the child from parents and teachers, and in some cases future goals can be set (for tutors, for example) which can then be monitored to see if progress is at the expected rate.

:

WE CAN ASSESS FOR:

- ◆ Specific Learning Differences
- ◆ Dyslexia and Dyspraxia
- ◆ Dyscalculia and Dysgraphia
- ◆ Attention Deficit (Hyperactivity) Disorder
- ◆ Asperger's Syndrome
- ◆ Psychological and Behavioural concerns
- ◆ Childhood development issues
- ◆ Autism Spectrum Disorders
- ◆ Non-Verbal difficulties
- ◆ Auditory and Sensory issues

Specialised Educational Services

Psycho–Educational Assessments

Anaberta Oehlers-Jaen¹ and Dr Tim Bunn²

1. *Programme Director of SES Maths, Assessments and Specialist Tutoring and Head of DAS International*

2. *Consulting Educational Psychologist*

Dyslexia Association of Singapore

ABSTRACT

Educational Psychology assessments usually consist of 1-3 sessions with the psychologist working with the child. What is done and how much is needed depends on the age of the child, the purposes of the assessment and the kinds of strengths and weaknesses the child has. The aim is to start with the concerns about learning or behaviour expressed by parents, teachers or sometimes the child and to try to provide sympathetic but objective information about the child's background abilities and current academic skills, and then evaluate whether there are serious difficulties and how great are the problems for the child, the parents and any teachers and tutors involved. Psychologists try to provide advice about the best curriculum options (if there are any) and then about how teachers, tutors, parents and the child themselves can help the child most effectively. Usually this is a "snapshot" at a particular time, but the psychologist will learn more about the history of help to the child from parents and teachers, and in some cases future goals can be set (for tutors, for example) which can then be monitored to see if progress is at the expected rate.

SES PSYCHO-EDUCATIONAL ASSESSMENTS

The main aim of this annual report 2015/16, is to provide information on the profile of students assessed, the demand patterns and to allow feedback from the work and clients seen by our resident Consulting SES Educational psychologist Dr. Tim Bunn.

Since April 2014, all psycho-educational assessments conducted in Singapore have come under the purview of SES Assessments (Specialized Educational Services division) which is aimed at supporting both Dyslexic and the non-dyslexic population through providing a comprehensive range of psycho-educational assessments. SES Educational registered psychologists in their professional capacity are able to diagnose a range of Specific Learning Differences such as:

- ◆ Specific Learning Differences
- ◆ Dyslexia and Dyspraxia
- ◆ Dyscalculia and Dysgraphia
- ◆ Attention Deficit (Hyperactivity) Disorder
- ◆ Asperger's Syndrome
- ◆ Psychological and Behavioural concerns
- ◆ Childhood development issues
- ◆ Autism Spectrum Disorders
- ◆ Non-Verbal difficulties
- ◆ Auditory and Sensory issues

WHY PSYCHO-EDUCATIONAL ASSESSMENTS?

Psycho-Educational assessments have a number of important functions: a comprehensive assessment report will contain detailed practical recommendations for parents and educators involved in supporting the child's education. Early identification and early intervention of learning differences is vital for the child's well-being and educational progress.

However, not all assessment work is best seen as diagnostic. The aim is often to evaluate progress or to pinpoint in what areas (if any) further interventions are needed. A very important aim is always to provide a positive experience for the child: this means leaving the child with a realistic but hopeful view of what they can do to help themselves further improve in learning. Among the recommendations are often those for exam accommodations. There are a range of guidelines on exam accommodations internationally, and many universities now have their own guidelines. The psychologist needs to check the specific guidelines required for each assessment.

SES Educational Psychologists produce professional, comprehensive and easy to understand reports for parents. The reports are recognised and accepted by institutions and educators world-wide. SES Educational psychologists are professionals who have extensive experience assessing people with behavioural, developmental and psychological issues that lead to learning differences. As of March 2016, SES Assessments has one Chartered Educational Psychologist Dr. Tim Bunn

MAIN TARGET GROUP AND STATISTICS

The market which SES psycho-assessments support are primarily students from the International schools both in Singapore and the region, at the same time Singaporeans who are looking for a comprehensive psycho-educational assessment. Most recently and interestingly in 2015 there have been requests from adults requesting for full psychological assessment. This will be discussed later.

Profile of SES Assessments: April 2015 to March 2016

Statistics

SES Psychological Assessments		
Total No of Assessments	2015/16	2014/15
No Psychological Assessments	76	68
Assessments for International Students	32%	38%
Assessments for students attending MOE Schools	34%	30%
Assessments for Adults	22%	17%
Assessments coming from Overseas	12%	15%

ANALYSIS OF REFERRALS:

For the period April 2015 to March 2016, we saw students from an equal proportion of both the International and Ministry of Education School, schools coming through for SES psychological assessments conducted by our Consulting Educational psychologist Dr. Tim Bunn. Reasons for the referrals were for exam accommodations, ADHD, ADD, Dyslexia, Literacy issues, Dyscalculia, Autism etc.

A pattern of repeat referrals for our comprehensive psycho-assessment coming from the International schools such as, in particular Marlborough College (Malaysia), SJI International, Canadian International, Australian School, Tanglin School, United World College UWSEA, Global Indian, Overseas Family School, ACS Barker Road, Chatsworth International, Nexus International School, NPS International Ministry of

Education Schools suggests that through intentional school visits with head of department and learning support, and talks, have led to the international schools recommending their students for SES Assessments. This positive outcome is one that was engineered deliberately as International school have referral lists of recommended providers for both psychological assessments and intervention.

REASONS FOR CHOOSING SES ASSESSMENTS

Students requiring a more comprehensive psycho-assessment primarily through the recommendation of the class teacher or learning support formed the majority of referrals received. In addition, we have also increasingly seen more students with greater special needs, including some intellectually disabled and autistic students. We also see some students where parents are specifically seeking maths/dyscalculia assessment. Occasionally we also see children with a specific focus on attention issues, where a diagnosis of ADHD may be needed, and where a previous assessment by the DAS MAP Admissions psychologists has suggested such a possibility but had not been able to confirm the suggestion were also then recommended for an SES Assessment.

OVERSEAS CLIENTS:

Overseas clients continued to come to Singapore specifically for an SES Assessment as the reason being given was that their home country did not have qualified Educational psychologists. At the same time the stigma of a Specific Learning Difference were also cited for one of the reasons for seeking an overseas assessment. In total we had 9 overseas clients

ADULT ASSESSMENTS

Over the period 2015/16, the number of post-17 Adults who were assessed have increased.. This comprised of a mixed group of clients who were seeking a psycho-educational assessments. We saw a total of 17 Adults.

PROFILE OF POST-17 ADULTS

They are generally two major categories of clients.

1. Students in Further Education (FE) and in Higher Education (HE)
2. Working Adults

The main reason for the referrals for the Adult assessments which were in FE / HE was due to requests for an update assessment for exam accommodations. The

second group of Adult assessments want to gain a better understanding of their psychological profile which may be helpful for their current or future employers.

FUTURE DEVELOPMENTS

A significant development for SES Assessment will be in 2017, when it will fall under the purview of the new DAS Unified Admissions Division. This is with the view to meet the needs of parents for a one stop assessment to integrate and expand the number of psychologists who provide this service, so as to include registered psychologists from the DAS Admissions division who currently conduct psychological assessment predominantly for Singaporean students attending the MOE schools who require a diagnosis of Dyslexia for eligibility onto the main DAS remediation programme. Through this integration of a one stop assessment we would then be in a better position to provide support to a larger and wider group of preschoolers, students and post-17 adults who have specific learning differences from both the International and the Singaporean school communities

Another development we will be working on as adult assessments have increased would be the outreach and engagement with Further Education and Higher Education institutions. This is an untapped and potential market so that provision can be provided to students with Specific Learning Differences who could benefit from accommodations during examinations through a comprehensive SES psycho-educational assessment.

SES ASSESSMENT SERVICE 2016:

Perspective by Dr. Tim Bunn (Consulting Chartered Educational Psychologist)
The SES Assessment service has continued as outlined in this year report. There remains only one full-time psychologist, who sees all children and adults referred to SES Assessments at the DAS for the reasons outlined earlier by our Programme Director Anaberta Oehlers.

Referrals include

- ◆ Adults who are in full-time employment,
- ◆ Adults joining a new degree or Diploma course who may need exam accommodations and additional support, either in Singapore or abroad,
- ◆ Young people at Polytechnics or ITE,
- ◆ Non-Singaporeans children attending Ministry schools here, young people being educated at home,

- ◆ Some Singaporeans wanting more open-ended assessments (eg where Attention Deficits or Autism Disorders are suspected)
- ◆ Some Singaporeans wanting assessments done immediately who cannot wait for a regular DAS assessment.

There continue to be assessments of children in International Schools, of many nationalities, and a few from International Schools outside Singapore who have heard our service is of high quality. (Please refer to earlier statistics)

We now have regular referrals from several International schools, who seem to have placed SES Assessments at the top of their referral lists.

The volume of business remains steady usually enabling the psychologist to exceed the minimum target on a 3 monthly average basis. Indeed, wait time has grown a little since last year. Our skilled and friendly administrative officer, Ms Jawahir Ally, sometimes has to go to considerable lengths to schedule in all the requests within the very varied time-scales our parents seek.

The kinds of assessment also continue to grow gently. There have been some children from Special Schools in Singapore or from a mainstream school with a Hearing Impaired Unit this year.

There continues to be steady requests for maths assessment. The psychologist is attending the Marshall Cavendish Singapore Maths Teaching course, which is extremely helpful in clarifying some features of the curriculum and always helps in understanding the children's learning difficulties better. It is also comforting to discover that even considerably younger colleagues teaching maths at DAS find some word problems baffling at first. The psychologist is in the process of analysing data with DAS Maths team colleagues from a survey using the Chinn tests, and some attitude questionnaires. He also hopes to produce a test based on Chinn's ideas which compares maths calculation efficiency with word problem solving at different age levels.

Literacy assessment has benefited from the purchase of several new test kits. The Kaufman Test of Educational Achievement, Third Edition (KTEA™-3) has proved particularly helpful in some cases, by providing alternate ways of assessing writing and reading comprehension, but others (such as the Test of Written Language 4 (TOWL-4) are also helpful. A new Diagnostic Test of Word Reading Processes looks promising for younger readers, and the Adult Reading Test 2nd edition from the UK may be very helpful for College and University level students.

Perhaps the most prominent new strand in many assessments has been the use of

Southampton Emotional Literacy Scales (SELS), followed by a graphical presentation of the agreements and differences between raters, as a guide to the emotional and social aspects of learning. More recently, the rather long BRIEF questionnaires were closely examined and 3 questionnaires for parents, teacher and student have been trialled using the same format as SELS (4 point scales). They can also be displayed in graphs. BRIEF is about executive functioning: the main themes are Initiating work or homework, Persisting with it, Organizing time and equipment, Concentrating and avoiding distractions and Planning what needs to be done. These were the main parts of BRIEF but it seemed helpful to take them out of a problem-oriented context and ask about how the student behaved at home and at school. There is some overlap between SELS and these executive functioning themes, which serves as a kind of measure of consistency. If a parent might want to consider using medication, then we still need to use Conners3 forms but not very many parents choose this option in Singapore.

This greater focus on learning behaviours and feelings helps to broaden the basis of the assessment and also helps to bring the student's point of view into the equation.

Looking forward, a merger into a Unified Admissions Team of psychologists is expected. Hopefully the larger team will be able to continue the current work and provide open-ended assessments to more children and families.

For reference of the examples recent assessments and consultation the psychologist has included in anonymized form in the appendix:

APPENDIX 1 : ANONOMIZED SAMPLE REPORT : MOHAMAD ALEM



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLEXIC PEOPLE ACHIEVE

PATRON: MRS GOH CHOK TONG

Assessment Service

Confidential Educational Psychology Report

On

Mohamad Alem

B.C. Number : -
Date of Birth : 11.04.2011
School : Kindergarten Malaysia
Educational Level : K1
Names of Parents :
Address :
Tel. Number :

ASSESSMENT INFORMATION

Dates of Sessions : 30 and 31st May 2016
Chronological Age : 5:02 yrs
Psychologist : Dr Tim Bunn
Date of Report : June 2016

EXECUTIVE SUMMARY

- *This assessment was intended to clarify and document Mohamad Alem's learning needs at 5 years;*
- *His family speaks Malay and English; his speech & language development has been delayed, and he continues to have some difficulties expressing himself and playing with his peers as a result;*
- *His verbal ability and underlying language skills are currently below expected levels for his age; expressive language and speech production are more delayed than receptive language.*
- *Phonological skills are fair at the syllable level but weaker at the phoneme level; visual-motor integration is good but pencil control is a mild weakness.*
- *He can form letters and has learned some letter names but letter-sound associations have been difficult; he does not yet have any word reading.*
- *Mohamad Alem continues to need specialized help with speech & language development and he also needs help with learning to read and spell; he is dyslexic. Number skills are progressing satisfactorily, but he will need help understanding words and concepts in maths.*

REASON FOR REFERRAL

After consulting with a Speech & Language Therapist, his parents wanted to clarify Mohamad Alem's level of development and possible learning needs;

BACKGROUND INFORMATION

I am grateful to his parents for these notes and for some discussion which helped clarify Mohamad Alem's history.

He is the older of two children, in a family using both Malay and English. His parents are both engineers in the oil industry.

His general health is good, with a little asthma and eczema. He is a friendly and sociable boy but he currently is held back in social play by difficulty communicating with peers. His motor development has been satisfactory; he enjoys dancing, singing and drawing. At 5 he does not use full sentences and has difficulty making himself understood. He is better at following directions.

His language development was delayed; he began to make sounds at 2 but clear words were only heard from 3. His parents feel he has more English than Malay now.

He remembers numbers now, and had learned to add 2 numbers; he was slow to learn left/right. He doesn't yet recognize all the letters reliably, and has great difficulty connecting sounds and letters. He cannot yet read. He sometimes writes letters in reverse. He has a good memory for stories.

His attention to some things is good (eg movies) but he can be fidgety and distractible when doing homework.

He enjoys his Kindergarten, which he attends 5 times per week; most lessons are in English, but has seemed to feel under pressure recently and cries when he feels he has "failed". He puts effort into his homework, but if he is upset about not being able to do some work he sometimes hides under the table.

A recent consultation with a Speech & Language Therapist suggested he may have a language difficulty, and that he may also be dyslexic. The therapist advised more specific consultation on these issues.

BEHAVIOURAL OBSERVATIONS AND ATTITUDES

Mohamad Alem worked with me over two mornings at my office. His father stayed with him – in fact he was reasonably confident and probably could have managed some time alone. We took breaks quite frequently, on the first day every hour but more often on the second – Mohamad Alem seemed a little more tired on the second day. He was willing to work at everything I asked, even though some activities were quite difficult. On some activities he was very keen to give his answer – slowing and waiting till the right moment was sometimes quite hard. But especially on activities where there were choices to make, he was quite careful to scan across everything. So he does not seem likely to have attention difficulties.

COGNITIVE ASSESSMENT

Tests used:

1. British Ability Scales, 3rd edition (BAS-III, Early Years section, Colin Elliott, 2011, GL Assessment Publishers, UK)
2. York Assessment of Reading for Comprehension, Early Reading (YARC Early Reading, Snowling et al, 2009, GL Assessment, UK)
3. Comprehensive Test of Phonological Processing, 2nd edition (CTOPP2, US, Wagner et al 2013).
4. Beery-Buktenica Developmental Test of Visual Motor Integration, 6th edition (Beery -VI, Beery et al, 2010, Pearson Publishers, US)
5. Comprehensive Evaluation of Language Fundamentals, Pre-School, 2nd edition UK (CELF Pre, Wiig, Secord & Semel, Pearson Publishers, 2006, UK)
6. Informal activities in copying letters and sounds
7. Informal activity on sound articulation.

All educational and psychological test results can vary to some extent, with mood and general health. Norms also vary a little between different countries, so what seems average in one country may seem a little better or worse in another. The tests used with Mohamad Alem were normed in the US and UK; they probably provide the best curriculum match available. I expect the results of the assessment to be reliable, within the normal limits of psychological assessment.

The results are given in detail in the appendix. The main findings were:

General Cognitive Ability:

Tests of general ability are not very reliable at age 5, so I would not expect Mohamad Alem's scores to be a good indication of his likely progress in learning over the next 3 years. However, they help us see where his strengths and weaknesses lie at this stage and the degree of difficulty he may be experiencing.

The overall score from the BAS-III tests was 104, about an average level. But this is made up of some considerable weakness and some much stronger abilities.

Verbal Ability:

At present verbal ability is a clear weakness. He was delayed in developing his speech and language and his current vocabulary and responses to instructions (using Verbal Comprehension and Naming Vocabulary) are at below average levels (overall verbal score 75). [See the Language section below for more detail]

Visual-Spatial Ability:

He had to copy designs using coloured tiles and bricks (Pattern Construction) and draw a series of shapes of increasing difficulty (Copying). He was particularly good at copying designs; his drawing was at about an average level for his age. His spatial ability score was 111 (satisfactory average).

From this and from other activities below, I doubt if there are any significant difficulties for him in perceiving shapes, including letters.

Non-verbal Reasoning Ability:

Mohamad Alem had to choose which of 4 possibilities was the best picture to make a connection with a card he was given (Similarities) and he also had to choose alternatives to make matrix patterns with both pictures and abstract shapes (Matrices). He was particularly strong on Matrices but was good on both tests. His overall score was 122, at an above average level. This result suggests he can reason and solve problems well so long as he does not have to give a verbal answer.

Working Memory

He struggled to understand the working memory activity we tried (Digits Backwards); on Digits Forward he achieved an average score (54th percentile); typically, working memory limitations do accompany language delay and difficulty so it is possible he will have some working memory difficulties.

Processing Speed

I used the Speed of Information Processing test with him; at first he struggled to find which drawing had more squares, but after several items he became more reliable. He scored at the 58th percentile; it is unlikely he will have particular processing speed difficulties later on.

Phonological Processing:

I used the CTOPP2 tests with Mohamad Alem, although I was not sure he would be able to achieve any successes. In fact he surprised me by succeeding well at the syllable level on both Elision and Sound Blending; once we started on phonemes he did have great difficulty. He was however, using pictures, able to make some matches of words that begin with the same sound; he was perhaps not quite sure what he had to do here, but he got about 4/8 right on the early items. So his phonological awareness score was 86 (low average).

He was able to remember sequences of numbers well and surprised me by being exceptionally good at repeated sequences of nonsense words (sounds). His phonological memory score was 104 (average). Although we did only one test, I had the impression that his recall speed was adequate (Rapid Naming) but this may need to be checked later.

He will need much detailed work on sounds and their relationships with letters, but these results suggest that he will be able to learn about sounds in words at a reasonable if below average rate.

Phoneme Production:

I audio recorded a small set of complex words from the Diagnostic Evaluation of Articulation and Phonology (DEAP). Mohamad Alem surprised me here. His speech is generally not very easy to hear – he speech sounds are “slushy” (some changing teeth probably do not help). But when I listened to his versions of “watch, fishing, gloves, spider, flowers, scissors, helicopter, bridge, umbrella and elephant” I found his only error were missing /z/ at the end of gloves, missing /r/ in umbrella, and missing final /t/ in elephant. In other words, when he is asked to speak very clearly he can produce most speech sounds; but (see Language below) he tends to miss final morphemes (eg /s/)

Oral Language abilities:

I used the CELF Pre-School tests to clarify his strengths and weaknesses in using and understanding language at more mechanical levels. His Core Language score was 75 (below average), consistent with his Verbal Ability score on BAS-III. This means that he is delayed in his language development.

He was stronger on tests that mainly involve understanding language and relationships between things. His Receptive Language score was 91 (low average). He was particularly good at responding to sentences which picked out choices between people and actions (eg "the boy is NOT climbing" with 3 pictures of boys climbing and one sitting below a climbing frame). He was also good at saying which 2 out of 3 or 4 pictures were related (Word Classes), and he was also quite good at giving reasons (he responds appropriately to "why"). He was not so good at more complex directions where there were choices involving prepositions ("Point to the cat between the girls"), or where 2 actions had to be coordinated using "then, after or before".

He scored 65 (his lowest score, below average) on Expressive Language. His expressive vocabulary is still quite limited (recognition is better) and he also struggled to repeat sentences accurately. When there were more than 4 words, more and more of them got lost. He was particularly weak at word structure where he had to say words after a prompt using various endings and contractions (eg plural s, -ed, his/her his/hers).

Mohamad Alem will benefit from regular SLT help to improve his oral language understanding and use.

Visual-Motor Integration:

I asked him to draw a set of shapes from the BeeryVI tests. He was very successful on the main test (VMI) scoring 119 (above average), a stronger result than on the BAS Copying test. He also had to find matches between the shapes and an increasing set of alternatives. He was also successful on this Visual Perception task (score 115, above average). He was much less successful on Motor-Coordination. He had to draw the same shapes with increasingly narrow guidelines; his attempts left the tracks from quite an early stage. So he does have some fine-motor control difficulty, but generally is able to steady and manage his drawing to produce accurate images. His hand-writing may need some extra practice later when he becomes more fluent at writing.

LITERACY

I used the UK YARC tests with Mohamad Alem because they help to give a clear picture of the development of letter-sound knowledge and how that is affecting reading. The UK norms are probably as appropriate as most tests in SE Asia.

Letter-Sound Knowledge:

Mohamad Alem responded to about half the letters in the YARC letter-sound knowledge test by giving names. He was not able to give sounds, so no score was possible.

I used an informal sound identification activity with him on the second day. He had to learn sets of 5 letter sounds; I said a sound, usually with a meaningful label (eg "/s/ for snake") and asked him to point to the one it was from 5; he was able to make progress to become more accurate on the two sets used (a,j,i,o,s; and p,k,f, h,m) but when we put them together at the end he

slipped back and seemed to lose most of his learning. He will need to work on learning sounds a step at a time, using multi-sensory methods.

As a final check I asked him to say which sound was heard at the beginning of sets of 5 words beginning with a,j,t,o,s; he was correct on 10/15.

Word Reading:

As his parents noted, he is not yet able to read any words reliably, using the YARC Early Word Recognition test.

Reading Comprehension:

I did not try to do any reading comprehension; he does not have enough word reading to make this a meaningful activity yet.

Writing:

He later copied all the letters correctly for me into a grid. He seemed to be mainly reliable at names as we wrote, and there were no reversals on this occasion.

He also had to check pairs of triples of letters to find the match (eg "si: ss is li si, ves: sev ves sve vse") as quickly as he could. He managed 12/15 in 150 seconds, which is fair at this age and stage. This activity adds to my suggestion that visual processing of letters is not a concern.

NUMERACY

I used only the BAS-III Early Number Concepts test with him; he was able to respond well to most number questions; where questions involved more words, he had some difficulties sorting out what was required. His score was at the 30th percentile. I would not expect him to have any major difficulties with number, apart from understanding verbal instructions.

SUMMARY AND CONCLUSIONS

This assessment was intended to clarify Mohamad Alem's language and literacy strengths and difficulties at the pre-school stage. His family uses English and Malay. Mohamad Alem's language development was delayed; he does not use full sentences and his speech sounds do not appear very clear in conversation. He has struggled to make a start with reading; he knows some letters names but does not yet use their sounds. He sometimes seems to feel upset that he is "failing" in school now. His family have consulted a Speech Therapist in Brunei who advised seeking further assessment for possible dyslexia in Singapore.

The assessment took place over two mornings with breaks in my office. Mohamad Alem was cooperative and showed good concentration throughout. He is generally careful to look over pictures and thoughtful when asked questions, but can sometimes go a little too fast.

On a set of cognitive ability tests designed to look at background abilities his overall score was average. Visual-spatial ability was good average and non-verbal reasoning was well above average – in other words he can solve problems not involving words very well. On verbal tests, he is below average. Further detailed assessment of his current language skills confirms that his language development is delayed. His receptive language (understanding) is stronger than expressive. He is not yet reliable at many prepositions of place, for example, nor on sequence

words (before, after, next, then etc); verb endings ("s", "ed" etc) are a weakness. He will benefit from Speech & Language Therapy help, with guidance to all concerned on how to support and encourage his speech and language in everyday situations.

At this stage his working memory capacity is not yet clear but it is likely to be an area for help and attention. His processing speed seems to be satisfactory. I found he can manipulate words at the syllable level satisfactorily but not at the phoneme level. However, if close attention is paid to single word production, he says most phonemes accurately. In normal connected speech, sounds tend to become fuzzy and he is not always easy to understand. He will need to practice speaking slowly in teaching sessions so that he can improve his clarity in everyday speech.

His visual-motor integration is satisfactory and he does not seem to have any difficulty seeing differences between shapes; but his fine-motor control is limited at this stage so as his writing develops some extra care will need to be taken to help write regularly and consistently.

His letter-sound knowledge is developing but he does not yet have reliable names for all the letters; he can copy all the letters accurately, and can match pairs or triples of letters reliably. So the visual side of reading does not seem to be a concern. He does not yet make reliable sound associations with letters. I understand he has been using Letterland-type pictures (eg S for Snake) and he can remember them. Activities to try to learn letter-sound associations suggest this will continue to be a difficult area for him for some while.

He has not yet begun to read. He is making satisfactory progress in learning numbers and early operations; he is likely to have some difficulty with verbal instructions and concepts around maths; manipulatives and visual supports (especially number lines) will be very helpful for a while.

In conclusion, Mohamad Alem is a boy of satisfactory average general ability, with strong non-verbal reasoning. His speech and language development is delayed, with greater difficulty with expressive language than receptive at present. His speech sounds in connected speech and not very clear. But he can make much clearer sounds on isolated words. His pencil control is a little weaker than expected at present although he can make satisfactory images when drawing. He is learning letters but finds letter-sound associations difficult. At least 50% of children with speech and language delay experience difficulty learning to read and spell in the first few years of schooling. There are clear indications that Mohamad Alem has such difficulties in spite of adequate teaching. He should therefore be seen as having dyslexic difficulties, and will need regular teaching help and support for some years.

RECOMMENDATIONS

Exam Accommodations

1. If he has to take formal school exams in the next 3 years, he will need a reader and extra time to support his understanding in all subjects where reading is not directly tested.
2. It will be advisable not to take tests or exams in a second language; Mohamad Alem needs to concentrate on improving his English.

Learning at School:

1. Mohamad Alem will need his teachers to be aware of his strengths and difficulties, and especially to be aware that he is an intelligent boy whose speech and language delay is affecting the development of literacy.
2. He is likely to make satisfactory progress with appropriate teaching and support but he needs his teachers not to make him feel a failure because of his slower than average literacy development.
3. He needs a teaching programme which will enable him to further develop his letter and sound knowledge for reading and writing; at this stage, he may make faster progress if letter names and picture associations (eg "s is for snake" etc) are used rather than trying to use sounds; he needs to become much more reliable at associating sounds with letters before they can be used to help him learn words.
4. His teachers also need to be aware that his expressive language needs to be encouraged and supported, in liaison with specific language teaching. Some aspects of understanding also need supporting.
5. As far as possible, visual and concrete supports will help to make meanings clear to him and help him respond to instructions and questions. This applies to especially maths and science activities.

Additional teaching/tuition

1. Mohamad Alem needs direct help to develop his speech and language skills, ideally from a trained Speech & language Therapist. Ideally the therapist will provide guidance to his parents and teachers on how to best to support his language development day by day.
2. Games with words and sounds he can play, songs and nursery rhymes will all be extremely helpful at home and in kindergarten.
3. He will continue to benefit from listening to stories, and from any follow-up work from the stories (pictures, arranging pictures into sequences, answering questions etc).
4. He will also benefit from a regular teaching programme to develop his reading and writing skills, using structured multi-sensory methods. This programme will need to include liaison with his Speech & Language Therapist.
5. Letters, sounds and words all need lots of illustration in pictures small and big, which can be displayed at home in his bedroom or work area.
6. I suggest it may be worth letting his speech sound development progress through therapy before relying on the use of letter-sounds for reading. I suggest that continuing use of meaningful pictures for each letter (eg Letterland) and letter names (eg "Ay" for "a", "Bee" for "b", "See" for "c" etc rather than "ah, buh, k" etc) and explain word spellings using letter names (eg "Ay, En, Dee" and "and") will be more productive in his case. I do NOT think it is advisable to wait to develop word learning until sounds can be reliably associated with letters; this may take a while and he needs to start to learn words now. When he can reliably produce sounds and can associate them with letters, it should be possible to return to phonics.
7. His progress will need regular review, ideally including both speech and language and reading and writing, at least every 2 years.

Self-concept and meta-cognitive skills:

1. It will be important to maintain Mohamad Alem's self-confidence as a learner. At this stage, it is quite difficult to give him explanations he can understand. Mainly he needs teachers and parents to show him they know he is clever and that with help he will be fine; probably the best way to do this is to keep example of his work which are valued,

to make and show him progress charts (eg words he can say clearly, words he can read, and later write); he needs to know that understanding and saying words clearly may be difficult but he can and will get better at it; he needs help to organize this learning so that he can receive more systematic practice and review.



Dr Tim Bunn

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Appendix: BAS III (Early Years)
British Ability Scales, 3rd Edition (2011, Colin Elliott)

BAS-III consists of a set of 'core' subtests used to estimate overall cognitive ability (called General Conceptual Ability in DAS) and 'diagnostic' subtests, which can be used to assess other important cognitive abilities, especially memory and speed of processing.

The three core scales and the tests which constitute them are

Verbal Ability

Verbal Comprehension: using picture and toys, the child is asked to respond with actions to a widening range of instructions;

Naming Vocabulary: the child is asked to name a series of pictures, from very basic to less common ones.

Nonverbal Reasoning Ability

Matrices: the child has to say which of several alternatives best completes a matrix of pictures or shapes to make a consistent pattern;

Picture Similarities: the child places picture cards next to one of 4 choices to show which the one in hand is most like; the likenesses become more abstract and conceptual as the series progresses;

Spatial Ability

Copying: the child has to copy a series of shapes, from very basic to more complicated.

Pattern Construction: the child has to copy a pattern presented by the psychologist using blocks, tiles or later coloured bricks with different faces; later the child may be asked to copy the same patterns from a card;

	T-score (average 50) or standard score (average 100)	Confidence Interval at 95% confidence level	Percentile	Evaluation
Verbal Ability	75	68-87	5 th	Below average
Verbal Comprehension	T = 32		4 th	
Naming Vocabulary	T = 39		14 th	
Nonverbal Reasoning Ability	122	106-129	93 rd	Above average
Matrices	T = 66		95 th	
Picture Similarities	T = 59		82 nd	
Spatial Ability	111	96-111	61 st	Good average
Copying	T = 49		46 th	
Pattern Construction	T = 64		92 nd	
Special Nonverbal Composite	121	110-128	92 nd	Above average
General Conceptual Ability	104	96-111	61 st	Average

The tests from nonverbal reasoning and spatial abilities can also be aggregated into a single group, the Special Nonverbal Composite.

The diagnostic subtests are:

- Recall of Objects - Immediate: the child is shown a card with 20 objects pictured on it, and has to recall as many as possible after each of three looks;
- Recall of Objects - Delayed: the child is asked to recall the pictures seen a short while before;
- Early Number Concepts: the child has to demonstrate understanding of concepts of quantity, order, place and recognition of digits to 60;
- Recall of Digits Forward: the child has to recall a sequence of numbers just as they were given;
- Matching letter-like forms: the child has to identify which letter-like shape is identical one of an array of similar shapes;
- Speed of Information Processing: the child has to find the biggest number in each line of numbers on a page as quickly as possible;
- Recognition of Pictures: the child has to recall which pictures or pictures they saw immediately before being shown a page of more pictures;
- Recall of Digits Backwards: the child is told a sequence of numbers and has to recall them in the reverse order to that given (eg 613 -> 316)

	T-score (average 50) or standard score (average 100)	Confidence Interval at 95% confidence level	Percentile	Evaluation
Recall of Objects - Immediate	-			
Recall of Objects - Delayed	-			
Early Number Concepts	T = 45		31 st	Low average
Recall of Digits Forward	T = 51		54 th	Average
Matching Letter-like forms	-			
Speed of Information Processing	T = 52		58 th	Average
Recognition of Pictures	-			
Recall of Digits Backward	T = 37		10 th	Below average

- Ability Scores are "standard scores" with mean 100. The majority of children (50%) score between 90 and 109 ("the average range").
- Scores on each separate test are T-scores, with mean 50, and average range between 43 and 56.
- Scores on any psychological test can vary a little because of chance factors (how the child is feeling on that day, the weather etc). The 95% interval is a way of saying that the chance that the "true score" falls inside this interval is 95 out of 100.
- Percentile rank shows the percentage of children who would score lower than this (ie a 5th percentile score means only 5 in every 100 children would score lower than this).
- Descriptive categories are conventional descriptions comparing the child's abilities with other children of the same age.

The Comprehensive Test of Phonological Processing, 2nd edition (CTOPP2, Torgesen, Wagner & Rashotte, 2012, Pro-Ed, US)

CTOPP2 is set of tests for three key abilities in handling the sounds which make up words, phonemes. Recent research has reached a very strong consensus that these abilities are the most important in learning to read. The three abilities are phonological awareness (the ability to hear the separate sounds which make up words, eg /k/, /a/ and /t/ make up the word "cat"), phonological memory (the ability to hold this sort of information in short-term memory) and rapid naming (the ability to retrieve information about sounds and letters quickly from longer-term memory).

This is an American test, and a CD can be used. It provides a shorter set of 7 core tests and a further 2 supplementary tests used to clarify difficulties or borderline results in the core series

Elision: The child is asked to say only part of a word given (eg "say "doughnut" without saying "dough"), with most items involving only single sounds (eg say "cup" without the "k").

Blending Words: The child is first asked to put syllables said separately together (eg "ham - er"; what word do these sounds make?) and then sounds (eg "m - a - d", what word do these sounds make?).

Phoneme Isolation: the child has to say what sound is in initial, final, middle or later all possible positions within words.

Memory for Digits: the child has to repeat a sequence of numbers said quite quickly and not written down; the sequences become longer. This test is almost identical to WISC Digit Span.

Rapid Digit Naming: the child has to say the numbers in an array of 36 single digits as quickly as possible;

Non-word Repetition: the child has to repeat made up words exactly as they are spoken (eg say "ral"; say "contablinding"); the words get longer.

Rapid Letter Naming: the child has to give the letter names of an array of 36 letters as quickly as possible, in the same way as for digits above.

Composite or subtest	Standard score or scale score	Percentile	Description
Phonological Awareness	86	18th	Low/below average
Elision	8	25 th	Low average
Blending Words	7	16 th	Below average
Phoneme Isolation	8	25 th	Low average
Phonological Memory	104	61st	Average
Memory for Digits	9	37 th	Average
Non-word repetition	12	75 th	Good average
Rapid naming	-		
Rapid Digit Naming	10	50th	Average
Rapid Letter Naming	-		

Appendix Beery-Buktenica Developmental Test of Visual-Motor Integration (6th edition, Beery & Beery, 2010)

The Beery VMI is a very well established test of **visual-motor integration**, which was restandardized in 2010. Visual-motor integration means coordination between visual-perceptual and fine-motor coordination abilities.

Children from as young as 2 through to adults are asked to copy a series of progressively more complex shapes. Scoring criteria establish their competence. Two further tests can be used to check for difficulties of visual perceptual origin, and for difficulties which are mainly of motor coordination.

Visual Perception involves the child checking which of several options matches the target shape, and **Motor Coordination** involves drawing each shape within tracks so that the complete shape is drawn and tracks are not crossed.

	Standard score	Percentile	Evaluation
Visual-motor integration	119	90 th	Above average
Visual perception	115	84 th	Above average
Motor coordination	92	30 th	Low average

Clinical Evaluation of Language Fundamentals, Pre-School 2nd Edition UK (CELF PreSchool2, UK, 2006)

The CELF Pre-School is an early years version of the wide probably the most comprehensive and widely used language assessment battery available in English for children and young people, CELF4. It can provide clear evidence on whether a child has a language delay or disorder.

Core Tests at the Pre-School Stage:

- Sentence Structure: children 5-8 are shown pictures of 4 similar scenes and have to say which one best shows the given sentence (eg from a scene of a girl sitting near a dining table - "the girl is not hungry today").
- Word Structure: children 5-8 are asked to complete sentences with picture cues following a given pattern, (eg "here is a boy and here", and the child has to say "is a girl.")
- Expressive Vocabulary: children 5-9 are shown pictures and asked to say what the name of something in the picture is, starting with simple objects but moving onto more complex ones.
- Recalling Sentences: the child listens to a sentence and has to repeat it immediately just as they heard it; the sentences become longer with age.
- Concepts and Following Directions: children 5-12 are asked to point to pictures in many different ways and in different sequences (eg "point to the red shoe.")
- Word Classes (Receptive): children below 8 are shown 3 or 4 pictures and are asked which 2 go together; (eg "puppy, dog, frog"; the dog and puppy go together best because they are both dogs.) Older children only hear the words.
- Word Classes (Expressive): after each set of words in Word Classes Receptive, they are asked how the chosen words go together. The children have to provide a common quality (eg they are both dogs).
- Basic Concepts: using pictures with 3 or 4 choices, children have to point to the one that best portrays the spoken concept (eg a dog on top of a kennel, a dog inside a kennel, a dog outside a kennel - "Point to the one that is inside.")

Subtests	Core language	Receptive Language	Expressive Language	Language Content	Language Structure
Concepts & Directions	9	9			9
Word Structure	3		3		3
Expressive Vocabulary	5		5	5	
Recalling Sentences			4		4
Basic Concepts		6		6	
Word Classes Receptive		14			
Word Classes Total				12	
Standard Score	75	91	65	79	73
Confidence Interval 95%	67-83	83-99	58-72	72-86	65-81
Percentile Rank	5 th	27 th	1 st	8 th	4 th
Evaluation	Below average	Low average	Well below average	Below average	Below average

APPENDIX 2 : ANONOMIZED SAMPLE REPORT : JOHN ADAMS



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLIXIC PEOPLE ACHIEVE

PATRON: MRS GOH CHOK TONG

Assessment Service

Confidential Educational Psychology Report on John Adams

B.C. Number :
Date of Birth : 24.08.2002
School : British School, Malaysia
Educational Level : Year 7
Names of Parents :
Address :

Tel. Number :

ASSESSMENT INFORMATION

Dates of Sessions : May 2015
Chronological Age : 12 years 7 months
Psychologist : Dr Tim Bunn
Date of Report : May 2015

EXECUTIVE SUMMARY

- *This update assessment was intended to evaluate John's current progress and especially to consider his mathematical learning needs;*
- *He suffered a severe perinatal birth trauma; early language was delayed and balance, coordination and social communication were somewhat concerning. His first assessment at 9½ showed an uneven profile with slow symbol processing. John was diagnosed as ADHD, but no medical action has been taken.*
- *The current assessment shows greater difficulty with literacy, especially with comprehension, fluency and composition. John may have a Reading Comprehension Impairment and will benefit from literacy tuition.*
- *His maths difficulties are greatest in calculation fluency; dyscalculic features are indicated. Continuing remedial support and exam accommodations are required.*

REASON FOR REFERRAL

His parents have some general concerns about John's learning and social development, but their main concern is his progress in maths. His learning support teachers also want advice on his maths learning, with some more general concerns about processing speed, applying what has been learned in written assignments and how best to support his learning.

BACKGROUND INFORMATION

I am very grateful to his parents and teachers for very useful and detailed information on his learning. John was assessed 3 years ago at Singapore Psychology Practice and the report from that assessment provides a very useful reference point.

John was born by emergency Caesarian and required resuscitation to start him breathing. He stayed in intensive care for 10 days. He was later discovered to have a G6PD enzyme deficiency, but I understand there have been no symptoms, and he has not required regular medication. His general health is satisfactory. He seems a little clumsy at times, with slightly immature balance and coordination, but he is now developing as a tennis player. He is the older of two brothers; the family's home language is English.

He is a slightly long-sighted and uses reading glasses at times. Otherwise eye-specialists have confirmed his eyesight is normal.

He was a little slow to start speaking and saw a speech therapist at 5-6 years. His vocabulary may be a little limited, his parents feel, but he has recently shown talent and enthusiasm for acting.

John's younger brother is both academically and socially talented and this can be hard for him. His parents find he doesn't make friends easily, perhaps because they find he is easily distracted. At school his teachers find he is a little slow to make friends, but he does have a small circle of friends.

His attention span appears short, especially in group situations, and he sometimes goes off and plays on his own when friends have come round. He does not always seem to be fully aware of others' feelings, and he seems to have difficulty with longer instructions. He has a good sense of humour and can adapt to change. He seems well organized and likes to reason things out for himself.

He can read satisfactorily but not under time pressure. He prefers to watch TV or videos than to read. He can learn speeches very well for plays. Handwriting varies; it can be untidy but can also be neater. He sometimes wrote maths symbols backwards, and has been slow to learn maths facts and symbols. He is willing to practice maths everyday at home. He feels under pressure at school because he is quite a slow worker, and he sometimes says he is stupid. He probably compares himself unfavourably to his younger brother. But he works very hard and has achieved good school grades recently. Poor maths test results are upsetting to him, especially because he puts in a lot of time to practice maths.

John likes making models (he was entered for a national competition in the UK) and he likes music, singing and dance. He enjoys building things and science generally.

His form teacher explained that he has good subject knowledge but is slow to produce answers. He can read aloud well. Handwriting is improving but remains a concern. He always makes a very good effort and always listens. He is a little slow to make new friends but he gets there, she says. He is taking part successfully in a school play again this year.

His learning support teacher explains that he has 3 weekly sessions to help him in maths, but results are disappointing. He is very hardworking but is slow to work things out. He makes mistakes in computations and seems to have difficulty remembering procedures and rules. She is also more generally concerned about slow processing and his working memory. He has difficulty applying what he has learned in written assignments.

Previous assessment at age 9½

John was attending Junior College in England at 9½; he was assessed by AB at Singapore Psychology Practice during a visit to Singapore.

She found him friendly and cheerful but as the assessment progressed he became restless at times, and he needed short breaks to maintain satisfactory attention. She found that his non-verbal reasoning was a clear strength, with average verbal reasoning. Working memory was slightly below average but processing speed was a clear weakness.

Academic skills were mainly satisfactory. Reading comprehension was not quite as strong as word reading, and essay composition was also a little weak - it was disorganized with some words missing. He scored at average levels on two maths tests; the psychologist noted that he seemed to benefit especially from visual aids for solving problems.

His attention skills were investigated in depth, using questionnaires and tests, and concluded that he did have ADHD (mainly inattentive type). His visual processing skills were also investigated using the TVPS3; his overall score was 90 (low average) with a range of scores in different areas; weaknesses in visual memory, form constancy and figure-ground were noted and there was felt to be a possibility that this might affect reading text - he might lose his place a little easily. Recommendations for further assessment with an Occupational Therapist (OT), Behavioural Optometrist were made. I understand John's parents did have his eyesight investigated but he has not been assessed by an optometrist or an OT. He has had 1:1 help at school. He has not had any medication for ADHD.

BEHAVIOURAL OBSERVATIONS AND ATTITUDES

John worked with me at my office for most of one day, with 2 or 3 breaks. It was clear he is a hard working boy who is willing to keep going even when he is tired.

He became a little restless at times, but I did not feel his performance was seriously affected. He also yawned at times - the most likely reason was tiredness but it seemed possible that he may yawn more when he is finding tasks difficult.

I asked several times which activities he had found hardest and easiest. Generally he said there were none that stood out as hardest or easiest. They were similar in difficulty.

Towards the end of the session he did a short questionnaire for me about his attitudes to different aspects of learning at school. The questionnaire does not have norms, but scores for each section can be compared to weigh up preferences:

	Score	Evaluation
Feelings about school	13/16	John is quite positive about his school
Maths	10/16	This is the least preferred topic but his attitude to maths was not extreme.
Reading & Writing	12/16	Positive about both reading and writing
My effort and ability	11/16	He does find some work hard and feels he isn't doing very well
Oral work	7/8	Very positive
Inclusion	4/8	He surprised me, after the first section, in not responding so positively to questions about belonging and feeling different at school.

COGNITIVE ASSESSMENT

Tests used:

1. Wechsler Intelligence Scale for Children, 5th edition (WISC-V, 2014, Pearson Assessment, US)
2. Wechsler Individual Achievement Test 3rd Edition (Pearson Education, 2010, US, WIAT3)
3. Conners 3rd Edition (Conner3 rating scales, C. Keith Conners 2008, Multi-Health Systems, US/Canada)
4. Southampton Emotional Literacy Scales (SELS, Faupel 2003, UK)
5. Informal maths assessment materials;
6. Learning at My School (informal questionnaire about schooling)

All educational and psychological test results can vary to some extent, with mood and general health. Norms also vary a little between different countries, so what seems average in one country may seem a little better or worse in another. The tests used with John were normed in the US and UK; they probably provide the best curriculum match available. I expect the results of the assessment to be reliable, within the normal limits of psychological assessment.

The results are given in detail in the appendix. The main findings were:

General Cognitive Ability:

I used the latest version of the WISC test with John. On his last assessment the then current test, WISC-IV was used. Most tests and index scores are comparable across tests but not all, so some evaluation of progress is possible.

His overall ability score at 9½ was 99, and now it is 104. The difference is too small to imply a real change but it is encouraging. The current score means we should expect John to learn at an average rate. In his previous assessment, there was a wide variation between his strengths (non-verbal reasoning) and his weaker areas (processing speed) - 32 points; in this assessment, the range is not as great - 26 - but the wide range means we should expect him to be stronger at some subjects and less good at others.

Verbal Ability:

John scored overall at an average level in verbal reasoning (overall score 100, average). He was able to explain why two words or concepts were alike well (Similarities). I was struck by his willingness and enthusiasm to talk - he seemed to be unusually willing to say whatever came to mind and then to work from his first ideas towards an answer. For example, for "demand/request" he said, "My first explanation is I demand you do something, you are asking without any please; A request is when you ask - you are still asking them to do something." In Vocabulary, he continued to volunteer lots of ideas; when he knew words he was able to give satisfactory explanations but his range was a little limited. He was more clearly limited on Information, a test of factual general knowledge. His score (6) was below average. I was surprised that science questions were not well answered, although I understand this is a subject he enjoys and does well in at school.

Visual-Spatial Ability:

Overall he scored at an average level here (score 94). He achieved an average score on Visual Puzzles, where he had to say which 3 of 6 shapes could form a given shape. He was not quite as strong on Block Design (score 8, low average). to some extent this was a matter of working more slowly on the harder puzzles; he was out of time on the hardest items. On both puzzles he worked very steadily and systematically.

Fluid Reasoning:

Fluid reasoning involves solving novel problems. On both Matrix Reasoning and Figure Weights, he had to work out rules without them being explained. He did particularly well on Matrix Reasoning, achieving a well above average score. On Figure Weights (which is really about quantitative reasoning) he was average. So overall his fluid reasoning score was 115 (above average). He was strong on Matrix Reasoning on his previous assessment, too.

Working Memory

His overall score for working memory was 110, a good average level. He did very well on Digit Span. He had to remember sequences of numbers while thinking how to reorder them accordingly (either backwards or in size order). I had the impression that he had to make quite an effort here but he was successful, perhaps more so on more difficult tasks. He was also able to remember sequences of pictures shown briefly (Picture Span).

His score here is substantially higher than on the same scale 3 years ago. The component tests have both changed, so this may not represent a straightforward developmental gain. However, it is encouraging that he is able to achieve a better overall score. Working memory is an important skill in school - students have to listen to information over quite long periods of time and think about it as they try and absorb it. John's previously identified Attention Deficit would suggest this might be a weakness; it is possible that he can, by making a conscious effort in the short term, partly overcome a difficulty but still have difficulties in the longer term, and when he is under a lot of pressure.

Quantitative Reasoning:

Figure Weights can be combined with Arithmetic (a mental arithmetic test with quite a strong working memory demand) to suggest a quantitative reasoning index. John scored 7 (below average) on Arithmetic, so his overall Quantitative Reasoning score was 91 (low average).

Processing Speed

This was his weakest area in the previous assessment and the tests have changed very little. So his score at age 12½ of 89 does probably represent an improvement over his previous score of 83. He is able to deal with print symbols a little more quickly. His score is now at a low average level.

LITERACY

I used the WIAT3 tests with John because they are up to date and give a comprehensive picture of reading, writing and maths skills. Some of the US norms may not apply very well but comparisons across different skills in the same child are less affected by cultural differences. WIAT3 was used in his previous assessment, too, so developmental changes can be evaluated.

Word Reading:

John had to read 75 single words without any time pressure. He read most common and many less common words well. Some infrequently seen words (eg "radiant, choir, idealism, hymn, inflection") were misread, and most longer, low frequency words were also not read correctly, with some notable exceptions (eg "sarcasm, plethora, elude" all correct). His score was 92, at a low average level. This represents a slight drop from his previous score (101).

The most common reason for difficulty with word reading is difficulty using letters-sound relationships to decode unfamiliar words. But as before, John was quite strong on non-word reading (score now 101, previously 100). So his letter-sound knowledge has progressed but application on actual word reading is not so strong.

Oral Reading Fluency:

John also had to read passages aloud. He read two passages at US grade 6 level. His accuracy was fair (score 94, 6 errors on 420 words, so 98.5% accurate) but he was rather slow. His rate score was 84 (a little below average). His actual reading speed was 88 wpm, a little slower than usual for his age. It seems likely that when he is reading text aloud (which he does with good expression), he is having to slow to think about harder words; mainly the context helps him overcome some difficulty with word recognition, but the extra effort required can be seen in the need to work a little slowly. (This test was not used at 9½).

As a further check on this important area, I used the TOWRE2 tests. Here he had to read lists of word at speed, both words and non-words. He scored 92 on real words (low average) and 98 on non-words (average). The same pattern of greater success on non-words appeared. He does have some difficulty with speed of word recognition (fluency), it seems.

Reading Comprehension:

John also had to read passages silently and then answer questions on them. His silent reading speed was also slow (on average 64 wpm). He seemed to find some questions hard on all 3 passages. His score was 90 (low average) compared with 95 previously. I had the impression that misunderstanding the questions was at least partly the problem, rather than not decoding the text accurately. He several times seemed to answer a different question to the one asked (eg on a passage giving a Native American creation story to explain how California was created, he was asked why the "turtle brothers" tried to move away from each other, but answered that the weight of the land on the backs meant they couldn't move; when I asked why

they couldn't move (the weight on their backs) he said the ground quivers when they move. He gave correct facts but did not connect the facts with the reasons for them well.

John is able to answer many comprehension questions but he may need to work on techniques for spotting question types and then checking that the answer he has come up with is the best possible one.

Word Spelling:

John's single word spelling has also declined a little, with his score now 89 (low average) compared with 97 previously. He wrote some common two and three syllable words correctly (eg "stationary, collection, photography") but other similar words (eg "phactual, risine, confined") were not correct and some common words were also incorrect (eg "with" for "width", "dout" for "doubt").

He also had to write an essay (see below) and his spelling in continuous writing was not accurate. He made 6 spelling errors in 71 words, giving an accuracy of 91.5%, lower than usual at this age.

Sentence Composition:

John was more successful at sentence composition. He was particularly strong at combining sentences to make a single sentence with the same meaning. His score for combining was 119; he was less good at sentence building (making up sentences from a target word) scoring 90; punctuation was satisfactory but there were some spelling errors and one sentence confused "oi" and "off", a surprising confusion at this stage. It seems John can form English sentences using conjunctions, phrases and clauses to form more complex sentences, but there are some confusions and slips.

Essay Composition:

He had to write an essay on his favourite game with three reasons for his choice. He wrote about tennis. His overall score was 89, again a drop from his previous score of 94.

He used quite long and complex sentences, but they were perhaps a little too complex - his wording seemed awkward at times. His handwriting was mostly legible but is not very regular; some letters were a little hard to decipher (eg final "s").

He did not write a great deal, so his word count score was 93 (low average, 71 words). His mechanics score was 90 (mostly because of misspellings) and his organization score was 85 (below average) because it was difficult to see which bits were description of the game and which reasons and explanation of reasons. I had the impression that writing an essay like this was not a very familiar task for him. He perhaps had to think hard about tennis to explain why it was his favourite but he did not seem to have experience of appropriate ways to structure such a piece into which the ideas could slot. He needs both to develop his knowledge of common writing forms and to further develop sentence construction and spelling skills.

Literacy Conclusions:

John now has some difficulties with aspects of literacy. Word reading and spelling are both a little below expected levels, and these word level difficulties have some impact on his handling of text. However, he also has some difficulties with comprehension as such, and his knowledge of genres in extended writing probably needs to be developed.

If we compare overall composite scores, reading comprehension and fluency (text level) is significantly lower than basic reading (word level) (14 points, fewer than 15% of children would have a larger difference).

NUMERACY

John's quantitative reasoning was fair (91, low average) and some aspects of non-verbal reasoning were good (strong on Matrix Reasoning). Working memory on this assessment was a strength, and verbal reasoning was satisfactory. So background abilities which can affect maths learning did not seem to raise any major concerns. I used the WIAT3 maths tests to investigate his skills in more detail, and I also used two informal tasks to look at written word problems.

Calculation Fluency:

On 3 separate tests of calculation speed and accuracy on WIAT3 his overall score was 75 (well below average). Subtraction was strongest and multiplication weakest but the range was not great (72-82). So it is likely that learning and recalling number facts is a significant difficulty for John, which is likely to affect his maths progress.

Calculation Efficiency:

On a set of mixed calculations where he was not allowed to use a calculator (Numerical Operations) he was also below average (score 83). He made slips on 2 of 3 subtractions with decomposition; some short divisions were done successfully but not all; long division and multiplication were not successful. He had forgotten how to do simple algebraic equations and did not simplify or multiply fractions correctly; he did add fractions with the same denominator correctly.

Problem Solving:

He did a set of problems which were presented on cards or in words, which are intended as far as possible to present problems in an uncomplicated way (no tricks). His score on Math Problem Solving was 83, also below average. I was surprised to see he misread an analogue clock ("three past eight" for quarter past eight); he also did not get a straightforward time duration question correct. Fractions seemed to be difficult, as were the angles in a triangle and working out an average of 4 test scores (he gave the total). He did do a difficult number sequence correctly.

I also wanted to see how he would manage on more complex word problems, so he did 10 at a level I felt he would be successful on some. He first did 10 calculations, and got 6/10 correct. The word problems were designed to use exactly the same maths processes but were presented in problem form (eg $60 - 17 = \underline{\quad}$, and then "My grandpa is 80 and my cousin is 17. What is the difference in their ages?" The numbers were chosen to allow easy shortcuts for children who have calculation efficiency difficulties.) He got 2/10 correct in word form, and the 2 correct were ones he got wrong in calculation form; eg $104 - 96$ (arranged vertically) = 04, he wrote, and "Manuel obtained 105 votes and Carlos obtained 98 votes. By how many votes did Manuel win the election?" John wrote 7, the correct answer.

He clearly has greater difficulty with word problems. I had the impression this was partly because he misunderstood what to do, but partly also because he made many calculation slips.

Conclusions about Numeracy:

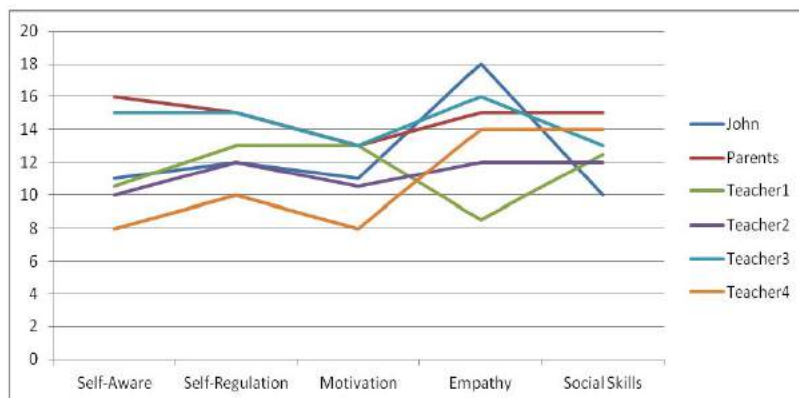
John overall score for maths (problem solving and calculation efficiency) on WIAT3 was 82. His calculation fluency was (already described) at 75. So I agree with his Learning Support teachers that he has great difficulty now with maths.

From the examples of work I have seen from school, and from school test results, it seems fractions is his weakest area (he struggled with fraction questions in this assessment) with algebra (he did not know how to approach the 3 questions I gave him) and shape and space were also quite weak. Number was better. Looking through examples, John's errors sometimes seem to stem from misunderstandings of concepts, but perhaps more often they result from calculation slips. The balance probably varies between topics. It seemed that the sampling I did of his maths skills probably reflected what he has done recently in school reasonably accurately.

I understand that he has continued to receive 3 individual sessions in maths per week, so his difficulty is not because of a lack of appropriate teaching. He has real difficulty with maths and will continue to need high levels of additional help.

Behaviour and Emotional Literacy:

I asked his teachers, parents and John himself to complete Southampton Emotional Literacy Questionnaires about John. The results can be seen in the graph:



The most striking aspect of this chart is the difference between raters. However, there is fair agreement that motivation is a weakness and social skills a strength. Self-regulation is also a strength. There is a divergence of views on self-awareness and empathy. Perhaps self-awareness may be an area to work on with him. I suspect that he can give a misleading impression as far as motivation is concerned: he may yawn and appear uninterested when in fact he is very unsure (especially in maths).

John himself sees himself quite like Teacher2 does, except for Empathy (awareness of others' feelings), which he feels is much higher. He feels his own social skills are not so good. Work on awareness may help.

I also asked parents to complete a Conners 3 form. Their responses suggest that at least at home attention difficulties are not now a major concern, and no other issues are suggested by their responses. I can add to this picture if his teachers are able to also complete a Conners form.

John himself responded very differently. He had some concerns about his attention and restlessness but these were not very strong concerns. He does feel himself to be quite aggressive and oppositional. He also expresses considerable anxiety and depressive (unhappy) feelings. I think these feelings need to be shared more, so that his parents (and perhaps his teachers) understand more of his feelings and he can obtain some reassurance about his behaviour and the effects he does and does not have on others.

SUMMARY AND CONCLUSIONS

This reassessment was intended to clarify John's strengths and difficulties at 12½ after 3 years at Marlborough College. There were concerns about his speed of working and applying learning in writing, as well as particular concerns about maths. It was helpful to look back to a similar assessment 3 years ago.

John suffered perinatal distress but recovered quite quickly. Language was a little delayed, and there were some signs of early coordination difficulties. His parents feel he sometimes has mild social communication difficulties. He can seem a little overshadowed by a bright and very social younger brother. Handwriting has always been uneven but it has improved. He has been slow to learn maths facts and symbols. He enjoys model making, music, singing, dancing and recently acting.

He has 3 sessions of additional 1:1 teaching for maths at school, but in spite of this his grades have been disappointing in maths. But grades in other subjects have been good.

His previous assessment found he was strong in non-verbal reasoning, with a slight weakness in working memory and a severe weakness in speed of symbol processing. Most academic skills in this assessment were satisfactory, but reading comprehension and composition were both a little weaker than word reading and spelling. The main focus of the assessment was attention. From testing and questionnaires it was concluded that John did have an attention deficit (ADHD, predominantly inattentive type). His parents have not sought medication for this difficulty.

John worked well for the current assessment, over a long day at my office. He showed he is a hard working boy very determined to do his best. Attitudes to aspects of schooling showed he likes his school and particularly enjoys oral work; he is not very happy with his maths and feels somewhat dissatisfied with his school work; he does not feel well included.

Cognitive testing showed some encouraging changes; he is stronger in working memory and not so weak in processing speed. Reasoning about novel problems is good. Verbally he is about average in his reasoning abilities and is quite a willing and enthusiastic speaker. It is possible that the good result on short tests of working memory is a result of his effort and determination but that in most longer-term learning situations he does have difficulties retaining information accurately.

John's reading is fair but the current assessment shows some problems have emerged. He reads slowly (both aloud and silently) and this is probably because he has to make some extra effort to work out harder and less common words. He does not have a special decoding difficulty (as most dyslexic students do) but comprehension (on which there is greater demand with age) seems to be becoming relatively harder for him. This is partly perhaps because he has to focus more on word recognition but there are signs of significant difficulties with understanding.

I also asked parents to complete a Conners 3 form. Their responses suggest that at least at home attention difficulties are not now a major concern, and no other issues are suggested by their responses. I can add to this picture if his teachers are able to also complete a Conners form.

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Recent research suggests that young people with early language delay can from age around 10 begin to experience difficulties with comprehension that affect their educational progress (see Snowling and Hulme, "Developmental Disorders of Language Learning and Cognition", Wiley 2009).

Writing is also an area of concern. Spelling development has slowed, and there are signs that he struggles to understand how to organize ideas into appropriate forms as more genres are required. He can write in grammatical sentences but sometimes he expresses himself awkwardly. Handwriting is a little slow and can present some problems for the reader, in spite of good efforts by John to produce clearer script.

These results are best understood as a Reading Comprehension Impairment. The problem is not severe but needs to be addressed.

John's maths is a much greater weakness. His calculation fluency is very weak (learning and recalling of maths facts is difficult and slow) and calculation efficiency is also seriously impaired; he makes many slips in operations. Unfortunately he struggles with understanding (in spite of only a moderate weakness in maths reasoning) of maths concepts; this assessment confirms what his teachers have seen, that a lot of new learning in geometry, algebra and fractions is harder than usual for him. In my opinion, his difficulties are severe enough to be described as showing signs of dyscalculia.

RECOMMENDATIONS

Exam Accommodations

1. John will requires additional time in all examinations (25%), and 50% in those with significant maths content.
2. He will need to use a calculator at all times in maths exams.
3. Although in practice he may not need it, exam invigilators need to monitor John's concentration and prompt him to continue if he does not seem to be producing new work after 5 minutes.

Learning at School:

1. John's teachers will benefit from reading this report and discussing the implications for teaching and learning. I understand his teachers are mainly very positive about his work, but it will be helpful if successful ways of helping him can be shared.
2. John has been identified previously as having an attention deficit. In practice, John is a young man who strives hard to overcome any difficulties, so he may not be showing signs of loss of concentration in lessons. However, his teachers need to ensure that they can monitor his concentration in lessons him not too far away, so they can overlook his work and speak with discretely if necessary. In some subjects he is likely to need more time to complete work than average.
3. John can read aloud with good expression but he reads a little slowly and can make mistakes; if he is asked to read aloud in class, I suggest that he has a little time to practice and an opportunity to check any harder words in advance.

4. His reading comprehension is a weakness now and his teachers in all subjects may need to ensure that as much support as possible can be given. John may need to check some vocabulary and may not have quite as much background knowledge as expected. His teachers may need to check he knows what kind of answer to look for from a given type of question; if he works with a partner, the teachers need to be sure he is able to contribute with his ideas and by asking relevant questions.
5. Written expression is also an area for development. John needs to understand what kind of structures to work within, and then to develop ideas (perhaps in note form, possibly with a visual organizer, eg Inspiration (but see Wiki Mindmapping - there is a lot of free mindmapping software). His teachers may need to ensure he knows what kind of writing he has to do, and if he is unsure provide a little more "scaffolding" than usual.
6. He will benefit from training to use a keyboard for writing with the ultimate aim of using a computer for most writing including exams; this will help with both handwriting and spelling problems.
7. His recent grades have been good. His teachers have clearly found he is able to achieve satisfactorily. It will be important to monitor his overall performance and ensure that he maintains a satisfactory standard. John may need his teachers to discretely remind him of his successes. In general, he will benefit from being given specific positive feedback about what can be improved in each subject and topic, so that he knows how best to focus his efforts.

Additional teaching/tuition

1. John is receiving additional learning support by withdrawal for maths in school. From his teacher's notes, it seems to me that appropriate help and support is being given, including free use of a calculator to support his difficulty with calculation fluency, and the provision of clear high quality written notes as reminders and aids. He does not seem to have a major cognitive weakness, other than a specific calculation difficulty. For example, visual-spatial reasoning, which is often associated with maths learning difficulties, does not seem to be a major weakness, and he is good at novel matrix reasoning problems. Unfortunately at this stage there is a lot of new maths to take in and it all builds on previous learning - maths is a very progressive subject, with new concepts building on previously learned one.
1. John seems to be easily confused about the meanings of maths symbols and operations, so he needs very strong concrete-representational "anchors" to help him. He needs to learn to use the notes well, so he needs to file it very carefully and to refer to it frequently; I suggest it may be worth trying allowing him access to provided notes in tests and exams (because of his dyscalculia). He also in the longer term needs to be encouraged to put his maths thinking into words; this is probably an area of strength for him, so he needs to find ways to talk with his teacher (and thus with himself) about what the questions mean and what steps he can take to respond well to them. He will be responding to questions like, what sort of problem is this? what have we done before that is like this? where are the notes which can help? what rules can we apply? etc
2. John also needs to develop his reading comprehension and composition skills, and will benefit from some specific tuition following a structured comprehension programme which can provide systematic ways to deal with comprehension questions. I don't have a current "best buy" but there are many helpful comprehension skills courses available. Comprehension can also be linked effectively to composition, especially as far as

paraphrase and summary is concerned. John can develop better ways of structuring his writing if he has studied and found ways to systematically unpick the meanings of authors in comprehension work. Ideally also the techniques taught need to be fed back to his subject teachers so they can remind him to use them when he has routine comprehension work across the curriculum (in science, humanities etc).

Self-concept and meta-cognitive skills:

1. John's birth trauma may be responsible for his later developmental difficulties; early language delay is the most common precursor to Reading Comprehension Impairment. It is also possible that the signs of slight dyspraxic difficulties (balance, coordination, handwriting, slight social communication difficulty) were a result of this early trauma. Learning at school nowadays involves a lot of pressure - the pace and competition are fierce. So any slight disadvantage can cause hardship. The reasons for his calculation fluency difficulty cannot be pin-pointed but may be linked to his attention difficulties. John is responding very well to the pressure but he will need ongoing support and encouragement. It will be important that he does not feel too much disappointment if he cannot keep up with his very successful sibling. It is very valuable that he has discovered a special talent for acting and drama to add to his already encouraging abilities with models and singing. In general, John needs to understand that he has an uneven profile of abilities and that he will probably be good at some things but will struggle with others. While at school, he has to tackle the difficult areas (eg maths) with as much support as possible but in later life he will be able to specialize in things he is good at, and may then be free to do very well in his strong areas.
2. He also needs to begin to share more of his feelings with significant adults. He perhaps feels unduly negative about aspects of himself. It may be helpful to consider involving a counselor, at some stage. This is an option John at least needs to be aware of, if he feels he needs someone outside school and family.



Dr Tim Bunn,
BA(Hons) Oxon, PGCE (Bristol), MSc (UCLondon), EdD (Warwick) CPsychol (BPS), AFBPS;
Consulting Educational Psychologist, Dyslexia Association of Singapore

Wechsler Intelligence Scale for Children, 5th edition (WISC-V)

WISC-V consists of 5 main "indices", Verbal Comprehension Index (VCI), Perceptual Reasoning Index (PRI), Working Memory Index (WMI) and Processing Speed Index (PSI). A Full Scale IQ score is based on the scores from 7 of the main tests that make up the 5 indices.*

Brief descriptions of the 5 indices and of the constituent tests are given below.

Verbal Comprehension Index (VCI)

VCI measures general verbal ability:

Similarities: the child has to explain how two words representing common objects or concepts are similar (eg In what way are red and blue alike?)

Vocabulary: the child has to name pictures (young children only) or give definitions of words (eg What is a chair?)

Visual-Spatial Index (PRI)

PSI measures the ability to reason visually and spatially:

Block Design: the child has to copy patterns from cards using red and white blocks, within a time limit.

Visual Puzzles: the child has to choose 3 shapes that combine to make one target design, without overlaps, within a time limit.

Fluid Reasoning Index

FRI measures the ability to reason about novel problems.

Matrix Reasoning: the child has to say which of several alternatives best completes a matrix of pictures or shapes

Figure Weight: the child has to say which of 5 choices shows the symbol or symbols that will balance a scale with different symbols on the other side.

Working Memory Index (WMI)

WMI measures the ability to hold information in short-term memory and is also associated with concentration and attention

Digit Span: in the first part the child has to repeat a series of numbers they have just heard; in the second they have to repeat the numbers in reverse order

Picture Span: the child remembers a picture or a sequence of pictures shown for a few seconds, then points to the picture(s) just seen on the next page in order.

Processing Speed Index (PSI)

PSI measures speed of handling simple visually presented information

Coding: the child uses a key to copy symbols within a time limit

Symbol Search: the child has to decide quickly whether one or two symbols are present in a small group of symbols

Some supplementary tests are available (italics) to add to the analysis of some indices(descriptions below):

Index/ Subtest	Standard & scale scores	95% Confidence	Percentile	Descriptive Category
Verbal Comprehension	100	94-106	50th	Average
Similarities*	11			
Vocabulary*	9			
(Information)	6			
(Comprehension)	-			
Visual Spatial	94	87-102	34th	(low) average
Block Design*	8			
Visual Puzzles	10			
Fluid Reasoning	115	107-121	84th	Above average
Matrix Reasoning*	15			
Figure Weights*	10			
(Picture Concepts)	-			
Working Memory	110	102-117	75th	Satisfactory average
Digit Span*	13			
Picture Span	10			
(Letter-Number Sequences)	-			
(Arithmetic)	7			
Processing Speed	89	81-99	23rd	Low average
Coding*	8			
Symbol Search	8			
(Cancellation)	-			
Full Scale IQ	104	98-109	61st	Average

* Contributes to Full Scale IQ

- Scores on the 5 indices are "standard scores" with mean 100. The majority of children (50%) score between 90 and 109 ("the average range").
- Scores for each test are "scale scores" whose mean is 10, and where scores from 8 to 12 are in the "average range".
- Scores on any psychological test can vary a little because of chance factors (how the child is feeling on that day, the weather etc). The 95% interval is a way of saying that the chance that the "true score" falls inside this interval is 95 out of 100.
- Percentile rank shows the percentage of children who would score lower than this (ie a 5th percentile score means only 5 in every 100 children would score lower than this).
- Descriptive categories are conventional descriptions comparing the child's abilities with other children of the same age.

Additional Tests:

- *Comprehension*: the child has to answer questions involving common-sense reasoning and knowledge of social situations (eg Why must children go to school?)
- *Information*: general knowledge questions (eg What is the capital of England?)
- *Picture Concepts*: the child has to choose one picture, from each of two or three rows, that have a common quality or feature (eg from pictures of a trumpet and a broad-leaf tree (row 1) and a fir-tree and a vase (row 2) point to the two trees)
- *Letter-Number Sequencing*: the child has to repeat numbers and letters they have just heard, putting them into order
- *Arithmetic*: solving arithmetic problems presented in pictures (young children only) and orally; the child cannot use paper and pencil (eg Luke has 20 cents; he buys a drink for 10 cents; how much does he have left?)
- *Cancellation*: the child has to mark one type of pictures from large arrays of pictures

Supplementary Indices:

Index/ Subtest	Standard & scale scores	95% Confidence	Percentile	Descriptive Category
Quantitative Reasoning	91	85-98	27th	Low average
Figure Weights	10			
Arithmetic	7			
General Ability	104	98-109	61st	Average
Block Design	8			
Similarities	11			
Matrix Reasoning	15			
Vocabulary	9			
Figure Weights	10			
Cognitive Proficiency	98	45th	91-105	Average
Digit Span	13			
Coding	8			
Picture Span	10			
Symbol Search	8			

Wechsler Individual Achievement Test, 3rd edition (WIAT-III)

WIAT-III is only available at present as an American edition. It consists of 16 tests of achievement in 7 "composites", oral language, total reading, basic reading, reading comprehension & fluency, written expression, mathematics, and maths fluency. There is not always a need to assess all areas of achievement. Tests used depend on the questions raised about the child's strengths, difficulties and needs. Composites give broad summaries of achievement, while individual test scores may show strengths and weaknesses more clearly, and hence point to possible future teaching and learning needs.

Brief descriptions of the 7 achievement areas and of their constituent tests are given below. The fluency tests emphasize speed of working but some other tests also can be scored for speed.

Reading

- Early reading skills: the child has to read individual letters, identify simple rhyming words, blend sounds to make words and identify some early words.
- Basic Reading:
 - Word reading: the child has to read words from a card.
 - Pseudoword Decoding: the child has to read words which are not real English words, but which obey English spelling rules.
- Reading Comprehension & Fluency:
 - Reading Comprehension: after reading a passage (aloud or silently), the child answers questions about it involving literal and more inferential understanding, and summarizing;
 - Oral Reading Fluency: the child reads two passages aloud, which are checked for accuracy, speed and fluency;

Mathematics

- Numerical Operations: the child has to carry out a series of written calculations.
- Math Problem Solving: the child answers a series of number questions presented on cards, using pencil and paper if they want;

Math Fluency:

- Addition: the child does as many unit addition problems in a minute as he/she can;
- Subtraction: the child does as many subtraction problems within 20 as possible in a minute;
- Multiplication: the child does as many unit multiplication problems as possible in a minute.

Written Expression:

- Alphabet Writing Fluency: the child writes as many letters as they can within 30 seconds;
- Spelling: the child writes a series of letters (younger children) and individual words from dictation.
- Sentence Composition: the child writes sentences first by combining sentences given to them, and then by making up new sentences to contain given words;
- Essay Composition: the child writes a short essay, which is scored mainly for organization and structure.

Composites and tests	Standard scores	95% confidence interval	Percentile	Age equivalent
Total Reading	88	83-93	21st	-
Early Reading Skills	-			
Basic Reading Word & Pseudo-	96	92-100	39th	-
Word reading	92	87-97	30th	10:08 yrs
Pseudoword reading	101	96-106	53rd	12:08 yrs
Reading Comp & Fluency	82	74-90	12th	-
Reading Comprehension	90	78-102	25th	8:08 yrs
Oral Reading Fluency	83	76-90	53rd	9:04 yrs
Mathematics	82	76-88	12th	-
Math Problem Solving	83	75-91	13th	9:08 yrs
Numerical Operations	83	77-89	13th	9:04 yrs
Maths Fluency	75	68-82	5th	-
Math Fluency – Addition	76	65-87	5th	8:04 yrs
- Subtraction	82	72-92	12th	8:08 yrs
- Multiplication	72	62-82	3rd	8:08 yrs
Written Expression	91	84-98	27th	-
Alphabet Writing Fluency	-			
Spelling	89	83-95	23rd	10:04 yrs
Sentence Composition	104	93-115	61st	14:08 yrs
Essay Composition	89	79-99	23rd	9:06 yrs

- Scores on these tests are “standard scores” with mean 100. The majority of children (50%) score between 90 and 109 (“the average range).
- Scores on any psychological test can vary a little because of chance factors (how the child is feeling on that day, the weather etc). The 95% interval is a way of saying that the chance that the “true score” falls inside this interval is 95 out of 100.
- Percentile rank shows the percentage of children who would score lower than this (ie a 5th percentile score means only 5 in every 100 children would score lower than this).
- Age equivalent scores show the age at which an average child would obtain a standard score of 100 (ie the mean).

Test of Word Reading Efficiency, 2nd Edition (TOWRE2, 2012), Torgeson, Wagner & Rashotte.

TOWRE2 is the 2nd edition of the most respected and widely used test of reading fluency. Reading fluency is a product of both speed and accuracy of reading. TOWRE2 measures single word and non-word reading in two separate measures, respectively the Sight Word Efficiency (SWE) test and the Phonemic Decoding Efficiency (PDE) test.

Reading fluency is particularly important in considering how easy of difficult people who have experienced dyslexic difficulties in learning literacy now find reading. It is common for young people to have been taught how to read accurately, but to still find that they take longer and need more effort to read text. Recovering dyslexics often also become proficient at sight words (common real words) but continue to experience difficulties with non-words.

Both tests ask the student to read vertical lists of words as quickly as possible for 45 seconds. The number correctly read in that time are the raw scores, which can then be converted to standard scores (mean 100, standard deviation 15) using tables. The standardization was done in the USA.

A discrepancy between SWE and PDE scores is common for dyslexic people. A further table enables its size to be evaluated and hence how common such a discrepancy is.

	Standard score	Percentile rank	Age Equivalent	Description
Sight Word Efficiency	92	30th	11:00 yrs	Low average
Phonemic Decoding Efficiency	98	45th	12:00 yrs	Average
Discrepancy difference	+6	.	Probability that difference is significant ≤ 0.7	

Conners' Rating Scales - 3rd edition

The Conners' rating scales are a set of questionnaires for teachers, parents and adolescents about emotional and behavioural concerns in children from 3 to 17. The main focus is on attention deficit/hyperactivity disorder (ADHD), and some items in the scales correspond directly to the diagnostic criteria according to DSM-IV (the American Psychiatric Association).

Ratings are added together to form a set of scales, which are evaluated according to the child's age to determine the severity of any concerns. T-scores are used to compare between scales, where T=50 is an average level, and scores below 50 are less concerning, those above 50 are more. Scores in the range 56-60 are "slightly atypical", 61-65 are "mildly atypical", 66-70 are "moderately atypical, indicates significant problem", and 70+ are "markedly atypical, indicates significant problem".

The conclusions from these scales should not be seen as providing a final answer on ADHD or other problems. Direct observation, interview and test information are also essential. Results from any one source are insufficient to confirm a diagnosis.

Scales:

IN Inattention: may have poor concentration or attention, be careless, distractible, easily bored and avoid school work;

HY Hyperactivity/Impulsivity: May have high activity levels, be restless or impulsive, be noisy and become easily excited;

LP Learning Problems: may have difficulty learning &/or remembering concepts, and may need extra instruction or help;

EF Executive Functioning: May have difficulty starting or finishing, or finish at the last minute, poor planning or organizing skills;

AG Defiance/Aggression: may be argumentative, defy adult requests, poor temper control, be aggressive and bully;

PR Peer Relations: may have difficulty with friendships, poor social skills, or limited social connections; may not be easily accepted by peers;

FR Family Relations: may feel parents do not love or notice him, may feel unjustly criticized or punished at home;

Summary Scales:

DSM-IV diagnosis is actually made on the basis of 9 positive observations, rather than the numerical sums above, so it is possible to obtain high scores on the three DSM-IV measures without qualifying for diagnosis.

AN ADHD Inattentive: Significant difficulties with inattention, organization and following instructions

AH ADHD Hyperactive-Impulsive: restless, overactive, difficulty with self-control and interrupting others;

CD Conduct Disorder: serious anti-social behaviour, including aggression or theft or sexual misconduct or absconding or lying;

OD Oppositional Defiance Disorder: serious arguments with adults, losing temper, deliberately provocative, irritable, frequently angry.

Conners 3 Scales (T scores, T=50 average. 56≤T≤60 slightly atypical, 61≤T≤65 mildly atypical, 66≤T≤70 moderately atypical, T≥70 markedly atypical, indicates significant problem)

Scale	Parents	Student	Evaluation
Positive Impression	1	1	The scores are expected to be valid, J has a fairly negative self-impression
Negative Impression	1	4	
Inconsistency Index	Not	Not	
IN Inattention	65	71	Mild difficulty, J marked
HY Hyperactivity/Impulsivity	62	69	Mild difficulty, J moderate
LP Learning Problems	63	87	Mild difficulty, J very high
EF Executive Function	50	-	No difficulty
AG Aggression	46	>90	No difficulty, J sees himself as very aggressive
PR Peer Relations	64	-	Mild concern
FR Family Relations	-	69	Some issues for J
GI Conners Global Index	52	-	Overall no major concerns
AN DSMIV ADHD Inattentive	55	58	No difficulty
AH DSMIV Hyperactive-Impulsive	60	66	Slight difficulty, moderate for J
Conners ADHD Index Probability	51%	78%	Low for both
CD Conduct Disorder	44	>90	No concerns, J feels his behaviour is a major concern
ODD Oppositional Defiant Disorder	50	73	No concerns, J feels he is oppositional
DSMIV Symptom Count-ADHD	3	2	Below threshold for diagnosis
DSMIV Symptom Count-Hyper/Impulsive	3	4	Below threshold for diagnosis
DSMIV Symptom Count-Conduct Disorder	0	4*	No symptoms, J has high concerns
DSMIV Symptom Count-ODD	1	4*	No symptoms, J has high concerns
Anxiety	2	8	Slight concerns only, but J himself feels considerable anxiety
Depression	2	7	Slight concerns only, J also feels unhappy in some ways
Severe Conduct	0	4	No concerns, J has major concerns
School	2	2	Some concern at school,
Friends	1	2	J has more
Home	1	2	Concerns than his parents

APPENDIX 3 : ANONIMIZED SAMPLE CONSULTATION REPORT : XU YI



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLIXIC PEOPLE ACHIEVE

PATRON: MRS GOH CHOK TONG

DAS SES Assessment & Consultation
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September 2016

Dear Jane and Tan Xu Yi

I met with Xu Yi in September at my office to discuss whether a full psychological assessment would be helpful to her.

Although I understand she was expecting to come with you, Jane, she was on her own. I think this was a little stressful but I felt she coped extremely well and that what was said was productive.

She told me she was educated in her home country, China, until 2 years ago. She then came to an International School to start the IB programme but then restarted this year another International School. She is studying Maths (H), English (H), Chinese, Economics, Biology and Chemistry (H) and of course she must also do the Extended Essay and ToK. I understand the plan is to do her EE on Singapore English. Xu Yi told me her current grades which are all 6's and 7's except Biology (5). I understand she has only done a year of Biology previously. She finds ToK hard. I said I felt it usually is quite hard.

We also talked about her daily routines, sleep, exercise and nutrition briefly. My main concern was that she is starting her homework quite late (8-9pm) and only finishing around midnight. She has to be in school the next day at 8am. I asked if she was falling asleep in lessons - she said not. She sometimes sleeps in the afternoon. She also does some sports and she both gives and receives tuition. I was impressed but wondered if it is wise to do so much.

We talked about her stress levels. She felt on a 10 point scale her stress level last year was 7; it is now down to 5. The main concern she has is difficulty concentrating. She also said she feels she is a slow reader and she sometimes skips words; she can forget what she has just read and have to reread. She told me she does sometimes also read for pleasure, mainly in Chinese.

She herself pointed out that she has been through a stressful time, attending 3 different schools in the last 2 years, and now studying IB, whose curriculum and style of learning is very different to what she has been used to. I understand the move from one to another International School was because she needed to start again after having a tough time in 2015. I felt this was a very sensible move.

From our conversation and from a piece of written work I saw I had the impression her English is good. I asked her to read a series of passages from the Kaufman Test of Educational Achievement, 3rd edition (KTEA3). The passages are at an appropriate level for her age and stage of education. She scored 108, at a satisfactory average level. There was a mix of error types, evenly spread between literal and inferential, I think. She read silently at a reasonable speed. On this occasion she did not seem to skip lines or miss words. So I feel her discomfort

with reading at times is mainly a result of tiredness – I think most students experience some similar difficulties.

Overall I do not feel that a psychological assessment would be worthwhile. I very much doubt if she has any subtle specific learning difficulties. It is much more likely that her concentration difficulty is a result of stress. She needs someone to talk with (perhaps a counsellor) and may benefit from trying to reduce her workload a little, and getting a bit more sleep. 7½ hours is the usual minimum. It does seem that she has handled the stress so far pretty well, judging by the sensible decision to restart and by her current grades.

I will be very happy to discuss this with you both again if you are unsure of my opinion. If we do not meet, may I wish Xu Yi the best and hope she is able to continue to deal with the undoubted stresses of IB over the next 1½ years.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Tim Bunn', with a long horizontal line extending from the end of the signature.

Dr Tim Bunn,
BA(Hons) Oxon, PGCE (Bristol), MSc (UCLondon), EdD (Warwick) CPsychol (BPS), AFBPS;
Consulting Educational Psychologist, Dyslexia Association of Singapore

ABOUT THE AUTHORS



ANABERTA OEHLERS-JAEN

Programme Director of SES Maths, Assessments and Specialist Tutoring and Head of DAS International

Ms Anaberta Oehlers-Jaen made a career switch from the Robinson's group of companies as Group Merchandise Controller to join the DAS in 2005 as an Educational Therapist. She holds a Masters Degree in Special Needs from NTU, BA (English Language and Literature) from SIM, a Postgraduate Certificate in Teaching and Learning in Higher Education from the London Metropolitan University as well as a Cambridge International Diploma for Teachers and Trainers (Dyslexia), along with Early Childhood Diplomas. She has Fellow status at RETA Registrar of Educational Therapists (Asia) and is also a Senior Educational Therapist.

For 4 years, she was the Preschool Manager of the DAS Preschool Service actively involved with children at risk of literacy delay. Anaberta who is also actively involved in research has also delivered at conferences in Singapore and Hong Kong. Her recent paper in 2014 was on the Programme Evaluation for Specialist tutoring as well as actively, overseeing the development of the Maths Programme.

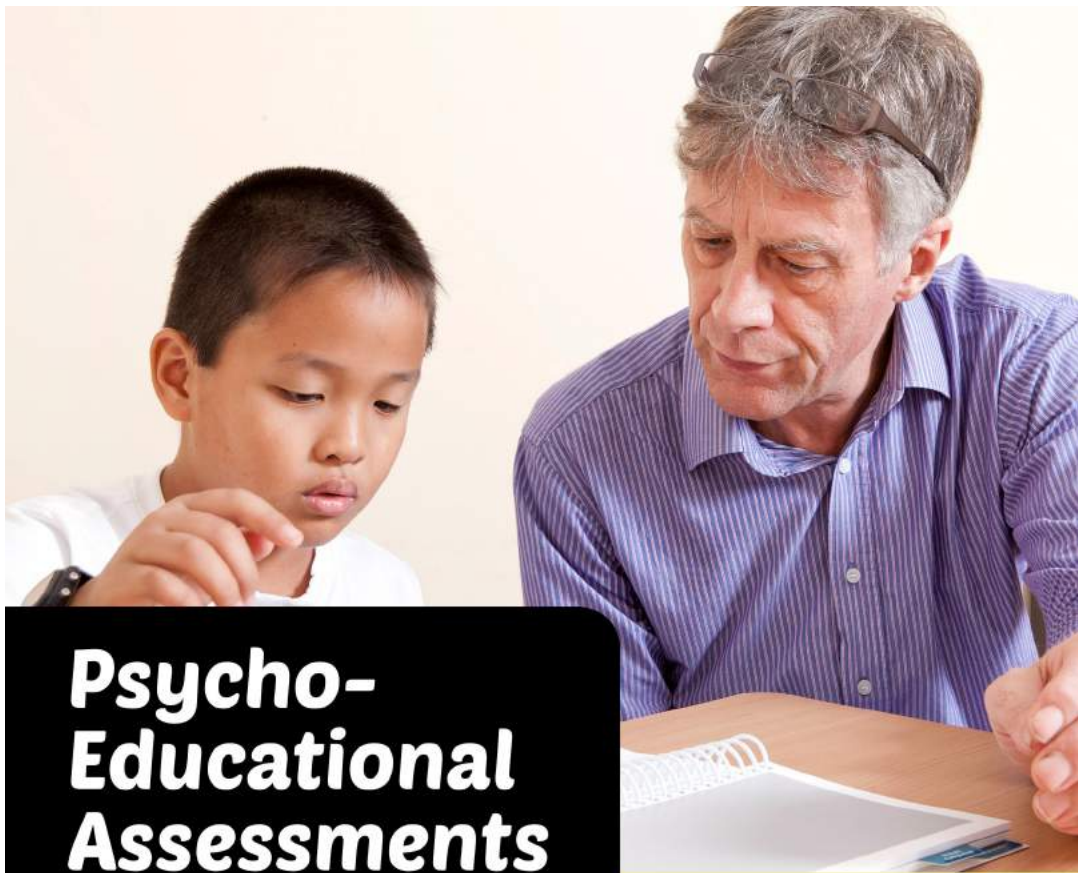
Her background of more than 15 years in the retail service line, has translated her into adopting a high level of professional service for both the students and parents through Specialist support and Assessments. She hopes to share the same philosophy which she has embraced at the DAS as her personal ethos in helping all children achieve in her current portfolio both in Singapore and the region.



DR TIM BUNN

Consulting Educational Psychologist

Tim has a BA in Psychology & Philosophy from Oxford University, a PGCE from Redland College, and an MSc in Educational Psychology from University College, London. He worked as a teacher in primary, secondary and special settings for 9 years, and as an educational psychologist mainly for English Local authorities for more than 20 years. He also served as SEN Officer for Northampton for 8 years, administering the area's statutory SEN procedures. He worked for 3 years in a private dyslexia specialist school (Egerton-Rothesay) as its in-house psychologist, and for a while he lead the DAS research team in Singapore. His own doctoral research was on literacy interventions in the middle primary years, and was particularly interested in the roles of teachers and teaching assistants in helping children with literacy difficulties. He is now a Consultant Educational Psychologist for the Specialised Educational Services division of DAS.



Psycho-Educational Assessments

Specialised Educational Services
UNLOCKING POTENTIAL

Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore.

We understand that you know our child best and we will listen to your concerns. Our psychologists are professionals who have extensive experience assessing people with behavioural, developmental and psychological issues that lead to learning differences.

Psychological assessments identify individual strengths and weaknesses, and provide recommendations for intervention and support. Formal assessments occur after initial interviews with the family to identify areas of difficulties. A comprehensive assessment report will contain detailed practical recommendations for parents and educators involved in supporting the child's education. Early identification and early intervention of learning differences is vital for your child's well-being and educational progress.



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLEXIC PEOPLE ACHIEVE

☎ 6444 5700

✉ ses@das.org.sg

🌐 www.ses.org.sg

👍 facebook.com/dysSG



SPECIALIST TUTORING

OUR APPROACH

Specialised Educational Services (SES) has a team of specialist tutors who have extensive experience in supporting students with specific learning differences and other learning needs.

Specialist Tutoring is tailored based on the profile of the child obtained from our multi-disciplinary team of educational psychologists, speech and language therapists, occupational therapist, and in consultation with parents and educators. Tutoring has an individualised problem solving approach where skills focused include:

- Literacy, Numeracy, Oracy, & Writing Skills
- Individual Curriculum support
- Study skills and Exam preparation
- Behaviour and Social support

Our tutors are experienced in the international, private and public school systems; they have an understanding of the curriculum and the demands that today's education systems place on your child. They listen with sensitivity to the concerns that parents have and provide a total solution with an Individualised Education Plan to support their child's needs. Regular verbal feedback is provided at the end of each tuition session. Informal assessments on progress is made to monitor and track your child's progress. We strive to empower successful learning and nurture each individual child to achieve their full potential.

Specialised Educational Services

Specialist Tutoring

Anaberta Oehlers-Jaen

Programme Director of SES Specialist Tutoring

Dyslexia Association of Singapore

OVERVIEW OF THE SES SPECIALIST TUTORING PROGRAMME

Specialist Tutoring is an individualised programme offered by DAS International a wholly owned subsidiary of the Dyslexia Association of Singapore. Specialist Tutoring aims to support both the International and Ministry of Education students, under the specialist tutoring one to one program. Background information on the demographics and student profile on the services provided by Specialist tutoring is important in the understanding of the range of students supported by Specialist tutoring of whom the majority have Specific Learning Differences (SpLd).

A Case study on one of our Specialist tutoring students is included in this annual report on Specialist tutoring which describes and gives insights into the programme. We aim to show that through the Individualised Education Plan, progress monitoring through pre and post test, for our students, we are able to evaluate the effectiveness of Specialist Tutoring. Finally in consultation with our Educational psychologist, communication with namely the school's learning support and parents are important factors that contribute to the successful remediation provided through Specialist tutoring in supporting our students. This process which we have adapted from Bronfenbrenners' Ecological Framework (1970) therefore defines and differentiates Specialist tutoring from other group or one to one remediation programmes.

An introduction to the proposed Online Specialist Tutoring service trial which was conducted over 10 weeks in Term 4 (September) 2015 will also be discussed in this report. Recommendations therefore for improving the overall quality and level of service and outreach for our students and our stakeholders, on Specialist tutoring is ultimately the aim of the annual report.

PROGRAMME DESCRIPTION

Specialist tutoring adopts a problem solving approach through the development of an individualised programme that aims to bridge the gaps in the child's learning. At the same time, Specialist Tutoring believes in working closely with schools and parents thereby creating a loop and an open channel for communication, whereby the schools and parents know there is support for their child in the area of Specialist Tutoring and intervention. Specialist Tutoring also provides educational programs and other individual support services for individuals with specific learning difficulties

The aim of Specialist Tutoring is to effectively support the development of each child. Each child is seen as an active, competent learner, especially children who have Specific learning differences (SpLd), wanting and in need of a value added programme / specialist support.

Specialist tutoring is individually tailored, based on the profile of the child obtained both externally through previous psychological reports or through our in-house psycho-educational assessments, and in consultation with parents and educators. In order to further support the learning needs of our more challenged students who may have difficulty entering International schools in Singapore SES Specialist tutoring also offers Intensive Specialist Tutoring programme which is an intensive remediation programme for children who are experiencing difficulties and gaps in learning.

MEASUREMENT OF PROGRESS:

A student's progress for Specialist tutoring is measured in the following ways:

1. Formative and Summative informal assessments to determine progress from topic to topic.
2. An Individual Education Plan based on a 10 week cycle is developed and results from the Formative Assessment as well as the students current psychological report if available forms the basis for the IEP.
3. An informal Summative Assessment at the end of the 10 week cycle is again carried out.
4. This would then form the basis of the Summative Assessment and the next set of IEP's
5. Standardised assessments, such as the YARC, TOWRE and the WRAT are administered every 6 months to determine overall progress.

SPECIALIST TUTORING

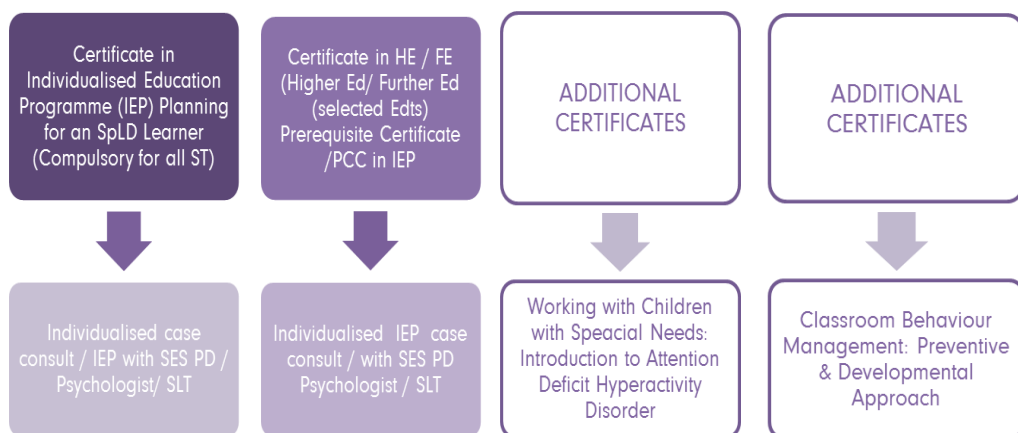
Reasons for Students to attend Specialist Tutoring

- ◆ It is a challenge for some students to find a place, particularly in the International schools.
- ◆ Specialist Tutoring provides an interim as well as continued support for students.
- ◆ Some schools have no provision for students with learning differences.
- ◆ Students are unable to keep up with the curriculum.
- ◆ Students require additional support for Literacy, Maths, and Exam Skills.

PROFILE OF SPECIALIST TEACHERS

Our Specialist tutors are experienced in the international, private and public school systems. At the same time the team of specialist tutors also have extensive experience in supporting students with specific learning difficulties. All our Specialists teachers are highly trained in their area of expertise with a formal degree and professional qualifications in Specific Learning Differences some up to the Masters level. They have an understanding of the curriculum and the demands that today's education systems place on the child. They aim to provide a total solution with an Individualised Education Plan (IEP) to support each child's needs. In addition ongoing Professional Development for our Specialist Teachers was formalised in March 2016 with the introduction of a new training pathway to meet the diverse needs of students on Specialist tutoring.

TRAINING PATHWAY—SPECIALIST TEACHERS (2016)



Their job scope within Specialist tutoring requires:

- ◆ Regular verbal feedback is provided at the end of each tuition session.
- ◆ Conducting informal assessments pre/ post test for progress monitoring.
- ◆ The tuition is skills focused.
- ◆ Develop and sharing the Individual Education Plan (IEP) with the parent.
- ◆ Teachers are required to adopt a problem solving approach.
- ◆ Initial consultations and ongoing verbal or via email / telephone feedback
- ◆ Discussions with student's learning support with parent approval are encouraged.
- ◆ Progress reports are provided for parents.

APPROACH TO TEACHING

The teaching approaches in the Specialist Tutoring Literacy Programme are influenced by the DAS remediation programme, and we have adopted the "The Essential Literacy Approach (ELA)" as a guide in supporting students particularly those with dyslexia who struggle with reading, spelling, and/or writing, in a multilingual Singapore and within the International School community.

The areas which are covered include:

- ◆ Phonics Awareness and Phonics Instruction
- ◆ Reading Comprehension
- ◆ Reading Fluency
- ◆ Vocabulary
- ◆ Writing

Originally based, on the principles of the Orton-Gillingham approach, which are language based, cognitive, structured, sequential and cumulative, simultaneously multisensory, diagnostic Prescriptive and emotionally sound. ELA is a multisensory structured language approach that teaches the structure of the English language at the level of sounds, syllables, meaningful word parts, sentences and paragraph organisation introduced to the students depending on the level of the student.

It contains the critical building blocks of literacy that have been identified by the National Institute of Child Health and Human Development.

MANPOWER:

Headcount of Specialist Teachers as at March 2015

1. Full time Specialist Teacher
2. DAS Senior Educational teachers who are considered Dual Specialists as they teach on more than one programme.
3. Sessional teacher (Teaching and paid per hour)

ENROLMENT AND STUDENT PROFILE:

SES Specialist Tutoring			
	International School Students	Ministry of Education (MOE) School Students	Average Number of Students
2015/16	60%	40%	52
2014/15	40%	60%	55

The average enrolment in April 2015 to March 2016 was at 50 students as compared to 55 in the previous year. The range of students who attended Specialist tutoring in 2014/15 included the following: 60% Singaporean (MOE) Students and 40% International School Students.

Source of Referrals for Specialist Tutoring		
	April 2014 to March 2015	April 2015 to March 2016
Source of Referrals	% of No's Referred	% of No's Referred
Media / Internet	9%	10%
Teachers	30%	30%
Friends, Relatives & Parents	35%	35%
Awareness Talk	1 %	1%
Private Clinics	5%	4%
Internal Referral DAS	20%	20%
Total Referrals	100%	100%

The information on the referrals for Specialist tutoring suggests that Friends / Relatives and parents and teachers are the primary sources who are recommending students for ST. This is a good trend as compared to 13% for 2014 as this indicates that there is word of mouth through satisfied clients. Outreach efforts into the International schools through ongoing meetings and sharing with the heads of department and learning support have helped to initiate referrals for specialist tutoring. We have seen now consistent referrals coming through from the Canadian International School / Anglo Chinese School , Marlborough College (Malaysia) / SJI International / Global Indian International / Tanglin Trust. Singaporeans have also increased in their referrals for ST. Currently nearly half of the enrolment comes from MOE students.

OUTREACH/ INFORMATION SHARING

In total 14 outreach efforts with the International Schools through ongoing meetings and awareness talks and sharing with the heads of department and learning support were conducted from April 2015 to March 2016. These outreach efforts will continue for 2016/17 with a concerted effort through providing more direct awareness talks on to Specific Learning Differences in particular Dyslexia.

International Schools	Awareness Talk	Information Sharing	Meeting with Learning Support
Global Indian (East)	✓		✓
Global Indian (West)	✓		
Marlborough College	✓	✓	✓
SJI International			✓
ACS International		✓	
Canadian International School			✓
Tanglin School			✓
United World College	✓	✓	
ACS Barker Road	✓		✓

ONLINE SPECIALIST TUTORING REPORT ON TRIAL

Research on online Specialist Tutoring is not found in abundance as this service occupies a niche market particularly as the target group for this trial are students with Dyslexia. At Specialist tutoring we wanted to explore the possibility of extending the one to one service on an online platform. Jane Dupree (2008 p35-36) who is an advocate for Online Specialist tutoring mentions that given that current students are "IT Natives" (p35) and find this form of delivery "normal" unlike adults who are "IT immigrants" who may consider this tuition as second best (p35). Her experience in providing this service is however encouraging and positive for novices to this form of Specialist tutoring. She cites the following pros for a web-based video tuition:

For the students:

- ◆ Relaxed in their own environment
- ◆ No travel time
- ◆ Utilised technology they are comfortable with
- ◆ Allows them control of their own learning
- ◆ Accessibility – They will sometimes Skype you ask you a question whilst doing their homework
- ◆ Develops self-assessment skills
- ◆ Develop keyboard and technology skills alongside literacy, numeracy, and study skills

For the teacher:

- ◆ There appears to be no difference in the relationships with students that develop remotely or face to face
- ◆ There appears to be no difference in the development of skills
- ◆ Evidence is easily saved and recorded

Weakness of using web-based tuition

- ◆ At busy times of the day, the call can drop out
- ◆ Younger children are dependent on parents IT skills
- ◆ For some students the relationship needs to be developed face to face first
- ◆ Parents can interrupt and disturb the student teacher relationship

Abstract from Broadening Access to Specialist Dyslexia Tuition using Freely Available Web Based Video Tools (June Dupree Dyslexia Review Summer 2008 Volume 19 p35-36)

Rationale for the Online Specialist tutoring Trial:

To provide a global online teaching platform to students requiring literacy support through an Online Specialist tutoring service:

1. After overseas Assessments : To students requiring further literacy support
2. Wider outreach to areas that may not have a structured programme and may have difficulties accessing support.
3. After intensive ST Tutoring: A follow up service.
4. Current DAS / International students who may require further online support during term time or school holiday periods.

Hypothesised Benefits

1. It saves travel time.
2. The child works in the comfort and security of their home.
3. Online tutoring provides greater flexibility in the range of tutors and times available.
4. In some cases online tutoring can be conducted during school time or part of a home school curriculum.
5. The virtual classroom application lets the child and teacher speak naturally to each other and work through lessons together.
6. You can keep the same tutor if you relocate within the state, interstate or even overseas.
7. Technical support can be provided by trained tutors
8. Parents are also part of the learning and therefore learn strategies that help to support their children.

Trial: (10 weeks (October to December in Term 4 2015)

Objectives: :

1. To explore the possibilities of Online Specialist
2. To explore the limitations of Online Specialist tutoring
3. To gather teacher feedback on the trail
4. Gather parent feedback

Senior Educational Therapists conducting the trial:

1. Anaberta Oehlers-Jaen: Programme Director / Head of DAS International & Senior Educational Therapist)
2. Nicole Chua: Senior Educational Therapist

Participants / Profile:

1. Casandra Teo: Age 9 years: Dyslexic (On a 3 month break from school in New Zealand where her family are based so as to have remediation at the DAS Main Literacy Programme)
2. Isabella Santos: Age 9 years: Dyslexic (Spanish national : ESL learner who was new to Singapore having arrived in July 2015 to Singapore with her family)

Online Resources used during the trial:

1. Google Hang out:
2. Skype
3. Web Cam / Headphone with attached microphones

Main Concerns of the trial:

1. Wifi connectivity
2. Technical support / headphones / web camera
3. Both users must be able to use it.
4. Costing (Competitiveness : Average price is at USD\$50 for 55 mins. / USD\$25 for 25 mins.
5. Physical teaching vs online (pros and cons to research)

Teaching Resources

1. Skype or Google chat
2. Lap-top
3. Microphones

Curriculum Content:

1. Online OG Card Deck
2. Scope and sequence
3. Reading / Writing / Spelling
4. Teacher designed worksheets

REFLECTIONS BY THERAPIST FOR ONLINE TUTORING:

Student: Casandra Teo

By: Anaberta Oehlers-Jaen

Did you find that your student benefitted from online tutoring:

I spoke with both Casandra and her dad Mr Tommy Teo and I was encouraged by the feedback which I received. He mentioned that the lessons supported Casandra's current learning needs and reinforced the concepts learned at the DAS MAP classes. I had observed Casandra at DAS MAP classes and spoke at length to Hakimah her DAS Edt who shared her lesson plans.

What was the most positive outcome?

It was interesting to observe Casandra and myself learning to engage in this platform of teaching and learning. We built a good rapport by the end of the 10 sessions.

Which type of student do you think would most benefit?

Students from age 9 years would benefit as the ability to stay on task and be focussed is important. Unlike face to face interaction the ST online teacher needs to be able to engage the student. A younger child may be more easily distracted. As it was I found that 40 to 45 minutes was the maximum duration. It was tiring for both the student and the teacher.

What challenges did you face?

I faced at almost all lessons internet connection issues. This was not good for teaching as the student would need to be redirected again to the task once connection was restored. On one occasion the connection was impossible, we conducted the lesson through the skype just using the voice and no video. This was the biggest challenge and not the actual teaching and it was disruptive to the overall lesson and motivation for Casandra to resume the sessions once connection was restored.

Do you think there is a potential for this service?

Yes I find that if we are able to get a clear connection the benefit to the student is as good as one to one face interaction and teaching. We would then be able to reach out to students who would be unable due to geographical, time etc.,

constraints to get the support needed to improve and overcome their learning difficulties particularly in literacy and comprehension.

How much do you think parents are willing to pay per session?

Based on the feedback I asked Mr Teo, he mentioned around \$70 per session. Further market investigation from similar service providers have been looked at. Please refer.

How could we improve this service

If we want to provide this service then we should have a dedicated platform, payment / along with online progress monitoring and reading resources.

Were the sessions interactive and what were some of the resources used?

Yes I provided Casandra with lessons prior to the sessions her father Mr Teo could download and Cassandra was prepared for the lesson. During the sessions, I provided some interesting activities that also required having time for independent work, so that the session was broken up and not too intense.

What feedback did the parent provide?

Overall the feedback was good. Please refer to Mr Teo's feedback.

Did the student enjoy the lesson?

Yes I would ask the student after each lesson if she enjoyed the lesson.

**REFLECTIONS FOR ONLINE TUTORING FOR CASANDRA BY MR. TOMMY
(Casandra's father)**

Did you find that Casandra benefited from online tutoring?

Yes.

What was the most positive outcome.

It reinforced the learning's she had with Halimah her DAS therapist on the Main Literacy Programme. It also helps her confidence in reading.

What challenges did she face with online tutoring?

Casandra looked forward to the sessions on most occasions except for once when she was physically tired. I believe the important thing was that she felt very comfortable with you and she did not feel any pressure to perform or do something she could not do.

Do you think there is a potential for this service?

That's a hard question because it is still better having face to face contact. But in places where direct face to face tutoring is not possible or where it is very costly then video conferencing sessions could be the alternative solution.

How much do you think parents are willing to pay per session?

Not sure. It would have to cost less than face to face sessions. In NZ, the SPELD sessions cost \$50 per hour for 1:1 tutoring.

How could we improve this service?

We need to ensure the video links work well or it could get very frustrating. I also think it would be better if we had at least two sessions per week or maybe three. Even now with her once a week SPELD sessions, I don't get the sense that Isabelle is learning as much as she did in Singapore where she had the twice weekly meetings with Halimah together with the sessions she had with you toward the end of the term. I think there is an optimal intensity or frequency of sessions. Not sure if it's twice, thrice or more per week. But definitely not just once a week. Mm..

Were the sessions interactive and relevant?

Yes. I could see that Casandra was pretty engaged in the sessions.

Was the therapist interaction with Casandra good?

Yes. Definitely.

Would you consider online tutoring for Casandra?

I would if there is a planned curriculum and if I can afford it. By planned curriculum I mean a syllabus or curriculum that is published based on what Casandra needs and what tutoring steps or topics will be covered to help her overcome her special need. The biggest difficulty I face which I think most parents face is coming to grips with

dyslexia, understanding Casandra's condition and what she needs to overcome. We had the benefit of a psychological assessment done on her but I must say a lot of what was written was quite difficult for me to understand. In this regard I appreciate the time you took to observe her sessions with Halimah to assess where she is and then to build on what she knows. I felt that the personalisation of the tutoring sessions is very important to make this work.

Further notes from Mr Tommy Teo:

Date: Wed, Mar 30, 2016 at 8:03 PM

Subject: Re: Online Tutoring Report for Casandra Teo

To: Ana berta Oehlers-Jaen <anaberta@das.org.sg>

Hi Ana berta,

First let me thank you for all the help you and the team at DAS gave my daughter. I believe the time spent by Halimah, yourself and the speech therapist was invaluable to Casandra's development. She has been back in school here since Feb. I had an IEP with her Pastoral teacher, lead teacher and the special needs teacher here and showed them the report on what Isabelle was taught in Singapore. They were visibly impressed by the systematic approach that DAS uses and the detailed report that Halimah wrote on her progress. Isabelle has started her weekly SPELD 1:1 tutoring as well.

I am praying and hoping that she will grow in confidence and that she'll build up her confidence and be able to read and write beautifully one day. I recognise that it will be a life long challenge for her.

I've put my comments below in response to your questions. I hope they help and let me know how else I could provide feedback.

Best Regards,
Tommy

REFLECTIONS BY THERAPIST FOR ONLINE TUTORING

Student: Isabella Santos

By: Nicole Chua

Did you find that your student benefitted from online tutoring?

Isabelle is a grade 2 student from an International School whose difficulty lies mostly in reading and spelling. Her poor literacy also stemmed from her ESL background as her family speaks Spanish. For that reason, I found that online tutoring becomes difficult as her understanding of the language is not firm enough to grasp instructions. Also, we were limited by hardware as the family work mostly on Mac equipments which did not respond very well to Skype or Google chat. In the end, the lesson was conducted on a 9 inch Samsung tab. It made it difficult for her to see what I was doing or pointing to her and also hard to hear each other. Together with English not being the strongest language, her mom had to explain to her most of the time what is expected of her. She could not see what I wrote on the whiteboard so I have to write on a piece of paper and show it to the camera. The lesson was quite tedious. I lost her attention very quickly and she becomes tired.

What was the most positive outcome?

It allows parents to learn how to teach their child as they could record the session or sit beside their child and learn together.

Which type of student do you think would most benefit?

Students who understand English well as speaking over cameras can be quite hard to hear and without body language, we depend solely on what we hear and not what we see. Online tutoring can be very taxing on the brain as you need to focus intently. For this reason, it is more suitable for older children from 10 year old onwards. Both the teacher's and the student's internet connections needs to be stable.

What challenges did you face?

The biggest challenge is to incorporate multi-sensory aspects to each lesson and maintaining her attention. Due to language barrier, I have to try to read her expressions to check her understanding. If not her mom would flag up to me when her daughter is having difficulties. To liven up the lesson, I have to make more effort to be lively and loud and choose my words carefully to ensure she understood me.

Do you think there is a potential for this service?

Yes, with good infrastructure set up on both teacher's and student's locations.

How much do you think parents are willing to pay per session?

\$60 an hour

How could we improve this service?

There could be training for the teachers who are doing this service. They need to see how other practitioners are making this work. There needs to be initial investment for this service. We need to loan equipment's (e.g. Schools in Australia allow students from their school to bring back school's iPad) if need be or provide a list of hardware and software requirements to potential students so they can benefit as much as they can from these sessions. .

Were the sessions interactive and what were some of the resources used?

I tried my best to make it as interactive as possible through short varied activities. Due to the limited hardware on the student's side, it was not possible for me to incorporate applications or interactive board into it. Resources were mostly coloured markers and coloured papers.

What feedback did the parent provide?

Her mother felt that the lesson was good but her daughter spaced out very quickly. After 30 minutes of lesson, she becomes very tired. However, the mother felt that she learnt a lot from my lesson and she was able to use the strategies that I used in my lesson to help her daughter. Her mother always reinforced what was taught, with the help of my worksheets and resources provided during the lesson or via email.

Did the student enjoy the lesson?

I hope so.

**REFLECTIONS FOR ONLINE TUTORING FOR ISABELLE BY MRS LUCIDA SANTOS
(Isabelle's mother)**

Did you find that Isabelle benefited from online tutoring?

YES

What was the most positive outcome?

The reinforcement

What challenges did she face with online tutoring?

KEEPING ATTENTION

Do you think there is a potential for this service?

YES WITHOUT DOUBT

How much do you think parents are willing to pay per session?

\$50

How could we improve this service

I think a previous test should be done to know the level of the child.

Were the sessions interactive and relevant?

Yes

Was the therapist interaction with Isabelle good?

Yes

Would you consider online tutoring for Isabelle?

Yes

SUMMARY OF THE ONLINE TUTORING TRIAL TIMELINE:

Online Specialist Tutoring Trial Time Line		
	Isabella Santos (Grade 2)	Casandra Teo (Primary 2)
Online Specialists Tutors	Nicole Chua	Anaberta Oehlers-Jaen
Trial Start Term 4 Week 5 12th September 2015	Twice weekly 45 mins 8 weeks Total 8 sessions	Twice weekly 45 mins x 5 weeks Total 10 sessions
End Date Term 4 2016	Week 12	
Post Trial Write up	Completed 31st March 2016	
Online Platforms used	Google Chat / Skype	
Resources	Wacom Intuos Pen and Touch Medium Tablet (CTH680) x 1 Headsets x 2 each	
Notes on lessons	Planned IEP: <ul style="list-style-type: none"> ◆ Reading ◆ Spelling ◆ Syllabication ◆ Sight words ◆ Vocabulary 	Started with MAP Term 4 at BDK Week 1 to Week 10: Duration: 20 hours Twice Weekly MAP Edt: Share Lesson plans on Google Week 6 Term 4 starts Online Tutoring : Curriculum / IEP: Followed closely with MAP lessons to reinforce the concepts taught by the MAP Edt Exchanged feedback with MAP Edt.

SUMMARY AND RECOMMENDATIONS FOR ONLINE SPECIALIST TUTORING:

Conducting the Online Specialist tutoring was an interesting and rewarding project, though at times a challenging exercise for the most experienced of therapists. However both Nicole and I the author and senior therapist conducting the trial and feedback from both the parents are positive that there is potential to develop this programme. The students whom we conducted the trial with, Cassandra and Isabelle, were lovely girls who tried their best to stay attentive despite disruptions at times due to poor internet connections. We will be conducting a second trial in 2016 to fine tune some of the procedure and manage both student, parent and teacher expectations. Some of the recommendations include:

- ◆ Establish a secure network and platform
- ◆ Ensure that student have headphone
- ◆ Multi-sensory experience
- ◆ Lessons that are of maximum duration of 45 minutes
- ◆ Pre-test / Post Tests
- ◆ Worksheets to be given in advance so that student is prepared
- ◆ Parent involvement to be controlled
- ◆ To charge a competitive fee for the service thereby getting more of a commitment
- ◆ IEP to be shared with the parents
- ◆ Further market research on Online tutoring
- ◆ Planned launch in April 2018

SPECIALIST TUTORING CASE STUDY

Students' Name: YZ
Educational Level: Grade 6
DOB (March.2002)
Commencing 15th April 2015

Student YZ's mum Emily approached the DAS in April 2015 for Specialist tutoring for her son who was 13 years then and in grade 5. The family had just moved from New Zealand. They are Australian but of middle eastern decent. YZ was underachieving at school and mum was concerned about his progress. The author, Anaberta Oehlers-Jaen, who is also the Programme Director for Specialist tutoring initiated a meeting with Emily to learn more about her son. YZ also attended the meeting. The student YZ did not have a psychological report and mum who is also a trained teacher was not keen on a full psychological assessment, preferring instead to start intervention instead and not wanting to "label" her son, but preferring to

adopt more of an RTI (Response to Intervention) approach. Specialist tutoring does not require a diagnosis of Dyslexia, although most of the students we see have a Specific Learning difficulty.

At the same time providing a Progress Monitoring or Curriculum based assessment type seemed appropriate for YZ. For reading measurement, oral reading fluency on grade-level passages in which the student is expected to be proficient by year's end constitutes the CBM score. Oral reading fluency is a quick, reliable measure that correlates highly with reading comprehension (Deno, 1985). This actually was proven correct as we can see from the pre/post test scores.

The majority of students on Specialist tutoring do have psychological reports, however YZ did not. I decided to then do a case study on YZ so as to ascertain the effectiveness of Specialist tutoring without a formal diagnosis of a SpLD.

Pre-tests and Post Tests were conducted by our Educational psychologist Dr Tim Bunn and I sat through the literacy tests so as to gain a better understanding of the process as I wanted to support our Specialist Teachers better through a deeper understanding of the value in providing both Formative and Summative tests. This was also with a view to enable an Individual Education Plan for the student.

Dr. Tim briefed YZ's assigned Specialist teacher Ms Gladys Wee and there started an initial twice weekly session followed by weekly classes which were then delivered for 20 sessions. I had also initiated a meeting with the learning support in order that Gladys may have a better understanding of her student. The meeting at the school was well received as all parties had a clearer understanding of YZ and his literacy needs. The school also provided the pre and post tests which they had conducted for YZ which Dr Tim Bunn had summarised.

A summary of the following Appendix follows:

- Appendix 1: Pre-test
- Appendix 2: IEP
- Appendix 3: Progress Report
- Appendix 4: Post-test
- Appendix 5: Parent Communication

Conclusion

YZ has improved significantly in his literacy since starting Specialist tutoring under Ms Gladys Wee. Upon commencement, he did not have a formal diagnosis of Dyslexia. Improvements in most areas of his literacy have been noted by both the

school he attends and the DAS after completing the Pre & Post tests. Most importantly YZ has gained in confidence and shows interest in reading and continues to show gains in his spelling. In the post test analysis by Dr. Tim Bunn he points out:

"I have seen two GL assessment reports from Australian International School (AIS), from March 2015 and June 2016. His scores on word reading, reading rate, comprehension and fluency had all increased by around 20 points, to an average of around 90, which shows substantial progress" He goes on to point out "YZ has made progress in all areas, with the possible exception of reading comprehension". Research has shown that students whose teachers used CBM to monitor academic progress and to make adjustments in instructional programs when necessary significantly outperformed comparable students whose teachers did not use CBM (Fuchs, Deno, & Mirkin, 1984; Stecker & Fuchs, 2000).

The information we have gathered through the formalised Post Test, Specialist teacher Gladys's Progress report and the schools reports, places us in a better position to support YZ his next set of literacy goals. Through Specialist tutoring at the DAS, we are able start the APIE cycle again in providing an IEP that monitors progress and stays relevant to the changing learning needs of the student.

APPENDIX 1: PRETEST / LITERACY ASSESSMENT



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLEXIC PEOPLE ACHIEVE

PATRON: MRS GOW CHOK TONG

Literacy Assessment on a child requiring Specialist Tutoring

Re: YZ (March, 2002) at age 13.0 years
B/C No: XXXX
Date of report: 05. 05.2015

Purpose of this assessment:

The aim, in two sessions (total about 90 minutes) was to evaluate YZ's current literacy skills at the start of a programme of teaching at the DAS Specialised Educational Services (SES) Specialist Tutoring, and to suggest priority for his Individual Education Plan (IEP).

YZ's attitude and behaviour during assessment:

YZ seemed a quietly spoken young man, who was very polite and fully cooperative. He worked hard and there were no problems with concentration or persistence.

Previous Reports:

His end of year report for 2014 from Takapuna Normal Intermediate School (NZ) says he is a bright boy who needs to work at becoming a little more focused. In reading he was at the standard at the end of 2014, but writing and maths were below standard.

Tests used:

WIAT3	Standard Score	Percentile	Age Equivalent	Evaluation
Word Reading	92	30 th	9:04 yrs	Low average
Pseudoword Reading	83	13 th	8 years	Below average
Oral Reading Fluency	91	27 th	11:04 yrs	Low average
Accuracy	80	9 th	9:04 yrs	Below average
Rate	94	34 th	11 years	Low average
Reading Comprehension	92	30 th	9:04 yrs	Low average
Spelling	78	7 th	9 years	Below average
Sentence Writing	75	5 th	7:10 years	Below average
Essay Composition	108	70 th	17:06 yrs	Average

Observations and Comments on test results:

YZ had to read single words from a card with no time pressure. He was successful on most high and medium frequency words, but he did make some mistakes on some of the medium frequency words (eg "buded" for "budge", "radish" for "ridiculous") and he found most long unfamiliar words difficult. His score was 92 (low average). When he had to read passages aloud his speed was fair (score 94) but he also made mistakes (score 80, below average).

He found reading non-words difficult (score 83, below average) so it is likely that he does not yet have a well developed understanding of letter-sound patterns in English and so does not yet decode unfamiliar words well. He also found reading comprehension questions a little difficult, especially when asked to read more imaginative text or to provide more searching answers (score 92). So YZ needs to develop both his word reading and comprehension skills in reading.

In writing, he had problems with both spelling (score 78, below average) and sentence construction, so some further work is needed on grammatical aspects of writing, as well as spelling. He wrote some two syllable words correctly (eg "stationary, collection") but he struggled with many others (eg "rezine" for "resign", "dout" for "doubt").

In spite of these weaknesses, he was able to write an essay about his favourite game and achieve a satisfactory essay composition score (108, average). His organization of ideas was satisfactory, although he did not use paragraphs. He provide some introduction and he did include 3 reasons which he explained adequately. Mechanics were not so good. There were 13 spelling errors in 117 words (89% accuracy, low) and some sentences were awkwardly phrased.

In summary, YZ needs to develop his word skills (word reading and decoding, and spelling) and his comprehension and composition skills, especially comprehension questions which ask about main points, and sentence structures. He is currently below average levels in some areas of literacy. YZ will continue to need regular additional Specialist tutoring in order to improve his literacy skills.



Dr Tim Bunn,
BA(Hons) Oxon, PGCE (Bristol), MSc (UCLondon), EdD (Warwick) CPsychol (BPS), AFBPS;
Consulting Educational Psychologist,
Dyslexia Association of Singapore

Cc: Anaberta Oehlers-Jaen & Gladys Wee



Name of Student: YZ B/C No: XXXX
 Dates: 15 April 2015 DOB: (March, 2002)
 Number of sessions: 10 Weekly

INDIVIDUAL EDUCATION PLAN

Long Term Aims

1. Improve Spelling and Listening skills through phonics instruction
2. Develop accurate coding skills through Reading
3. Comprehension Skills - develop awareness of content
4. Writing

Specialist Tutoring / Therapy Targets	
1.	Phonological awareness * Introduce syllable/phonograms counting, oral blending and phoneme manipulation
2.	Phonics * a-z, begin/middle/end blends, consonant digraphs (sh/ch/th/wh), letter combinations (ing/ang/ong/ung/ink/ank/onk/unk) * Introduce vowel digraphs – oi, oy, ai, ay, ee, igh, y=/i/, au, aw, oe, ee, ar, er, ir, or, ur * Spelling rules – qu, ck, dge, tch, magic e
3.	Reading * Able to read/spell cvc, cvcc, ccvcc * Able to give verbal synopsis of story
4.	Comprehension skills * Introduce Comprehension Plus 'C' series for main idea/supporting sentences, drawing conclusion, cause/effect, predict outcome, using context clue. * Introduce strategies to improve comprehension - open ended questions, answer questions in full sentences * Skills to differentiate inferential /literal questions
5.	Writing * Focus on punctuation – capital, full stop, question and exclamation mark * Introduce graphic organisers in Planning, Drafting, Edit and Printing * Using Comprehension Plus 'C' series for Narrative Writing (8-10 sentences)

APPENDIX 3 : PROGRESS REPORT



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLEXIC PEOPLE ACHIEVE

PATRON: MRS GOH CHOK TONG

Student Progress Report

Child's name: YZ
Educational Level: Grade 6/7
DOB: (March.2002)
Date: 18 November 2015

B/C / Passport: B/C No: XXXX
No of Sessions: 10 Weekly 1:1

Overall Progress:

YZ is a consistent and confident learner. He has interesting ideas during brainstorming however he needs to be encouraged to spell and use unfamiliar words when he writes.

Reading & Spelling:

He reads fluently and when in doubt will blend unfamiliar words but he needs to be reminded to use 'fingers-spelling' (for Spelling).

Syllables & Syllabication:

He is aware of syllabication (using the clapping method) but weak on open/close syllables:

- Open/close syllable- need to review
- VC/CV (rabbit), VCCy (Penny), VCV (tulip / camel)

Writing & Reading:

YZ is introduced to listening comprehension that requires him to listen to details in order for her to answer literal questions based on text read to him. He is learning to pick up main idea / supporting details and currently working on higher order thinking skills.

It is a pleasure to teach YZ as he is open and willing to explore new ideas but he needs time to consolidate and make it his own learning. He has made excellent progress. Keep up the good work, YZ!

Name of Educational Therapist:

Gladys Wee-Bourne

APPENDIX 4 : POST TEST/ PROGRESS IN LITERACY SKILLS



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLEXIC PEOPLE ACHIEVE

PATRON: MRS GOH CHOK TONG

Literacy Assessment on a child requiring specialist tutoring

Re: YZ (27.02.2002) at age 14:06 yrs
B/C No: XXXX
Date of report: 19.09.2016

Purpose of this assessment:

The aim, in one session of about 70 minutes, was to evaluate YZ's progress in literacy skills over the last year, and to suggest ways in which he might need further teaching help.

YZ's attitude and behaviour during assessment:

YZ was quietly spoken. He remembered working with me a year ago. He was very cooperative and concentrated well throughout the session, which preceded his regular teaching session with Ms Wee.

Previous Reports:

I have seen two GL assessment reports from Australian International School (AIS), from March 2015 and June 2016. His scores on word reading, reading rate, comprehension and fluency had all increased by around 20 points, to an average of around 90, which shows substantial progress.

I have also seen his latest report from Term 1 2016 from AIS. His grades are mostly around B, with English at B (although his target here was C-). Maths seems weakest at present (target D+, actual D-). In Humanities his target was C but his actual grade was D.

In English he is advised to

- Use a wider range of expression and use different structures when writing; improve the mechanics of writing; read widely; keep a spelling and vocabulary notebook; use "Read Theory"; use conferences on longer pieces of writing to obtain more advice.

Tests used

WIAT3	Standard Score @ 13 years	SS at 14:05	Percentile at 14:05	Age Equivalent	Change	Evaluation
Word Reading	92	94	34 ^h	12:08 yrs	+	Low average
Pseudoword Reading	83	86	86	8:08 yrs	+	Below average
Oral Reading Fluency	91	87	87	11:04 yrs	-	Low average
Accuracy	80	90	25 ^h	11:08 yrs	+	Below average
Rate	94	88	21 st	10:04 yrs	-	Low average
Reading Comprehension	92	87	19 ^h	8:04 yrs	-	Low average
Spelling	78	87	14 ^h	10:08 yrs	+	Below average
Sentence Writing	75	90	25 ^h	11:08 yrs	++	Below average
Essay Composition	108	100	50 ^h	16 yrs	-	Average

Observations and Comments on test results:

YZ has made progress in all areas, with the possible exception of reading comprehension. A standard score which does not change means that progress has occurred at an average rate (because standard scores are age-adjusted). So an increase in standard score means a better than average rate of progress while a drop means slower progress, even though the skill may have improved.

Word reading and decoding are both a little stronger. He was correct this year on words he made mistakes on last year, and he can tackle more harder words. He has also improved on decoding (measured by reading non-words). He remains a little erratic here – so probably needs reminding quite frequently about spelling patterns for more complex words.

He had to read aloud on passages at grade level, so he was reading harder material this year. His speed was slower but he was substantially more accurate. There were a few word recognition errors but most errors were slips – minor errors on words he can read.

His comprehension was the least successful part of reading. He again had to read harder passages. He was better on straightforward factual questions, but ones asking him to say where the passages says something (referencing questions), why something was said (inferential questions) or what the main point of a paragraph or passage was were less successful. He will continue to need to practice the skills of reading for meaning and answering questions.

His word spelling has improved, and sentence composition has improved markedly. He was able to construct compound sentences satisfactorily, but he sometimes used the wrong word when making up sentences to include a target word. He slipped a little on essay composition, although his mechanical accuracy was actually better (fewer spelling errors this time, only 4 with some writing 2 words where it should be one (eg “all ways”). I agree with his teachers that he needs to vary his sentence structures more. He can construct adequate sentences but more variety would make for a more interesting piece. He only wrote in essay form for this

assessment. I understand his English teacher suggests discussion when he has more complex writing tasks. He does not write very fast (speed here about 9 wpm, slow for a 14 year old). He did not make a plan on this occasion. Generally students avoid writing a plan, but in his case it would be worth seeing him make one: this would enable him to be a little more creative in his sentence construction and perhaps also in word choice.

I agree very much with his teacher that a personal word book (PWB) could be very helpful for him; he could have an alphabetic section, a section for each spelling pattern, and he could add words he has recently read but which were unfamiliar and words where he has made spelling errors; the notebook provides a handy way to do frequent revision, which is the most important key to improving word level difficulties. Ideally his tutor can help him create and manage the book.

In summary, YZ has made progress in all areas, and mainly has progressed faster than expected. Aspects of reading comprehension and essay composition have not progressed so much. He needs to continue to receive additional specialist teaching. Some suggestions about priorities are: more focus on variety of sentence structure; keep a PWB and use it to check new words encountered and new spelling patterns; more focus on reading comprehension, especially referencing and inferential questions. Encourage active personal reading through discussion after choosing interesting books (ideally his tutor can help him choose).



Dr Tim Bunn,
BA (Hons) Oxon, PGCE (Bristol), MSc (UCLondon), EdD (Warwick) CPsychol (BPS), AFBPS;
Consulting Educational Psychologist,
Dyslexia Association of Singapore

Cc : Anaberta Oehlers-Jaen & Gladys Wee

APPENDIX 5 PARENT COMMUNICATION AND FEEDBACK

PARENT COMMUNICATION & FEEDBACK

Communication

Parent given permission and liaising with school DAS to meet the learning support.

Dear Learning Support Teacher,

As I mentioned before for 15 months since April 2015, XY has been receiving support from Dyslexia Association of Singapore and has been making **wonderful progress**.

His tutor Gladys Wee is always communicating what she does with YZ and provides ongoing recommendations.

Anaberta who is the Programme Director for Specialist tutoring at DAS works closely with parents and schools. I was hoping that we could arrange a meeting with all three of us to discuss future direction XY. Anaberta thought it would be beneficial if you could provide some feedback about the support that YZ has been receiving at AIS.

Thank you, and I look forward to hearing from you.

Many thanks,

YZ's Parent

On Thursday, 9 April 2015, YZ's Parent wrote:

Good morning Anaberta and Gladys

Thank you very kindly for arranging our lovely meeting yesterday. Both YZ and I walked out feeling reassured that we are in good hands.

Your warmth and amazing professionalism was overwhelming.

We had a chat on the MRT and YZ's enthusiasm and his awareness of need for help is evident. He was so excited that he was talking about his travel arrangements for that particular day.

Once again thank you ladies for your support and we both look forward to our future tutoring sessions.

Have a lovely day!

Warm regards

YZ Parent

ACKNOWLEDGEMENTS

I would like to thank Dr Tim Bunn for his invaluable support and guidance for our Specialist tutoring programme as well as his contribution to the pre/post test summary.

Specialist Teachers: Gladys Wee, Tam Shuyi, Shipa Madane, Nicole Chua, Puvaneswari Kurusamy, Jayashree Panicker.

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ABOUT THE AUTHOR



ANABERTA OEHLERS-JAEN

*Programme Director of SES Maths, Assessments and Specialist Tutoring and
Head of DAS International*

Ms Anaberta Oehlers-Jaen made a career switch from the Robinson's group of companies as Group Merchandise Controller to join the DAS in 2005 as an Educational Therapist. She holds a Masters Degree in Special Needs from NTU, BA (English Language and Literature) from SIM, a Postgraduate Certificate in Teaching and Learning in Higher Education from the London Metropolitan University as well as a Cambridge International Diploma for Teachers and Trainers (Dyslexia), along with Early Childhood Diplomas. She has Fellow status at RETA Registrar of Educational Therapists (Asia) and is also a Senior Educational Therapist.

For 4 years, she was the Preschool Manager of the DAS Preschool Service actively involved with children at risk of literacy delay. Anaberta who is also actively involved in research has also delivered at conferences in Singapore and Hong Kong. Her recent paper in 2014 was on the Programme Evaluation for Specialist tutoring as well as actively, overseeing the development of the Maths Programme.

Her background of more than 15 years in the retail service line, has translated her into adopting a high level of professional service for both the students and parents through Specialist support and Assessments. She hopes to share the same philosophy which she has embraced at the DAS as her personal ethos in helping all children achieve in her current portfolio both in Singapore and the region.



SPECIALIST TUTORING

SES has a team of specialist tutors who have extensive experience in supporting students with specific learning differences and other learning needs.

ONE-TO-ONE SUPPORT

Individualised tutoring is tailored based on the profile of the child, which is obtained from our multi-disciplinary team of Educational Psychologists, Speech and Language Therapists and in consultation with parents and educators.

Specialist Tutoring focuses on problem-solving skills, which includes:

- Literacy, Numeracy, Oracy & Writing Skills
- Individual Curriculum support
- Study skills and Exam preparation
- Behaviour and Social support



Find out more at www.ses.org.sg or 6444 5700

Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore.

Specialised Educational Services

UNLOCKING POTENTIAL

SPEECH AND DRAMA ARTS

The aim of the programme is to develop literacy, communication and presentation skills and boost the self-esteem of learners with dyslexia. Drama can be that powerful tool to help increase the self-esteem and confidence of students with learning differences.

OUR APPROACH

Using drama activities, students get opportunities to enhance their persuasiveness and confidence in communication. Students are given the freedom to express themselves freely, using their imagination and creativity. Other vital communication skills that are fostered in the class setting includes listening and concentration. Activities ranging from role-playing to stage performances require students to understand the fundamentals of stage directions, character dialogues, music and light cues. To stage a production necessitates the child to understand and interpret the script, process the script in-depth. This allows them to work on the working memory and processing speed.

Class sizes are kept to a maximum of 10 students per class and are conducted once a week, 1.5 hours per session.

The SDA programme consists of 4 different modules catering to 3 age groups

- ◆ Drama, Music and Movement for ages 5-6 years
- ◆ Creative Drama Programme for ages 7-8 years
- ◆ Literacy Through Drama for ages 9-13 years

At the end of each module, parents will be invited to watch the progress of the children. This will also help in giving our students the experience and exposure of performance making. A certificate of participation and progress report will be given to students upon completion of each module.

Specialised Educational Services

Speech and Drama Arts

Pushpaa Arumugam¹ and Muzdalifah Hamzah²

1. Assistant Director, SES Enrichment Programmes

2. Senior Educational Therapist and Drama Instructor

Dyslexia Association of Singapore

BACKGROUND OF THE SES SPEECH AND DRAMA ARTS PROGRAMME

We at the Dyslexia Association of Singapore (DAS) recognise Speech and Drama Arts as an effective means of developing our students' talents and self-confidence, which in turn can lead to a more positive self-concept for a student. Our goal is to provide an outlet for students to express themselves, their inner feelings and emotions and to demonstrate their talents in a fun and artistic way.

The two main focus of our Speech and Drama Arts Programme is to develop our students' language skills such as reading, writing, speaking and listening through our structured curriculum. The next is to use drama techniques to enhance the social-emotional development of our students.

"The current demands of society require additional skills from children, such as being socially and emotionally competent, in order to adapt themselves to the complex demands of growth and development." (Payton et.al,2000)

THE PROGRAMME AND ITS OBJECTIVES – Language and Literacy Development

Understanding the background and characteristics of our dyslexic students has allowed the team to develop a programme that would enhance their learning journey and discover their potentials.

Develop Literacy Skills

Through Drama, language learning is now an interactive and participatory process

that engages learners emotionally and playfully (Winston, 2012). According to Winston (2012), Drama is a multimodal form of pedagogy that engages students' interest at different level of entry. A multimodal form which combines visual, aural, verbal and kinaesthetic language allows students to retain a particular learning experience firmly in their minds (Chang, 2012). Also, the 'malleability' of the learning process enable teachers to swiftly respond and adapt to any student's comments, questions or ideas (Chang, 2012).

The presence of other co-occurring difficulties in children with dyslexia such as dyspraxia, dyscalculia attention deficit hyperactivity disorder (ADHD), social, emotional and behavioural disorder (SEBD) and specific language difficulties worsen the already complex process of learning language (Everatt, Week and Brooks, 2008; Thomson, 2009). Chang (2012) suggested the playful nature of Drama is advantageous in preparing students to express their thoughts and learn to take risks. Drama, being a multimodal pedagogy, uses props, body language, facial expressions, sounds and images along with words to convey meaning (Palechourou and Winston, 2012). Within the drama experience, our students are given the opportunity to draw and make meaning not only from their spoken language but also the physical context combined with visual and aural cues. Hence, our goal is to provide an outlet for our students with dyslexia to use language in a fun, creative and engaging setting.

Develop effective communication and presentation skills

The majority of our students have difficulties in expressing or communicating their thoughts. Our objective is to enhance persuasive and confident communication with our students with dyslexia. Some of the activities in our drama classes will help our students to enunciate words clearly and effectively to convey their intended message. For example, activities such as role-play provide stimulation in learning conversational interactions. Such activities will be a platform for learners to express themselves freely with the use of language while incorporating imaginative skills. In this way, our students would be able to make human sense of communicative acts, how they would present themselves to support the words they had used (Winston, 2012).

Enhance students' listening and concentration skills

Ranging from classroom lessons such as role plays to stage performances, students are required to understand the fundamental of stage directions, character dialogues, music and light cues. Hence listening and concentration skills are vital for an actor. Thus, our drama programme will, with no doubt help such dyslexic students.

THE PROGRAMME AND ITS OBJECTIVES – Social-Emotional Development

Identify their inner strengths and hidden talents to boost self-esteem

Undermining a child by destroying their self-esteem will have a significant effect on their potential to learn and their success in life. Dyslexic children need to feel supported in order to succeed. (Eadon, 2005)

Dyslexia does not only affect the academic component of learning – literacy, but also emotional well-being of a student (Eadon, 2005; Thomson, 2009). Thomson asserted that if children with dyslexia could overcome the "I am dyslexic and I can't do it" attitude, then it would increase their self-esteem and determination to succeed. Therefore, Drama is a powerful tool for building self-confidence, which in turn can lead to a more positive self-concept for our students (Eadon, 2005; Winston, 2012).

Drama for Personal Growth

Putting language into action will give the students an opportunity to become physically and linguistically part of the story by assuming the role of the characters and imagining they are facing similar problems (Palechorou and Winston, 2012). Other than building rapport among students and teachers through activities, we create opportunities for students to:

- ◆ discover their strengths and weaknesses,
- ◆ re-consider their thoughts, attitudes and their feelings in the light of shared experience with their peers.
- ◆ learn to work together, to cooperate, to contribute, and to listen to and accept the viewpoints and contributions of others.
- ◆ to be team-oriented

CURRICULUM DEVELOPMENT

Under the Speech and Drama Arts programme, there are 3 individual modular based programmes catering to different age groups.

1. Drama, Music and Movement for ages 5-6 years
2. Creative Drama Programme for ages 7-8 years
3. Literacy Through Drama for ages 9-13 years

With a whole range of highly interactive and enriching modules, the SDA team developed 4 concrete modules for the Creative Drama programme in the year 2014. In 2015, the team continued to develop a new curriculum - "Literacy Through Drama" to meet the changing needs of our students in the upper primary.

Descriptions of the various modules are as follows:

CREATIVE DRAMA CURRICULUM

DESCRIPTION OF THE 4 MODULES

Module 1: Exploring Voice and Emotions Through Coral Reading

This module provides an opportunity for students to develop fluency through reading of poems, using vocal and physical expression. Students will learn how to perform a choral reading text in 4 different styles such as Refrain, Antiphonal, Line-a-child and Unison. The main emphasis will be on learning how to express one's feelings through body language and developing speaking skills such as projection, clarity, expression and speaking in harmony which are needed in Choral Speaking Presentations

Module 2: Dramatic Storytelling

Our story telling program is designed to give students the chance to develop ways to tell stories in an interesting and exciting way using, masks, pictures and props. Based on a given story, students will learn how to create character voices, express emotions, facial expressions, body movements, eye contact with audience and most importantly, performance discipline.

Module 3: Role-Play and Improvisation

Role play is the basis of all dramatic activity. In this module, students are encouraged to step into another character's shoes using improvisation techniques that promote creative expression, physicalizing of thoughts, collaboration and teamwork. During the drama lesson, this can be used to great effect, challenging children to develop a more sensitive understanding of a variety of viewpoints whilst sharpening their language and movement skills. It helps children to acquire social skills, problem solving skills and also provide opportunities to be imaginative and creative.

Module 4: Playbuilding Towards Performance

In this module students will create a short performance from practically nothing. Ideas are generated from issues, events, pictures, poems and themes. What they start out as and what the ideas finally become is part of the playbuilding process. In the process, students will select a starting point and move on to a lot of discussion, brainstorming and even some improvisation. They will find the spine by collating the information as a group and work on scenes and physically act them out. Finally, students will reflect on their performance both individually and as a group. The process in the playbuilding skills allows students to experiment, discuss, collaborate, refine, choose and evaluate.

LITERACY THROUGH DRAMA CURRICULUM

DESCRIPTION OF THE 4 MODULES

Module 1: Let Idioms And Phrases Do The Talking - Idioms And Phrases

In this module, students explore the use of idioms and phrases in the English language. Through drama tools such as dialogues, tableaux, story crafting and reader's theatre, students learn to make meaning and apply idioms and phrases in appropriate areas of language usage.

Module 2: Between The Lines - Comprehension

Comprehension implies understanding a given article. In this module, through the exploration of various stimuli such as posters, articles, poems and story passages, students learn the art of constructing thought processes to read between the lines and make meaning.

Module 3: Tricks Of The Trade - Vocabulary And Oral Communication

In language usage, choosing the right word and using the right tense play an integral part. In this module, students actively learn the nuances of using vocabulary and grammar effectively through drama games and activities.

Module 4: Get The Show On The Road - Scripting A Play

The last module for this year, is a culmination of all the literacy skills acquired through the year.

Students apply their language skills to create and deliver an original story through forms of drama.

CURRICULUM DEVELOPMENT PLANS FOR THE YEAR 2016

At the end of 2015, the team decided to develop a new curriculum - "Drama, Music and Movement" that will greatly benefit the younger ones in preschool.

Drama with Music and Movement is our specialised programme for preschool children to listen, move, play, have fun and interact with peers through drama and music. The programme fosters imagination and aims to offer rich sensory experiences that aid in the cognitive, emotional, creative and physical development of children.

During the programme, children will engage in activities which illustrate the connection between movement, spatial and kinaesthetic awareness, helping them to improve balance, coordination, concentration and self-esteem.

Besides being “fun” for most children, kinaesthetic activities can help young learners, especially English language learners, develop decoding skills, fluency, vocabulary, syntactic knowledge, discourse knowledge, and metacognitive thinking (Sun, 2003). Teaching language skills through drama and movement gives children a context for listening and meaningful language production, provides opportunities for reading and writing development (Chauhan, 2004)

The team planned the 4 modules to be covered in 1 year.

DRAMA, MUSIC AND MOVEMENT (K1-K2)

MODULE 1: Move to the Theme

MODULE 2: Stories In Movement

MODULE 3: Show What You Know

MODULE 4: I Can Act!

APPROACH TO TEACHING

This specialised programme is planned such that students participate in both guided and self-directed activities that will engage them kinaesthetically and cognitively. The activities facilitated during lessons encourage affective aspects of reading and literacy while offering multiple opportunities for meaningful communication, social interaction, discussion and feedback.

The curriculum and lesson deliveries are influenced by Multiple Intelligence (MI) Theory that has a profound impact on thinking and practice in drama education and the Orton-Gillingham (OG) approach which is practiced by our Educational Therapist in ELA teaching. The SDA programme combines both approaches. The table below shows how we use the MI theory in our speech and drama classroom activities.

Multiple Intelligence (MI) Theory

According to Howard Gardner , the father of Multiple Intelligences suggested every learner possesses many intelligences despite the learner being more responsive to visual cues or kinaesthetic approaches (Baldwin and Fleming, 2003). The table below gives an overview how Drama, as a teaching and learning medium, utilises and develops multiple intelligences in our students.

In ideal multiple intelligences instruction, rich experiences and collaboration provide a context for students to become aware of their own intelligence profiles, to develop self-regulation, and to participate more actively in their own learning. (Moran, Kornhaber and Gardner, 2006)

Gardner's Theory of Multiple Intelligences provides a theoretical foundation for recognising the different abilities and talents of students (Gardner, 2003; Pearson, 2001). This theory acknowledges that while all students may not be verbally or mathematically gifted, children may have an expertise in other areas, such as music, spatial relations, or interpersonal knowledge (Moran et.al., 2006; Baldwin and Fleming, 2003). Approaching and assessing learning in this manner allows a wider range of students to successfully participate in classroom learning.

INTELLIGENCE TYPE: VERBAL-LINGUISTIC	
Learns Best Through	Type of drama activity
Reading, Listening, And Seeing Words, Speaking, Writing, Discussing and Debating	<ul style="list-style-type: none"> ◆ Thought-tracking and monologue ◆ Extended dialogue ◆ Writing short poems ◆ Explaining ideas to the group ◆ Using different language registers
INTELLIGENCE TYPE: LOGICAL-MATHEMATICAL	
Learns Best Through	Type of drama activity
Working with Patterns and Relationships, Classifying, Categorizing, Working with the Abstract	<ul style="list-style-type: none"> ◆ Thinking and planning the use of space ◆ Sequencing of scenes ◆ Implications of the actions of characters ◆ Dividing into groups for working ◆ Using and planning lighting for scenes
INTELLIGENCE TYPE: MUSICAL	
Learns Best Through	Type of drama activity
Picking up sounds, Rhythm, Melody, Singing, Listening to music	<ul style="list-style-type: none"> ◆ Responding to music to create atmosphere for a scene, ◆ Keeping up a tempo/rhythm in synchronised work, ◆ Awareness of vocal pitch and tone ◆ Working on a sequence of movements to keep time with the music/rhythm for a synchronised sequence.

INTELLIGENCE TYPE: INTRAPERSONAL

Learns Best Through	Type of drama activity
Doing Self-Paced Projects, Reflecting, Understanding Strength and Weaknesses and Setting Goals	<ul style="list-style-type: none"> ♦ In groups being able to point out how they respond to a stimulus prior to working with it, ♦ As individuals expressing the inner motivations of themselves in relation to a character. <p>Example: Who has felt like this character at any time in their life?</p> <p>During planning – ‘I think the character might be feeling... because I would feel....’</p>

INTELLIGENCE TYPE: INTERPERSONAL

Learns Best Through	Type of drama activity
Sharing, Comparing, Relating, Interviewing, Co-operating, Organising and Leading	<ul style="list-style-type: none"> ♦ Recognising and responding to the situations and stimulus of drama through awareness of moods, atmospheres, feelings, and with an awareness of facial expression, body language in both the actuality of the group and in the drama process ♦ Show how this character would enter the situation. ♦ Able to see the signs of the character when asked - How did you know that the character was scared even though he was smiling?

INTELLIGENCE TYPE: BODILY –KINAESTHETIC - SPATIAL

Learns Best Through	Type of drama activity
Touching, Moving, Processing Knowledge Through Bodily Sensations, Dancing, Acting and Using Tools	<ul style="list-style-type: none"> ♦ Physical abilities – holding postures, creating a variety of gestures, balancing, moving in a variety of sequences and styles, using mime ♦ Using space, creating groupings, diagrams of set designs, use of colour for costumes and sets, use of lighting effects for the space, using a variety of levels/rostra blocks <p>E.g. Still-image work holding a posture/gesture, Walking and moving in the manner of an old person answering the door. Draw the set from above showing the exits and where the chairs need to be placed for the character to remain important to the audience. Decide on which elements of the set need to be in the spotlight to show the character’s monologue.</p>

Orton-Gillingham Approach

Language based – Exposure to different texts in order to enhance students' appreciation of English language through Drama.

Cognitive – the activities are crafted to engage their cognition eg. creative story writing, roleplay, improvisation, memorising scripts, rehearsing and performing with movements and cues

Structured, Sequential and Cumulative – includes direct and explicit instruction and has different range of difficulty level for all activities

Simultaneous multi-sensory - engage through stage and hand props, presentation of skills through multiple senses, eg. Using visual and aural cues

Diagnostic prescriptive – Drama Instructors regularly assess students' abilities and adapt activities according to the class dynamics.

Emotionally sound – Drama Instructors are trained in the special needs field who have a better understanding of our students needs and strengths.



Ms Muzdalifah Hamzah
Senior Educational Therapist and Drama Instructor

Muzdalifah is a Senior Educational Therapist Dyslexia Association of Singapore (DAS) and her students range from primary and secondary school levels. She has obtained a Diploma of Educational Studies - Speech & Drama awarded by The College of Teachers, United Kingdom.

Apart from her passion working with children, she has a keen interest in Drama Arts. She started participating and competing in performing arts since her early school years. She believes the Speech and Drama Arts programme will greatly benefit our DAS students in developing their self-esteem, confidence level and will transform them into children with irrepressible curiosity for learning as they take on the journey to believe more in themselves.



Ms Amrit Kaur Gill
Senior Educational Therapist and Drama Instructor

Prior to joining the Dyslexia Association of Singapore (DAS), Amrit was a Speech and Drama Instructor where she taught speech and drama, storytelling, oral communication and also confidence building courses to students from the upper and lower primary at the mainstream schools. In addition to teaching drama, she also has experience in staging student performances.

Amrit Kaur Gill is currently a Senior Educational Therapist at the DAS. She works with children on a wide spectrum from primary to secondary level, where she encompasses them with literacy skills using the Essential Literacy approach (ELA). She is also one of our Speech and Drama Arts (SDA) Instructors and contributing member of the SDA Programme. Together with the team, she took the main responsibility in developing our Literacy through Drama programme.

Amrit has obtained a bachelor degree in Mass Communication. She has also obtained a Diploma in Educational Studies (Speech and Drama), awarded by College of Teachers, UK and current pursuing a Certificate course in Music & Movement awarded by the same educational institute.



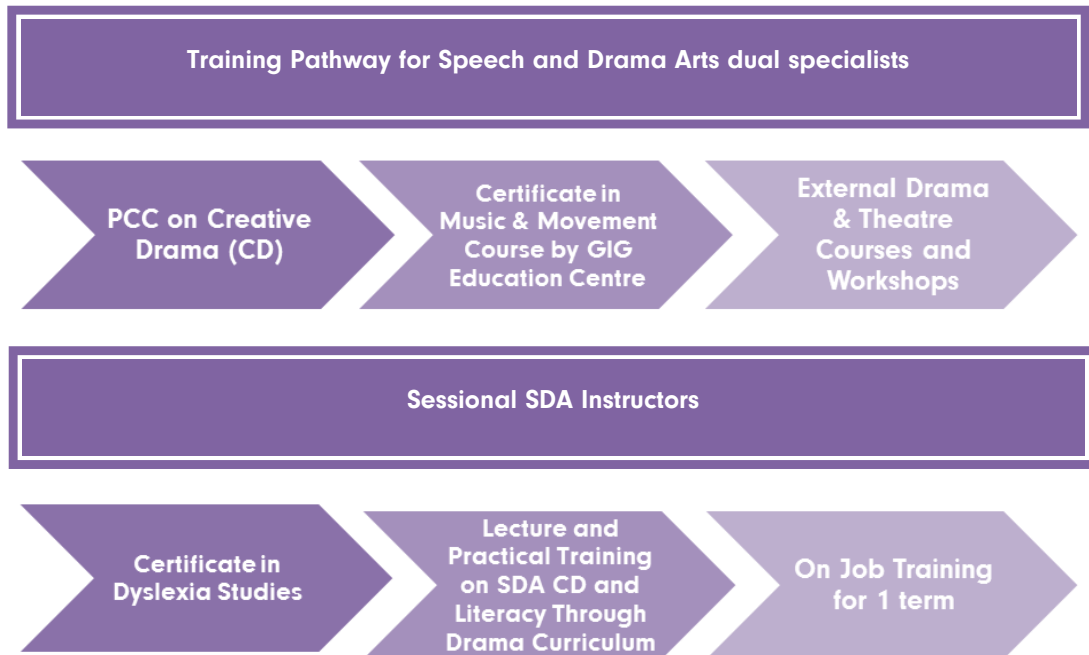
Ms Shobana Vikiraman
Educational Therapist and Drama Instructor @ DAS Bedok

Shobana Vikiraman is a Educational Therapist and Drama Instructor with the DAS and her students range from primary and secondary school levels. She has obtained a Diploma in Educational Therapy and a professional certificate in Speech and Drama Arts. Apart from her passion working with children, she has a keen interest in Drama Arts. She started out as a member in Poly Stage Factor (Drama Club) during her time at Ngee Ann Polytechnic. Her passion and desire to contribute more to the performing arts allowed to her to be recognised and she was chosen to serve as a Vice President of Poly Stage Factor in 2009. She have been involved in quite a number of theatre productions since then. She is thrilled to share this passion with our students here at the DAS. She wishes to ignite the passion within each child and allow them to realise their true potential. Shobana is also a member of Register of Educational Therapists Asia (RETA).

MANPOWER FOR SPEECH AND DRAMA ARTS PROGRAMME IN 2015

Drama Instructors	Centres for SDA Classes	Centre Based At	Designation	Programmes Taught
Muzdalifah Hamzah	Bishan	Sengkang	Core Team Member & Dual Specialist	Drama, Music and Movement (in Term 4), Creative Drama and Literacy Through Drama (T1 - T4)
Amrit Kaur Gill	Tampines and Bedok	Bedok	Contributing Member & Dual Specialist	Drama, Music and Movement class (in Term 4) Creative Drama and Literacy Through Drama (T1 - T4)
Shobana Vikiraman	Bedok	Bedok	Dual Specialist	Creative Drama and Literacy Through Drama (T1 - T4)
Mathana Subas	Jurong Point	Jurong Point	Dual Specialist	Creative Drama and Literacy Through Drama (T1 - T4)
Corinne Ang	Nil	Sengkang	Dual Specialist	Creative Drama Workshops in June 2015 Creative Drama Workshop in Nov 2015 at Eunos Primary School
Shaun Lim	Nil	Bishan	Dual Specialist	Creative Drama Workshops in June 2015 Creative Drama Workshop in Nov 2015 at Eunos Primary School
Farhana Muliadi	Nil	Chua Chu Kang	Dual Specialist	Creative Drama Workshop in June 2015

TEACHER QUALIFICATION AND TRAINING PATHWAY



ABOUT PROFESSIONAL CERTIFICATE COURSE (PCC) TRAINING

The PCC was designed for the Educational Therapists (EdT's) who wish to complete a dual-specialisation in Speech and Drama Arts. The course provides the knowledge and skills required to teach Speech and Drama lessons.

Course Duration: Total of 20 hours over 7 weeks

At the end of the course, there will be a summative assessment leading to awarding a competent learner with a PCC Certificate.

The assessment is based on:

1. Teaching Practicum - 25 minutes
2. Submission of a 1-hour lesson Plan
3. 500 words Written Journal

To further develop our SDA instructor's professional qualification in the field, 2 Educational Therapists completed their Diploma in Educational Studies (Speech and Drama) in 2014.

QUALITY ASSURANCE FOR SPEECH AND DRAMA ARTS PROGRAMME

How do we ensure and evaluate the quality of our Speech and Drama Arts Programme?

1. Placement of students
2. Evaluating our Students after each drama component is covered
3. Quality of our Curriculum / Lesson Plans
4. Teaching Quality of our Drama Instructors
5. Parents' Feedback
6. Students' Feedback

PLACEMENT OF STUDENTS PRIOR TO THE START OF THE CLASS

- ◆ This is to help the drama instructor in class management know the needs of the group and use the appropriate teaching methodologies.
- ◆ Students from primary 1 to primary 6 are placed in our programme.
- ◆ Lower primary students will be placed in the Creative Drama programme while the upper primary students are placed in the Literacy Through Drama programme. There will be a maximum of 8 students in a class.
- ◆ The Educational Therapists teaching the MAP programme, are required to fill up the following information so that the drama instructors have prior knowledge about the students.

Information Required		Input by Educational Therapists
1	Standard scores (based on the last annual testing)	
2	How would you grade the student's speed of learning? For example, ability to read Oxford Reading Tree books? (Fast, Mid, Slow)	
3	What type of learner do you think he/she is? (Visual, Audio, Kinesthetic, Tactile)	
4	Is the student on any status? (STAR Plus, IEP)	
5	Any other comments about the student and his / her learning needs?	

EVALUATING STUDENTS' PROGRESS

The SDA team is using two different methods to evaluate the students.

First Method - overall skills learnt in the specific module

The method is by evaluating the students after each drama component is covered
Students' Evaluation (Post)

1. Students will be evaluated on the last day of the specific lesson/ topics skills.
For example:
Tableaux - on 3rd lesson,
Miming - on 2nd lesson,
Voice - on 3rd lesson... etc
2. There will be a final presentation at the end of each level for parents to watch.
Students will be evaluated on overall skills learnt in the specific level.

A progress report will be given upon completion of each level to the parents.

Evaluation Process

During the evaluation process, these are some questions that SDA Drama Instructors would have to consider, in addition to the skill rubrics appended in this report.

Q 1: What are our objectives for the programme?

- ◆ enhance students' concentration skill
- ◆ develop and enhance imagination and creativity
- ◆ help identify students' inner strengths and inner talents
- ◆ Develop effective communication and presentation skills
- ◆ Increase proficiency in English language
- ◆ increase confidence and build self-esteem

Q 2: Is the evaluation process aligned with our objectives?

Both the Creative Drama Programme and the Literacy Through Drama Programme cover 4 modules. Various skills are taught progressively in each module.
For example, in the first module of the Creative Drama Programme, the students start off with the following skills:

Tableaux (image theatre); Voice techniques; and Expressing Emotions.

Students' Evaluation method:

- ◆ Use rubrics to evaluate for skills taught by the 10th lesson
- ◆ Observations by teachers during class for lesson 1 - 8 and the final performance.
- ◆ Student Progress Report
- ◆ How is the score tabulated? Rubrics

**Specialised
Educational
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UNLOCKING POTENTIAL

SPEECH AND DRAMA ARTS PROGRAMME

PROGRESS REPORT

Student:	Date of commencement:
BC No.:	Learning Centre:
Level:	Educational Therapist:

ABOUT THE SPEECH AND DRAMA PROGRAMME CONDUCTED AT THE DAS:

Speech and Drama Arts is an effective means of developing our students' talents and self-confidence, which in turn can lead to a more positive self-concept for a student. Our goal is to provide an outlet specifically for DAS students to express themselves, their inner feelings and emotions and to demonstrate their talents in a fun and artistic way.

We recognise that Drama is a powerful tool for self-development and we wanted to give dyslexic students the opportunity to improve their self-esteem through our structured drama classes focusing on language development, communication skills and personal development

Programme Objectives

- ◆ Develop Literacy Skills
- ◆ Improve listening & concentration skills
- ◆ Foster self-awareness and self-esteem
- ◆ Develop communication & presentation skills
- ◆ Encourage teamwork
- ◆ Develop problem-solving & decision making ability

COMMENTS ON STUDENT'S PROGRESS				
Exploring Voice and Emotions Through Choral Reading	Exceptional (4)	Admirable (3)	Acceptable (2)	Attempted (1)
Ability to use Imagination				
Body movement / Facial expression				
Voice and articulation: Expression, projection and clarity				
Able to show variety of emotions through physical and vocal delivery				
Group presentation & cooperation amongst peers				
Overall Points: (Max.20 points)				
Written comments based on rubrics:				
Ability to use Imagination:				
Body movement Facial expression:				
Voice and articulation: Expression, projection and clarity:				
Able to show variety of emotions through physical and vocal delivery:				
Group presentation & cooperation amongst peers:				
OTHER comments on student's progress				

 [Name of EdT]
 Educational Therapist:
 Date:

 Pushpaa Arumugam
 Assistant Director for SES
 Enrichment Programmes:
 Date:

 [Name of CM]
 Centre Manager:
 Date

Exceptional 4	Admirable 3	Acceptable 2	Attempted 1
ABILITY TO USE IMAGINATION			
Student consistently and imaginatively: React to imaginary sights, sounds, smells, tastes, and textures.	Student usually: React to imaginary sights, sounds, smells, tastes, and textures.	Student needs outside support, is rarely able to: React to imaginary sights, sounds, smells, tastes, and textures.	Student does not agree to pretend Does not react to imaginary sights, sounds, smells tastes, and textures.
BODY MOVEMENT FACIAL EXPRESSION			
<p>Student is consistently able to: Modify posture, poses, gestures, movements, and/or walk, including High/medium/low levels</p> <p>Pose with an audience's perspective in mind</p> <p>Use energy when modifying or adjusting body</p> <p>Use dramatic facial expression appropriate to thoughts and feelings of the character</p> <p>Expression exaggerated for audience to see Body/face show dramatic tension</p> <p>Communicate consistent meaning.</p>	<p>Student self corrects, is usually able to: Modify posture, poses, gestures, movements, and/or walk, including High/medium/low levels</p> <p>Pose with an audience's perspective in mind</p> <p>Use energy when modifying or adjusting body</p> <p>Use dramatic facial expression appropriate to thoughts and feelings of the character</p> <p>Expression exaggerated for audience to see Body/face show dramatic tension</p> <p>Communicate consistent meaning</p>	<p>Student needs outside support to correct; is rarely able to: Modify posture, poses, gestures, movements, and/or walk, including High/medium/low levels</p> <p>Pose with an audience's perspective in mind</p> <p>Use energy when modifying or adjusting body</p> <p>Use dramatic facial expression appropriate to thoughts and feelings of the character</p> <p>Expression exaggerated for audience to see Body/face show dramatic tension</p> <p>Communicate consistent meaning</p>	<p>No variation in body movement beyond actor neutral</p> <p>No facial expression Body/face do not communicate meaning (the thoughts and feelings of the character)</p>

Exceptional 4	Admirable 3	Acceptable 2	Attempted 1
VOICE AND ARTICULATION: EXPRESSION, PROJECTION AND CLARITY:			
<p>Reads smoothly with some breaks, but self-corrects with difficult words and/or sentence structures.</p> <p>Reads with good phrasing; adhering to punctuation, stress and intonation.</p> <p>Could hear the whole phrase each time perfectly and there was no unnecessary yelling. Audible throughout.</p>	<p>Reads with occasional breaks in rhythm. The reader has difficulty with specific words and/or sentence structures.</p> <p>Could hear most of the phrase, but there was either yelling or a normal voice level.</p> <p>Generally audible</p>	<p>Reads with extended pauses or hesitations. The reader has many "rough spots."</p> <p>Reads in two or three word phrases, not adhering to punctuation, stress and intonation.</p> <p>Could not hear phrase very well from the back of the room.</p> <p>Audibility dropped a couple of times.</p>	<p>Frequently hesitates while reading, sounds out words, and repeats words or phrases. The reader makes multiple attempts to read the same passage</p> <p>Could hardly be heard</p>
ABLE TO SHOW VARIETY OF EMOTIONS THROUGH PHYSICAL AND VOCAL DELIVERY:			
<p>Student consistently & imaginatively demonstrated a great variety of emotion and very realistic.</p> <p>Student is able to stay in character and consistently portrays relevant emotions throughout class performance.</p> <p>Communicates the character's emotions.</p>	<p>Student usually demonstrated good variation of with emotional levels. Very few spots that were lacking focus.</p> <p>Student is able to stay in character and inconsistent in portraying relevant emotions through almost all class performance.</p> <p>Can hear a unique voice true to the character's emotions.</p>	<p>Student demonstrated weak commitment, one dimensional, very little focus, very little emotional variety and few levels.</p> <p>Student did not have a distinct character and broke character several times with inaccurate emotions.</p> <p>Voice not representing character's emotions.</p>	<p>Student has to improve on emotional commitment and energy.</p> <p>Student did not portray his/her character and the emotions.</p> <p>Voice is not true to character's emotions</p>

Exceptional 4	Admirable 3	Acceptable 2	Attempted 1
GROUP PRESENTATION & COOPERATION AMONGST PEERS			
The student actively participated in the group presentation. The student is always willing to complete assigned tasks and works well with others.	The student helped in the group presentation. The student is sometimes willing to complete assigned tasks and works somewhat well with others.	The student somewhat participated in the group presentation but lack of initiative. The student is rarely willing to complete assigned tasks and sometimes works well with others.	The student did not participate in the group presentation. Or teachers were not able to hear or understand them. The student does not show willingness to complete assigned tasks and does not work well with others.

CONSOLIDATED TERMLY PROGRESS SCORES 2015

For students attended the Creative Drama and Literacy Through Drama

These are percentage scores taken from our students' termly progress reports across 4 terms in 2015. As students move up to the next level, it is apparent that some showed steady improvement while others may be good in one skill but not the other. As the drama skills taught in the programme is cumulative and progressive in nature, it is expected for the scores to fluctuate, depending on the students' competency level for a certain skill/s.

Unlike other programmes that have pre/post test results, taking tab on the scores every term give our teachers an overview of how our students are doing. This will allow our teachers to work on those students who require more help in the next school term.

Student #	Term 1	Term 2	Term 3	Term 4
Student 1	75%	60%	70%	71%
Student 2	72%	85%	80%	71%
Student 3	65%	60%	70%	63%
Student 4	80%	65%	80%	71%
Student 5	63%	75%	70%	63%
Student 6	61%	65%	60%	60%
Student 7	58%	70%	65%	50%
Student 8	80%	75%	90%	83%
Student 9	70%	60%	70%	63%
Student 10	63%	85%	70%	71%
Student 11	59%	75%	65%	71%
Student 12	58%	65%	70%	67%
Student 13	59%	70%	65%	58%
Student 14	70%	80%	80%	83%
Student 15	60%	65%	70%	63%
Student 16	70%	70%	85%	83%
Student 17	65%	75%	70%	88%
Student 18	100%	90%	100%	83%
Student 19	95%	90%	95%	95%
Student 20	N.A	55%	70%	63%
Student 21	70%	65%	80%	80%

Second Method - Southampton Emotional Literacy Scale (SELS) Survey

Being a programme which promises to heighten self-esteem and self-confidence level of its students, SDA needs a tool to measure the efficacy of its objectives. The Southampton Emotional Literacy Scale was selected in Term 4 2014 to be the tool to measure our students' emotional literacy level. There is an increased awareness to discover students' strengths and weaknesses in the area of emotional literacy.

SELS touches two components;

- i) personal competence and
- ii) social competence.

There are 3 types of checklists designed to assess the emotional literacy of our students;

- i) parent's checklist,
- ii) student's checklist and
- iii) teacher's checklist.

The checklists contain statements that seek the views of the student, parents or care-giver and teacher on the emotional literacy of the student.

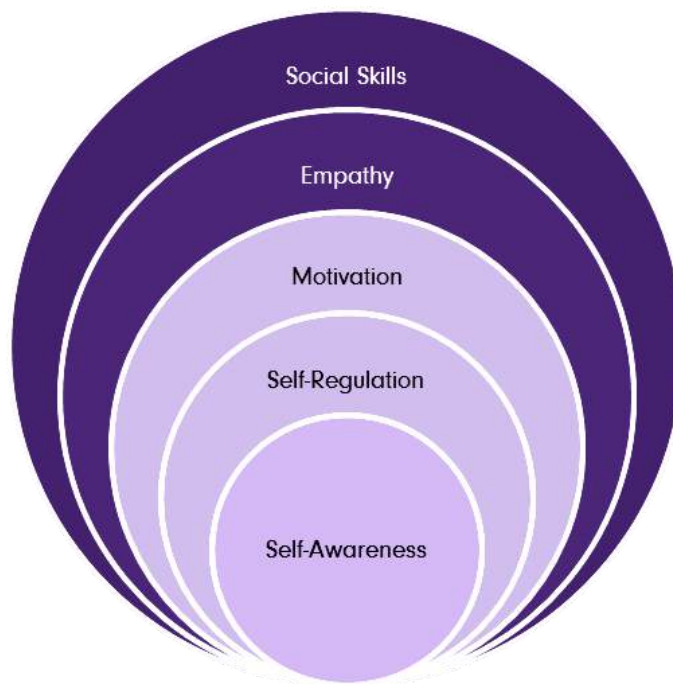
PROGRAMME EVALUATION DESIGN

To determine if students had benefited from attending SDA programme, the SDA team started collecting data from SDA students through questionnaires from The Southampton Emotional Literacy Scale (SELS) in Term 1, 2015.

SELS questionnaires were used to measure our students' emotional literacy level. The SELS questionnaires was developed by Southampton Psychology Service, which thoughtfully adapted Goleman's (1996) categorisation of skills and competences that were relevant and will contribute to the emotional and social development of children.

The stacked Venn diagram below illustrates the relationship of the 2 dimensions of emotional literacy. The three lilac circles represented the Personal Competence dimension, which is about how the students manage themselves in terms of these abilities: self-awareness, self-regulation and motivation.

The next dimension is the Social Competence dimension, which is represented by the two violet circles. Social Competence comprises of empathy and social skill, hence it



concerns with how students manage relationship with others.

The SELS kit comes with 3 sets of checklist - Parent's Checklist, Teacher's Checklist and Pupil's Checklist. For the purpose of this

Being a programme which promises to heighten self-esteem and self-confidence level of its students, SDA needs a tool to measure the efficacy of its objectives. The Southampton Emotional Literacy Scale (SELS) was selected in Term 4 2014 to be the tool to measure our students' emotional literacy level. There is an increased awareness to discover students' strengths and weaknesses in the area of emotional literacy.

Participants

A total of 38 students across the 3 centres (Bishan, Jurong Point and Bedok) were invited to participate in the SELS survey. Out of the 38 students, 27 students are new to the SDA programme.

The survey was done by SDA teachers during the staggered break times in class. This allowed the teacher to go through the questionnaire one-to-one with student as some may have difficulty reading or comprehending the questions.

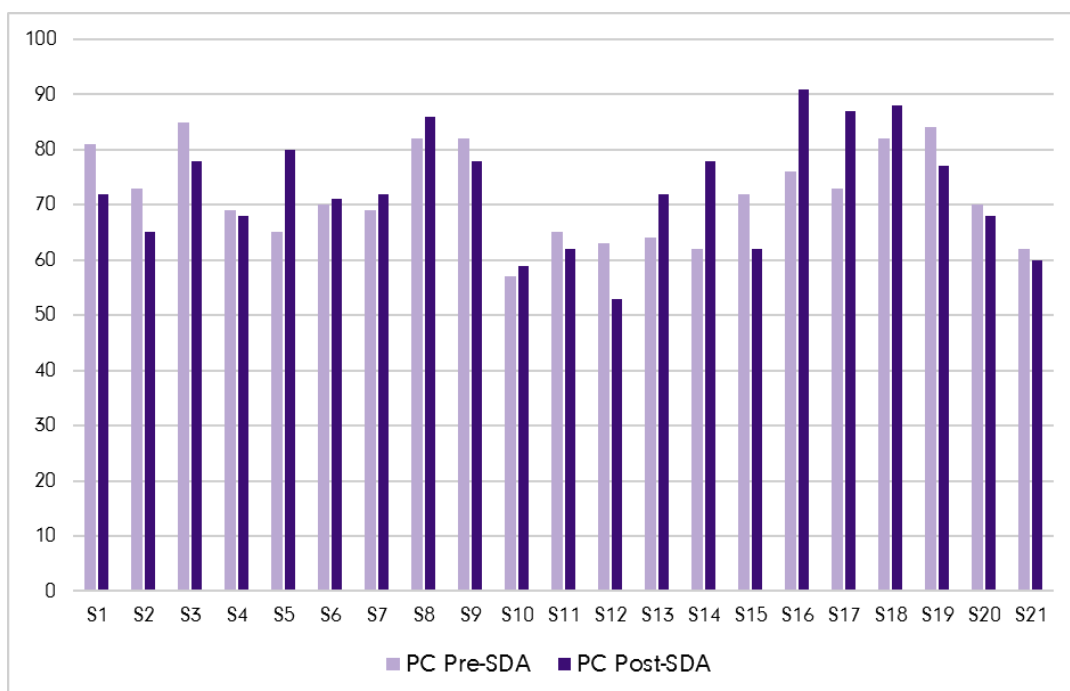
The findings from this survey exercise will reflect the perception of the SDA students before and after attending the programme. Thomson (2009) mentioned that if children with dyslexia could overcome the "I am dyslexic and I can't do it" attitude, then it would increase their self esteem and determination to succeed. For these children, having an improved perception of self could give them a better chance to succeed in school and life (Humphrey ,2002), hence, they need to feel supported (Eadon, 2005, Casserly, 2013).

Data Collection

The data was collected in Term 1, 2015, when the students just started their SDA class and once again in Term 4, 2015 when they are completing the programme. The duration of the programme is 1-year. Due to the nature of the programme that receives new students in Term 1 - Term 3, it is more credible to use data from the 16 students who had gone through the questionnaires twice, in Term 1 and Term 4.

In term 1, the questionnaires were conducted in between Week 1 and Week 5. As for Term 4, it was taken after the SDA year-end performance.

The data collected will be a basis for enhancements to our programme, curriculum and delivery of lessons so that we can better support our students.



Findings

The pre and post scores were collated for the first time with 21 SDA students that followed through the programme from Term 1 until Term 4 in 2015. The table below shows the comparison of pre and post scores from the SELS questionnaire that our students participated in.

Comparison of Pre & Post SELS scores.

From the table, it suggests that SDA programme enhanced the level of social emotional literacy level of some students, mainly the new students who had attended the programme for 1 year.

In addition to students' checklist, we have also gathered SDA Drama Instructors' feedback on the students. The teacher's checklists for Student 4 and Student 9 are extracted and included below to show a comparison of two students who attended

Teacher's Checklist			
Student #:	TC Pre-SDA:	TC Post-SDA:	Difference:
S4	57	50	-7
S9	47	66	19

the programme from Term 1 till Term 4.

PROFILE OF STUDENT 4

Student 4 was diagnosed with dyslexia and is receiving remediation at one of DAS centres. She is also receiving Speech and Language Therapy in DAS. Her interest to perform on stage was discovered by her mother and hence, SDA was a good platform for her to develop her interest. She was observed by SDA teacher as one who was truly committed towards performance and receptive towards feedback. However, her social awkwardness around her peers was still apparent at the end of the year, which resulted in lower score in Term 4.

PROFILE OF STUDENT 9

Student 9 is also diagnosed with dyslexia and is receiving remediation at one of DAS

centres. He started out in SDA class as a quiet boy, and that was one of the reasons for his mother to enrol him into the programme. Over the four terms, Student 9 was seen participating more in class and contributed with enthusiasm during discussions. An encouraging progress for a student who has dyslexia and with a family history of it.

DISCUSSION

This present report supports the notion that students can benefit from attending SDA programme. At this infancy stage, the current result is a good indicator for SDA teachers, the organisation and stakeholders that the programme is well-aligned to one of its objective, that is to enhance students' social emotional development.

Researchers had mentioned that there is significant implication between the social-emotional competencies of a child and his/her predictor of academic success (Joronen et.al., 2011; Ashdown and Bernard, 2012; Casserly 2013). When self-esteem and confidence level increase, the child will develop a strong sense of self (Faupel, 2003), peer relations (Humphrey 2002) and protects him/her in later years from violence and crime, teenage pregnancy and drugs and alcohol abuse (Joronen et. al., 2011).

However, there is still room for improvement for the SDA team in many areas when it comes to collecting and presenting the data.

The data was collected in 2015, and it included responses from who had attended the programme from 2014 and continued in 2015. Hence, the scores may not be very well represented. The scores could be skewed by these students who had reaped the benefit of SDA programme earlier. This could also be the possible reason for the little progress in the Post-SDA score for the same group of students.

Another area to look at would be the way data was collected. It could be improved to lessen time taken to administer the questionnaires to the students and to tabulate the scores. With that, the team will be looking at creating a new checklist with statements that are easily understood for our students.

FEEDBACK FROM PARENTS

SDA - Creative Drama Programme Term 1, 2015 (10 Jan - 14 Mar)
Centres: Bishan, Bedok and Jurong Point

The total enrolment from 3 centres in term 1 was 38 students. Out of the 38 parents, 19 submitted their feedback form. Below is the breakdown based on the feedback received:

YES	NO	Don't Know	%	PARENTS' REMARKS
1. Does your child enjoy the programme?				
22	0	0	100%	1. Yes- No issues coming to class every week.
2. Has the programme been beneficial to your child?				
If yes, which area have seen any progress: e.g. confidence level, reading ability, able to understand instructions better, etc.				
22	0	0	100%	1. Yes - confidence level 2. Yes - Reading ability has improved; loves to perform with better confidence. 3. Yes -Confidence 4. Yes - Confidence in speech 5. Yes - confidence level 6. Yes - confidence level 7. Yes - confidence level has improved since he has joined this programme 8. Yes - improved her speech, expression and social interaction. 9. Yes - improved confidence level, can read better, acting skills improved too. 10. Yes - She has better self-confidence.
3. Overall, are you satisfied with the programme?				
a. If yes, which is the part you are most satisfied with the programme				
b. If no, how could we improve the programme. Please suggest.				
22	0	0	100%	1. Yes - Giving him a chance to open up and express himself, not many of such chance in MOE schools.
4. Would you like your child to continue this programme? Any other suggestions?				
22	0	0	100%	1. Good job! Two thumbs up! 2. DAS is doing a great job helping dyslexic children. Thank you very much!

SDA - Creative Drama Programme Term 3, 2015 (4 July - 5 Sept) **Centres: Bishan, Bedok and Jurong Point**

The total enrolment from 3 centres in term 3 was 40 students. Out of the 40 parents, 20 submitted their feedback form. Below is the breakdown based on the feedback received:

QUESTIONS ASKED	YES	NO	NOT SURE	%	PARENTS' REMARKS
1. Does your child enjoy the programme?	20	0	0	100 %	
2. Has the programme been beneficial to your child? If yes, which area have seen any progress: e.g. confidence level, reading ability, able to understand instructions better, etc.	20	0	0	100 %	
3. Overall, are you satisfied with the programme? a. If yes, which is the part you are most satisfied with the programme b. If no, how could we improve the programme. Please suggest.	19	0	1	95%	
4. Would you like your child to continue this programme?	20	0	0	100 %	

STUDENTS ENROLMENT IN SPEECH AND DRAMA ARTS PROGRAMME

We closed the year 2014 with 28 students in our SDA programme. Few factors contributed to the gradual growth in our enrolment. Our new initiative to conduct trial classes at Bishan, Bedok and Jurong point learning centres, opening classes at Bedok learning centre and starting a new programme - Drama, Music and Movement for the preschool students have definitely contributed to the growth in our enrolment.

FEEDBACK FROM SDA'S DRAMA INSTRUCTORS



Muzdalifah Hamzah
Senior Educational
Therapist & Drama
Instructor

GG was the youngest in my class. He joined SDA in 2014 when he was in K2. He was very quiet and often kept to himself. Refused to speak to his friends and teacher. He had difficulties reading his lines. Not able to follow instructions well and has poor coordination issues.

Now, GG is often seen sharing stories with his big 'sisters' and 'brothers' in class. He comes to class always eager to act out scenes and saying his lines clearly. At times, he would bring along his own props too!



Amrit Kaur Gill
Senior Educational
Therapist & Drama
Instructor

YY joined SDA in 2014. Back then he was rather reluctant to participate in activities. He also had difficulties in controlling his emotions, often reacting impulsively with inappropriate use of language. He also had trouble working with his peers.

Now, he is a cheerful student who enjoys sharing stories with his peers. He has also shown much improvement in his ability to focus. He cooperates well in class and follows instructions well.



Shobana Vikiraman
Educational Therapist
& Drama Instructor

When SS first joined my SDA class in 2015, he refused to take up challenging tasks and used to be awkward around peers.

Now, SS has become more vocal, willing to take up roles with more lines and is able to pace out his words for clarity when reading his lines or speaking to anyone.

At the same time, through this programme, SS has established good rapport with his SDA classmates.

Centre	Term 1	Term 2	Term 3	Term 4
Bishan	16	15	13	17
Bedok	14	19	17	17
Jurong Point	8	8	10	8
Tampines				4
Total	38	42	40	46

BURSARY FOR STUDENTS

Report on utilisation of Community Foundation of Singapore (CFS) funding

In the year 2015, Community Foundation of Singapore funded the SES Speech and Drama Arts programme. The fund greatly helps to support our students who needs further financial support to enrol themselves in enrichment programmes such as Speech and Drama.

%	TERM 1		TERM 2		TERM 3		TERM 4	
	Student No.	Amt	Student No.	Amt	Student No.	Amt	Student No.	Amt
100%	3	963.00	2	642.00	2	642.00	2	642.00
90%	7	2022.30	8	2311.20	9	2600.10	18	2311.20
75%	2	481.50	2	481.50	4	963.00	3	722.25
50%	0	0	0	0	2	321.00	2	321.00
33%	1	105.93	2	211.86	2	211.86	1	105.93
Total	13	3572.73	14	3,646.56	19	4737.96	16	4102.38

EVENTS CONDUCTED BY THE SDA TEAM

Events	No.	Dates	Estimated number of participants
8 SDA Trial Classes	Term 1		
	Bishan	1 Mar 2015	13
	Bedok	7 Mar 2015	9
	Jurong Point	8 Mar 2015	8
	Term 2		
	Bishan	23rd May	7
	Term 4		
	Bishan	7 Nov 2015	4
	Jurong Point	7 Nov 2015	6
	Bedok	14 Nov 2015	3
	Tampines	14 Nov 2015	3
3 Students Workshops	Jurong Point	22 - 25 June	5
	Tampines	22 - 25 June	4
	Bishan	24 - 26 Nov	9
Insets for Internal Staff	1	8 April 2015	60 staff
Talk for Singapore Poly Students - majoring in Drama and Psychology	1	17 Nov 2015	15 students
Tips Talks	1	7 Mar 2015	1 parent
School Project	1	12, 13 & 16 Nov 2015 At Eunos Primary School	28 students

SPEECH AND DRAMA ARTS PROGRAMME - YEAR-END STUDENT PRODUCTION 2015

The aim of the DAS Speech and Drama Arts Programme is to help students with dyslexia, develop communication, language and social emotional skills through highly interactive and engaging Drama activities and stage performances.

On 27 November 2015, 35 children across 3 Learning Centres aged between 7 and 13 graced a 45 minutes staged play at the MDIS Auditorium. Dolled up in make-up and costumes, the Speech and Drama Arts (SDA) students of Dyslexia Association of Singapore (DAS) put up a 45 minutes spectacular showcase of Singapore's History. Paying attention to every intricate detail of the character traits of our fore fathers, the students gave their best in portraying the various roles given to them. It definitely wasn't an easy task for them in putting themselves in the shoes of these unsung heroes during that era.

The performance consisted of 24 scenes depicting Singapore's story from how Singapore got her name and Sir Stamford Raffles establishing Singapore as a trading post and the struggles and challenges Singapore faced after the independence in 1965. The play ended with the creation of our National identity that developed rapidly and reached heights within 50 years of independence.

The show started off with our young SDA students from Bishan Learning Centre on a voyage, where they made the discovery of the majestic Lion. After which our upper primary students took the stage as traders establishing Singapore as a trading post. Our young Sir Stamford Raffles and William Farquhar did an amazing job in putting up a formal stance in both their posture and tone. As the light blacked out, students from Bedok and Jurong Point learning centres took centre stage for part 2 of the performance named "Did we make it?". The play started out with a poem depicting the end of war in 1945. It then moved to the introduction of Mr Lee Kuan Yew and his progression to Singapore's first elected prime minister. The play also featured some historical events such as the composing of our National Anthem in 1958 and our Pledge in 1966.

The students had put in a whole lot of effort in depicting the behavioural traits of the various politicians. Initially, it was challenging for them to play the role of our founding fathers due to the lack of exposure. Therefore, learning the vocal and physical expression required much focus and practice. However, our students overcame the fear of reading or memorising the lines with the help of our drama instructors who are also our Educational Therapists

It is worth mentioning about our two youngest performers, Chew Wei Yu, 7, a student at Bishan Learning Centre and Goh Yu Jie, also 7-year old from Jurong Point

Learning Centre . As compared to how they were when they joined the programme, they were more vocal and expressive. They take the teacher's comments and work on it to improve themselves.

The SDA students rehearsed every Saturday, during their 1.5 hours class time. We can proudly say that it took them 14 days and a total of 25 hours for them to perform this impressive dramatic piece.

For the first time, we created a platform for our students to perform in front of a large group of audience – estimated 120 as compared to the previous ones, where the students will perform for their own parents – maximum 30, within their own centre, in a small confined area.

As the team believe that creating opportunities for our students to perform in front of a large group of audience will build our students' self-confidence and foster self-esteem, we have planned to make this an annual event for the DAS Speech and Drama Arts Programme.

Look forward to our young and confident performers once again showcasing a stupendous performance in November 2016.







FUTURE DIRECTIONS

1. School Projects

We started receiving requests from some primary schools for drama workshops to be conducted for the students who are weak in reading, expressing their thoughts and lack in confidence.

Knowing that our Speech and Drama Arts programme will benefit students facing such issues, also with the intention of reaching out to more students outside the DAS, the SDA team conducted a 3-day workshop at the Eunus Primary School in November 2015.

The team intends to continue this effort in the coming years so that not only students who come to our learning centres will benefit from the programme but also many other students in the mainstream schools who have similar specific learning differences would benefit too.

2. Curriculum

Assure the quality of our curriculum by continuously reviewing it.

Infuse technology into classroom.

3. Marketing

Marketing efforts need to be improved. E.g. Videos to be played at learning centres that has monitors; Promote e-marketing and educating the internal staff about our programme and its objectives for our students at the DAS.

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ABOUT THE AUTHORS



PUSHPAA ARUMUGAM

Assistant Director, SES Enrichment Programmes

Pushpaa is the Assistant Director for SES Enrichment Programmes. She has years of experience conducting enrichment courses for Kindergarten, Primary, Secondary, Junior College and Tertiary students. Pushpaa has obtained her Bachelor of Performing Arts majoring in Drama & Theatre Studies at Monash University, Australia in 2004. She is a National Arts Council Theatre Grant Award Recipient for the years 2001 – 2003. She has also obtained a Diploma in Educational Studies (Enrichment Education), accredited by The College of Teachers, UK.

Here at DAS, we recognise Speech and Drama Arts as an effective means of developing our students' talents, and self-confidence. Pushpaa's objective is to provide a channel specifically for our dyslexic students to develop their language skills, express their inner feelings, and demonstrate their talents in a fun and artistic way.



MUZDALIFAH HAMZAH

Senior Educational Therapist and Drama Instructor

Muzdalifah is a Senior Educational Therapist Dyslexia Association of Singapore (DAS) and her students range from primary and secondary school levels. She has obtained a Diploma of Educational Studies – Speech & Drama awarded by The College of Teachers, United Kingdom.

Apart from her passion working with children, she has a keen interest in Drama Arts. She started participating and competing in performing arts since her early school years. She believes the Speech and Drama Arts programme will greatly benefit our DAS students in developing their self-esteem, confidence level and will transform them into children with irrepressible curiosity for learning as they take on the journey to believe more in themselves.

SPEECH AND DRAMA ARTS PROGRAMME

Specialised Educational Services

UNLOCKING POTENTIAL

The aim of the SES Speech and Drama Arts Programme is to develop literacy, communication and presentation skills and boost the self-esteem of learners with dyslexia. Drama can be a powerful tool to help students with learning differences.

OUR APPROACH

Using drama activities, students have the opportunity to enhance their persuasiveness and confidence in communication and is designed to help:

- Freedom of expression
- Use of imagination and creativity
- Communication skills
- Role-playing and stage performances
- Learn to understand, interpret and process script
- Exercise their working memory and processing speed

The students will also learn the fundamentals of stage directions, character dialogues, music and light cues. Class sizes are kept to a maximum of 10 students and are conducted once a week in a 1.5 hour session.



Find out more:
www.ses.org.sg
6444 5700



RECOMMENDED FOR

Students with low self-esteem or low self-confidence, students who have difficulties expressing themselves as well as students who enjoy drama.

ENTRY CRITERIA

All primary school students are welcome to enrol.

Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore.



SPEECH & LANGUAGE THERAPY

Children start to learn language from the day they are born. As they grow and develop, their speech and language skills become increasingly complex. Children with speech and/or language difficulties will find it difficult to express and make others understand what they want to communicate.

Children with dyslexia and other specific learning differences often have associated speech and language difficulties. These include delayed speech and language development, inaccurate articulation and poor language skills. The child may be intelligent but have a speech and language problem. This will slow down his learning and can be very frustrating for the child and his parents.

DAS Speech-Language Therapists (SLTs) are qualified professionals who assess, diagnose and provide intervention for speech, language and communication-related difficulties in children. A Speech and Language assessment helps to find out if a child's speech and language ability is age-appropriate. It also identifies individual language strengths and weaknesses. An individual intervention plan is then tailored according to the profile of the child obtained from the assessment.

Depending on the child's needs, Speech and Language therapy is conducted individually or in small groups. SLTs aim to build up the child's fundamental speech and language skills to support his learning in school. Therapy is carried out in a child-friendly, lively and bright environment. Language is aided and enhanced through fun and functional activities.

DAS SLTs also provide awareness talks and workshops in the area of speech and language difficulties.

Specialised Educational Services

Speech and Language Therapy

Shuet Lian Ho¹ and Sharon Sandra Reutens²

1. *Senior Speech-Language Therapist*

2. *Speech-Language Therapist*

Dyslexia Association of Singapore

SPEECH AND LANGUAGE THERAPY

“There is a commonality between some aspects of Specific language impairment (SLI) and dyslexia, so it is hardly surprising that most children with SLI go on to show the type of dyslexia associated with poor language development. Much of our early reading is based on guesswork, knowing what words might fit into the sentence you are reading, and clearly the more fluent your language, the more likely you are to be successful. Reports of the prevalence of dyslexia in cases of early language impairment range from 25-90% (Tomblin et al., 2000)” (Fawcett, 2012, p.473)

The Dyslexia Association of Singapore (DAS) recognises the importance of Speech and Language therapy for the diagnosis and intervention of specific learning differences in the Singapore mainstream school population. Currently, DAS has four Speech-Language Therapists (SLTs) of which one is a senior therapist, all of whom are fully registered with the Allied Health Professions Council (AHPC). They work across four learning centres to serve a percentage of the student population who are diagnosed with dyslexia and attending DAS classes across Singapore. DAS SLTs also work with children who are diagnosed with other learning difficulties such as dyspraxia, speech and language impairment and/or autism spectrum disorder.

The description of Speech and Language Therapy as prescribed in the Second Schedule of the Allied Health Professions Act 2011 opens in a new window states that “Speech and Language Therapy involves the assessment, diagnosis, treatment and management of communication disorders.” Communication encompasses spoken and symbolic representations of language (i.e. written, pictorial, signed), and

takes into consideration hearing, auditory processing, understanding, expressive language, articulation, fluency, resonance, voice, prosody, non-verbal and social skills.”

At DAS, SLT’s work on improving listening, understanding, speaking skills and social skills which are critical components in the development of language in children whereas the Educational Therapists work on improving the children’s reading and writing (literacy) skills which are critical in the development of written language.

Several studies (McArthur, Hogben, Edwards, Heath, & Mengler, 2000; Catts, Adlof, Hogan, & Weismer, 2005; Snowling, Gallagher & Frith, 2003; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998) have found evidence to explain the association between language impairment and reading difficulties. Studies by Nathan, Stackhouse, Goulondris, and Snowling (2004) and Raitano, Pennington, Tunick, and Boada (2004) found that children who showed additional language difficulties or persistent phonological impairment showed lower literacy.

In 2010, the American Speech-Language-Hearing Association (ASHA) issued an official policy statement addressing the roles and responsibilities of speech-language pathologists (SLPs). The statement has highlighted the interrelationship between language and literacy. It states that “Current research supports the interrelationships across the language processes of listening, speaking, reading, and writing. SLPs contribute significantly to the literacy achievement of students with communication disorders, as well as other learners who are at risk or those who struggle in school settings.”

Hence, the DAS SLTs aim to remediate students’ speech, language and communication needs, to enable them to reach their full potential in accessing the MOE-Aided DAS Literacy programme (MAP) at DAS as well as the mainstream curriculum at school.

DAS SPEECH-LANGUAGE THERAPISTS (SLTS) – OUR BACKGROUND AND EXPERTISE

Choo Ling Fong holds a Master of Science (Speech and Language Pathology), as well as a Bachelor of Social Science (Honours, in Psychology) from the National University of Singapore. Formerly a psychologist with the DAS, she noticed how poor language skills are linked to literacy difficulties, and felt strongly that intervention needs to target both language and literacy. This motivated her to become a speech-language therapist. Ling Fong is registered with the Allied Health Professions Council. Her clinical work involves working with pre-schoolers to students in secondary school. She is also active in sharing with colleagues and members of the public on identifying children with communication difficulties and how speech and

language therapy could be beneficial through DAS Academy courses and presentations at outreach activities. Ling Fong presented a poster on "Vocabulary in Written Narratives of Typically Developing and Language Impaired Bilingual Children" at the Speech Pathology Australia National Conference in 2013.

Elizabeth Lim graduated from the National University of Singapore with a Master of Science degree in Speech and Language Pathology and is Allied Health Professions Council (AHPC) registered. Her work involves providing speech, language and communication assessment and intervention services to children with specific learning differences. She provides speech and language therapy services to children between the ages of 5 and 16 years, and conducts Social Skills workshops. She also has 18 years of experience working with children from birth to 8 years of age, their parents and early childhood educators (ECE), including ECE teacher training. She has a Master of Education degree in Special Education from the Nanyang Technological University and a Graduate Diploma in Early Childhood Care and Education from Advent Links-SAUC. She especially enjoys working with parents and early childhood educators to develop children's speech, language and literacy skills.

Ho Shuet Lian is a Senior Speech-Language Therapist at DAS. She graduated from the National University of Singapore with a Master of Science degree in Speech and Language Pathology. She completed a Master of Business Administration (MBA) programme from the University of Leeds with Distinction. She is a member of Speech And Language Therapy Singapore (SALTS) and is Allied Health Professions Council registered (AHPC). Her work involves providing speech, language and communication assessment as well as intervention services to children with specific learning differences. Her clinical experience includes working with children between the ages of 5 and 16 years. She provides advice and clinical support to educational therapists and newly qualified speech-language therapists at DAS. She enjoys working with parents to develop children's speech, language and communication skills. She conducts social skills workshops as well as gives talks on speech, language and communication difficulties faced by children with specific learning differences. In 2009, she presented her research findings on "Differentiating Developmental Dyslexia Subtypes in Singapore: A Reading and Spelling Test Battery" at the 'Updates on Managing Dyslexia' conference organized by the Education Division of Tung Wah Group of Hospitals and the University of Hong Kong. In 2010, she presented another research finding at the 'Specific Learning Differences' conference organized by DAS on the use of Oral Language Therapy to improve the outcomes for students with dyslexia.

Sharon Reutens is a graduate of the National University of Singapore with a Master of Science (Speech and Language Pathology) and is currently pursuing a Master of Social Science (Professional Counselling). Formerly a Human Resources Consultant,

she made a mid-career switch to follow her passion of working with children in mainstream schools, with speech and language difficulties. She noticed how poor language skills are linked to difficulties which compromised on children realizing their full potential. Sharon is registered with the Allied Health Professions Council. Her clinical experience involves working with pre-schoolers to students in secondary school, both onsite at DAS and offsite at schools. She shares actively with her co-workers, parents, teachers and members of the public on identification of and speech-language intervention for children with communication difficulties within DAS, via partnerships through conducting presentations at the DAS Academy and outreach activities. In 2013, Sharon presented a poster on "Syntactic Complexity and Use of Connectives in Written narratives of Primary 5 students in Singapore – Comparing performance of Specific Language Impairment (SLI) students with typically developing students" at the Speech Pathology Australia National Conference.

It may be seen from our backgrounds and expertise that Speech-Language Therapists at DAS are a highly trained and resourceful team, able to provide the best possible support for children in need.

SPEECH AND LANGUAGE THERAPY STUDENTS

Our students were between the age of seven and sixteen years old. They attended one-hour weekly individual or group speech and language therapy at one of the DAS Learning Centres, namely Bishan, Jurong Point, Parkway Parade and Woodlands. Most of the speech and language therapy students were also attending the MOE-Aided DAS Literacy Programme at DAS.

Student enrolment 2015

Term 1	Term 2	Term 3	Term 4	Total
72	80	83	106	341

Number of students on bursary 2015

	Term 1	Term 2	Term 3	Term 4	Total
Tote Board funded	33	34	35	31	133
DAS funded	14	19	14	17	64

SPEECH AND LANGUAGE ASSESSMENTS

The speech and language assessment assesses a student's speech as well as his/her receptive and expressive language abilities. It identifies individual speech and language strengths and weaknesses. Each assessment includes an interview with the child's parents to obtain case history as well as the completion of standardised assessments such as Clinical Evaluation of Language Fundamentals® - Fifth Edition (CELF-5) by the student. CELF-5 is a comprehensive and flexible assessment to assess a student's language and communication skills, determine the presence of a language disorder, describe the nature of the language disorder and plan for intervention. All the assessments done during the year were partially funded by Tote Board. Tote Board manages its grant making activities from the gaming surpluses generated from the operations of Singapore Pools and Singapore Turf Club; and the collection of casino entry levy from the two integrated resorts in Singapore to help the vulnerable groups and improve the lives of all in Singapore.

Number of speech and language therapy assessments completed 2015

Term 1	Term 2	Term 3	Term 4	Total
8	8	4	10	30

EVENTS

In 2015, we were able to run an exceptional number of events which involved the Speech-Language Therapists in reaching out to the community, children and their parents.

April: Preschool Seminar 2015

The Preschool Seminar 2015: Support the Learning Needs of Preschool Children was held on 25 April 2015, at the Singapore Post Centre Theatrette from 9:30 a.m. to 1p.m.. The panel of speakers included Dr. Hugh Catts, Professor and Director of the School of Communication Science and Disorders at the Florida State University; Mr. Chua Weng Foo, a parent of a child with dyslexia, as well as DAS preschool Educational Therapists and SLT. The discussion was well-rounded with Dr. Hugh Catts who is an expert in early education and language and author of DIBELS, presenting on research findings across different domains pertaining to early identification of reading disabilities, DAS staff sharing strategies on how to nurture children's speech, language and literacy skills; and Mr. Chua sharing on his perspectives as a parent.

Ms. Choo Ling Fong presented on the topic: It takes a village to raise a child - developing a child's speech and language abilities. Her presentation highlighted the key developmental milestones of a child, possible difficulties with communication and strategies for parents and teachers to promote speech and language development.

The seminar was well-received by parents and educators, with several participants coming forward to find out more about speech and language therapy after the seminar.

May: Signposts for building better behaviour

The 5-session Signposts programme was conducted at Rex House in late April-May 2015. DAS Academy invited Ms. Ho Shuet Lian to conduct 2 sessions of the programme together with the Assistant Director of MOE-Aided DAS Literacy Programme (Admissions), Ms. Lois Lim. The two Signposts facilitators worked closely with the 10 participants to impart behavioural management skills with the aim to reduce the challenging behaviours displayed by their children. The sessions were filled with lively discussions and sharing of interesting ideas amongst the participants and the Signposts facilitators. One of the parents shared that her child often had emotional meltdowns. The Signpost facilitator suggested to teach and demonstrate to the child the words/phrases he could use to verbalise his needs and wants instead of acting out and praise the child for exhibiting the expected behaviour. It was a successful interdepartmental collaboration between the Psychologist team and the SLT team.

June: Social Skills Workshop for K2 to P2 students

The Social Skills Workshop for K2 to P2 students was conducted by Ms. Choo Ling Fong and Ms. Elizabeth Lim from 2nd to 5th June 2015, at the Tampines Learning Centre. The workshop ran for 1.5 hours each day in the morning. Five participants took part in the workshop which introduced topics such as basic conversational skills, bullying and anger management and teamwork. Although similar in ages, the needs of each child were different and the content was thus adapted for each child. Parents raised concerns over separation anxiety; child's very shy personality which made it difficult for the child to make friends; child was too outspoken, had poor turn-taking skills and often interrupted conversations at the wrong time.

The content was simplified for a K2 participant who showed significant delays in his understanding of basic concepts. PowerPoint slides were printed for him and the key points were highlighted. Other adaptations made were 1-1 attention, checking for understanding (WH questions) and paraphrasing to help other participants to

understand concepts. More pictures and less words were used in the notes and PowerPoint slides to facilitate the child's understanding when the participant appeared to be a poor reader. Participants were allowed to draw on worksheets instead of writing words to demonstrate their understanding.

To help reinforce what was introduced in the workshop, the SLTs updated parents individually at the centre, on what was covered that day and shared tips on what they could do at home. Information sheets for parents were also given out for each student. Additionally, a checklist of the child's abilities as observed in sessions was sent home after the last session.

The workshop received positive feedback from the parents. One parent reflected that although her son was usually resistant to new settings, he adapted well and enjoyed the sessions. Another parent noticed that his son has tried to apply the social skills taught in the session. One other parent liked the summary worksheets and hand-outs, as she could reinforce the concepts learnt at home. The checklist used during the social skills workshop is overleaf.

July and October: Certificate in Understanding Speech and Language Impairment

The Certificate in Understanding Speech and Language Impairment is a certificate course run by the DAS Academy. It is a 12-hour course conducted over two Saturdays and covers topics such as assessment, intervention for communication difficulties and classroom strategies. The course is run by two SLTs.

In 2015, all the SLTs, Ms. Sharon Reutens, Ms. Choo Ling Fong, Ms. Elizabeth Lim and Ms. Ho Shuet Lian were involved in conducting this training as guest lecturers. Two runs were conducted, once in July with 16 participants from the public and again in October with 10 participants. The lecture slides, which were revamped to streamline the content and to include more videos and examples that would be applicable to participants, were well-received by the participants.

The July run saw a wonderful diversity of participants gathered together in the certificate course. There was a good mix of participants of different nationalities (e.g., Malaysians, Indians, and Filipinos) and language backgrounds, which contributed tremendously to our understanding of speech and language development given our cultural and language differences. Bonded by their passion in helping children achieve, the participants engaged in active discussions on classroom and home strategies, access arrangements for children with learning needs and many other topics pertaining to speech and language development in children. The participants were amazed by some of the facts shared during the

Checklist used during the Social Skills workshop:

Name of child: ABC			
Skill	Needs more guidance/ practice	Satisfactory	Excellent
Self-introduction and starting a conversation	X		
Maintaining appropriate eye contact when talking to others			X
Staying on topic			X
Good listening to conversation partner			X
Ending a conversation	X		
Respecting personal space			X
Using appropriate touch with others		X	
Understanding what is bullying		X	
Understanding strategies to manage bullying	X		
Understanding that it is unacceptable to bully others			X
Understanding how anger hurts us		X	
Understanding what makes us angry		X	
Understanding what to do when we are angry		X	
Understanding how to make friends		X	
Working in a team	X		
Other areas to work on:			
<i>To increase speaking volume. ABC is soft spoken during group discussion.</i>			

**Ratings based on child's participation in class discussions and activities. Your child may need help to apply what he/she has learnt to other settings.*

sessions. The key complaint from the participants was that there was not enough time for all these discussions!

Participants who attended the October run were from diverse backgrounds. Among the participants were special education teachers, a homemaker and an ABA (applied behavioural analysis) therapist. Besides listening to the lecture, the participants also enhanced their knowledge through active discussions and sharing of experiences. Feedback given by the participants included "Useful and practical experience/ example being taught"; "Has a clear picture about the children with language impairment, gained a more in depth knowledge in the area of SLI which I had no idea about" and "Informative, for better understanding on this topic and ways to help them".

Some interesting facts shared during the Certificate in Understanding Speech and Language Impairment course

What is FLUENCY?

FLUENCY = communicating verbally without disruptions to speech

A child who struggles to speak fluently may suffer from



Stuttering is a motor speech coordination disorder, characterised by:

- Repetitions of sound, word or phrase
- Sound prolongations
- Blocks

The above are different from normal dysfluencies in young children.



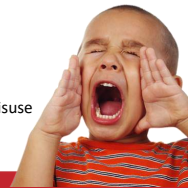
What is APPROPRIATE USE OF VOICE?



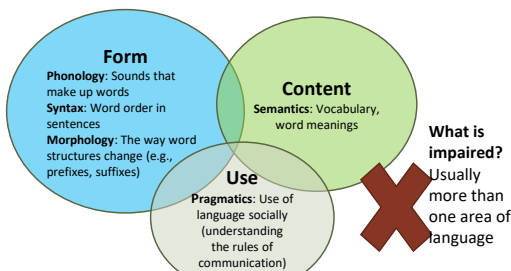
Poor voice quality
• Rough
• Breathy
• Strained



Vocal nodules as a result of vocal misuse

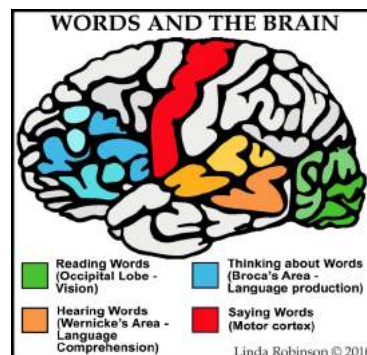


WHAT IS SLI? – What is impaired?



Bloom & Lahey's taxonomy of language.

Adapted from Lahey, M. (1988). Language disorders and language development. New York: Macmillan



Linda Robinson © 2010



August: Mentoring Inset -Overview on Speech Language Therapy

The Mentoring Inset on an Overview on Speech Language Therapy was held on 11th August 2015 at Rex House. Ms. Sharon Reutens shared with the new educational therapists on speech and language development, difficulties children with speech and language impairment encounter, characteristics of language impairment as compared to children with English as a second language as well as practical classroom strategies. She also covered administrative procedures on how to make referrals to speech and language therapy and the availability of bursary for eligible children.

All 7 participants agreed that they would recommend a repeat of this mentoring to new staff. Participants found the following discussions especially useful to them:

- i. How to differentiate between language impairment and English as a second language?
- ii. What to look out for in students before referring them for speech and language therapy?
- iii. What the SLT does at DAS?
- iv. Classroom strategies

All the participants rated the trainer as "good" or "very good" across aspects such as knowledge on subject matter, clear communication of ideas and concepts and rapport with participants.

October: Lecture on Speech and Language Impairment for MA SEN students

The DAS Academy invited the SLTs to share their expertise on Speech and Language Impairment with the students in the Master of Arts in Special Educational Needs (MASEN) programme. Ms. Ho Shuet Lian conducted a 3-hour lecture on 7 October 2015 at Rex House. 10 students including a few DAS Educational Therapists attended the lecture. The students learned about typical speech and language development, Singapore Colloquial English (2016) and the different type of speech problems as well as language impairment with local examples provided.

Singapore Colloquial English (2016) is an English-based creole language that is spoken in Singapore and it is also known as Singlish. Many students with SLI listen to and use Singlish for communication and they have little knowledge of the differences between Standard English and Singlish. They regard Singlish as their standard form of English. Hence, they speak and write Singlish during oral and written examinations and are penalised for making grammatical and syntactic errors during the examinations.

Despite being an evening lecture (6pm to 9pm), the students were full of energy and enthusiasm, asking questions and actively participating in class discussions. It was an interactive and enjoyable lecture with key takeaways for both the lecturer and the students.

THERAPY EVALUATION DESIGN

The therapy evaluation uses quantitative data and data collection involves measuring the performance of each student at the end of each term and getting the students to complete a pre-intervention questionnaire and a post-intervention questionnaire to measure their self-esteem. This evaluation aims to find out

- i. Do students benefit from attending at least two consecutive terms of speech and language therapy?
- ii. What is the most common speech and language deficit that DAS students have?
- iii. What is the least common speech and language deficit that DAS students have?
- iv. Do DAS SLTs work on more language goals than speech goals?
- v. Which speech and language therapy goals are comparatively the easiest to achieve within a term of intervention?
- vi. Which speech and language therapy goals are comparatively most difficult to achieve within a term of intervention?
- vii. Does speech and language therapy help to boost the self-esteem in DAS students?

Participants

The participants were referred to as “students” in this study.

35 students between 7 and 16 years old were randomly selected for progress evaluation. All of them were Tote Board funded recipients and they are diagnosed with dyslexia. The students attended both MOE-Aided DAS literacy programme and speech and language therapy at DAS. 80% of the students were males and the rest were females. The greater prevalence of language impairment in boys than girls observed at DAS is similar to the findings found in most studies (Stromswold, 1998; Tallal et al., 1989; Stanton-Chapman et al., 2002) with reported male-to-female ratios ranging from 1.3:1 to 5.9:1.

Therapy implementation

The students attended one-hour weekly individual speech and language therapy for at least two consecutive terms in 2015. 63% of the students completed a year of speech and language therapy. The therapy was conducted in English. Mandarin was sometimes used to enhance Mandarin-speaking students' understanding as Chinese is their home language as well as the relatively stronger language albeit they appeared to have a weak command of the Chinese language for their age.

At the beginning of each term, an Individualised Intervention Plan (IIP) (See Appendix 1) consisting of intervention goals (IIP goals) was tailored for each student base on the results obtained from a speech and language assessment and/or informal observations. IIP goals targeted for intervention typically include speech, phonological awareness, receptive and expressive language as well as pragmatics. Examples of IIP goals are detailed on the page 366.

Data collection procedures

Each student's progress was measured at the end of each term according to the percentage of IIP goals he/she had achieved at the end of the term. At the beginning of the next school term, these IIP goals were modified according to the student's learning needs and progress so as to facilitate the learning of new speech and language skills. For example, the receptive language goal in term 1 was to follow simple 2-step spoken instructions. After the student had met the goal, his receptive language goal in term 2 would be to follow complex 2-step spoken instructions. The student would progress to follow simple and complex 3-step spoken instructions in the following two terms.

Besides measuring the therapy progress made by the students, their emotional well-being was being assessed. During the first therapy session, each student assessed his/her self-esteem by completing a pre-intervention self-esteem questionnaire (See Appendix 2) which is adapted from 'Talkabout Relationship - Building Self Esteem & Relationship Skills' written by Alex Kelly. The same questionnaire was completed by each student during his/her last therapy session. Appendix 2 shows the self-esteem questionnaire.

Findings

Table A shows the percentage of students who had achieved a year-to-date (YTD) percentage of IIP goals at the end of term 4.

Table A. IIP Goal Achievements

Table A	YTD 100% of IIP goals	YTD 90%-99% of IIP goals	YTD 80%-89% of IIP goals	YTD 70%-79% of IIP goals	Total
% of students who had achieved	11	49	34	6	100

Chart B shows the type of IIP goals targeted for intervention

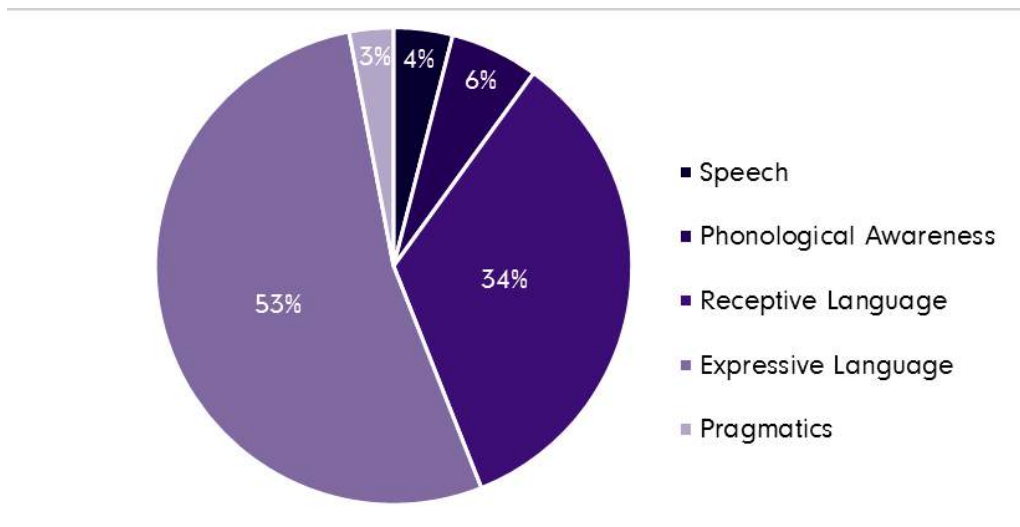
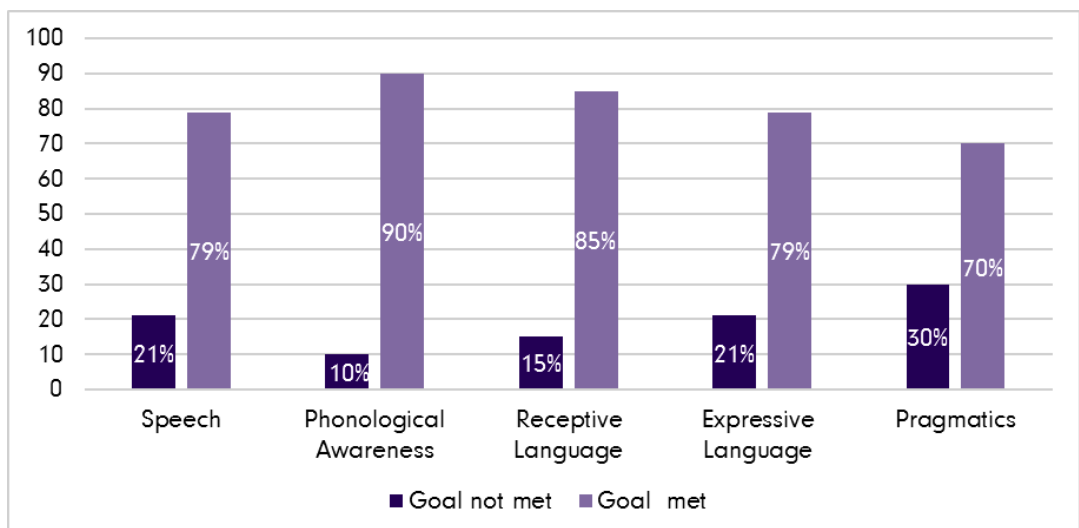


Chart C below shows the overall percentage of IIP goals 'met' and 'not met' at the end of each school term



Examples of IIP goal:

Area targeted for intervention	Definition	Examples of IIP goal
Speech	The way we make different sounds to form words	<ul style="list-style-type: none"> ◆ Accurately produce /f/ and /v/ in isolation, in Word-Initial and Word-Final positions in CVC words with 80% accuracy in structured therapy activities ◆ Produce L-initial and L-medial 2-syllable words with 80% accuracy in structured therapy activities
Phonological Awareness	Understand that speech can be broken into smaller units of sound such as syllables, onsets and rimes and phonemes	<ul style="list-style-type: none"> ◆ Identify number of syllables and the first sound of each syllable with 80% accuracy in structured therapy activities ◆ Discriminate between ending sounds ck, ng, nk, nd, nt and mp in single words with 80% accuracy in structured therapy activities
Receptive Language	Understand spoken language	<ul style="list-style-type: none"> ◆ Understand and use common prepositions with 80% accuracy in structured therapy activities ◆ Follow simple 2-step instructions with 80% accuracy in structured therapy activities
Expressive Language	Use of spoken language	<ul style="list-style-type: none"> ◆ Use connectors "because/since/so/so that/as" to show reason and result of a situation appropriately with 80% accuracy in structured therapy activities ◆ Answer "Why?" questions by producing logical reasons using the correct pronouns and verb form with 80% accuracy in structured therapy activities
Pragmatics	Master the rules for social language	<ul style="list-style-type: none"> ◆ Identify relevant vs. irrelevant points based on a topic ◆ Maintain Topic for 6 conversational turns

Table D shows the percentage of students who rated their self-esteem as 'higher', 'the same' or 'lower' post intervention

Table D	Higher rating	Same rating	Lower rating	Total
% of students showed	49	11	40	100

DATA ANALYSIS AND DISCUSSION

IIP goals

Table A shows that 11% of the students consistently met all the IIP goals over the intervention period. Nearly half of the participants achieved 90% to 99% of IIP goals at the end of their intervention period. 34% of the students achieved 80%-89% of IIP goals at the end of their intervention period. 6% of the students achieved below 80% of IIP goals at the end of their intervention period. The profile of the students who achieved below 80% of IIP goals was looked into. It was found that one of them has severe literacy difficulty and another student was found to have multiple learning difficulties of dyslexia, some degree of auditory processing disorder, mild receptive language impairment together with severe expressive language impairment as well as impaired pragmatic skills. This suggests that the complexity and the severity of the learning difficulties have affected the students' rate of learning and their performance. Looking at the overall results achieved by the students, they have benefited from attending at least two consecutive terms of speech and language therapy at DAS.

Chart B shows that 53% of the IIP goals were targeted at developing expressive language skills, followed by 34% of the IIP goals set to develop receptive language skills. This suggests that most of the DAS students struggle with conveying information or expressing their ideas and views clearly in speech. Therefore, they require remediation that focuses on expressive language skills which include formulating semantically and grammatically acceptable sentences, developing narrative skills, explaining word associations, repeating spoken sentences to improve auditory memory and naming vocabulary. Only 3% of the IIP goals were targeted at improving pragmatics. This suggests that most of the DAS students do not have any obvious pragmatic deficits which require remediation. Pragmatics refers to mastering the rules for social language that includes eye contact, taking turns in conversation,

staying on topic, greeting people, using an appropriate volume in different social situations, just to name a few. The results suggest that the most common deficit that DAS students have is expressive language impairment and the least common deficit that the students have is pragmatic deficits. Only 4% of the total IIP goals are made up of speech goals. Therefore, DAS SLTs worked on a lot more language goals than speech goals.

Chart C shows that phonological awareness has the highest success rate of 90%. It is likely due to phonological awareness being a foundation skill for using the alphabetic principle (Liberman, Shankweiler, & Liberman, 1989; Troia, 2004) and the skill develops as early as three years old, with accelerating growth through the fourth and fifth years (Dodd, B., & Gillon, G, 2001).

On the other hand, pragmatics has the lowest success rate of 70%. The pragmatic goals of consistently maintaining good eye contact during conversation and consistently using an appropriate speaking volume are comparatively most difficult to achieve within a term of ten weeks, possibly due to the lack of or insufficient reinforcement of target behaviour outside speech and language therapy setting such as in school and at home. This suggests that if adults can consistently reinforce similar behaviour in different social settings, the child is likely to master the rules of social language quickly.

The results show that phonological awareness goals are comparatively easiest to achieve but pragmatic goals are comparatively most difficult to achieve by DAS students within a term of intervention. On the other hand, this may also reflect the greater emphasis on phonology in the IIP goals, and the combination of MAP teaching which will clearly focus intensively on phonology.

Self-esteem

Table D shows that 60% of the students rated their self-esteem as either 'higher' or 'the same' post intervention. On the other hand, after attending speech and language therapy, some of the students were more aware of their shortcomings in their speech, language and communication skills. As the post intervention rating exercise was carried out around the same time as the school exam result was released, some students could be emotionally affected by their poor exam result.

Therefore, they did not feel good about themselves. These may have contributed to a lower self-rating of self-esteem post intervention. As the results show that 60% of the students were able to at least maintain their self-esteem, this suggests that speech and language therapy helps to boost and maintain the self-esteem in DAS students.

CASE STUDY 1

S was diagnosed with severe receptive and expressive language learning difficulties, as well as a word finding disorder in October 2013, at a local hospital. In addition, he was referred to an occupational therapist for mild motor difficulties and was recommended therapy to improve his walking and other gross motor skills.

In December 2013, a psychological assessment found him to have excellent spatial ability, age-appropriate non-verbal reasoning ability but exceptionally poor verbal ability. His literacy attainments and phonological processing skills were very poor for his age. S was further diagnosed with specific learning difficulties with language and literacy. It was observed in the assessment that he was fidgety and easily distracted at times, and his attention could be maintained for approximately 30 minutes at one stretch.

S began literacy intervention at the DAS thereafter. He also completed a term of group therapy from July to September 2014. In 2015, S received three terms of individual therapy. He had an average of 5 to 6 goals per term. While largely cooperative, S required regular breaks or games to maintain his attention and motivation in the sessions. There were also occasions where he came for therapy in a bad mood and it was harder to engage him in the activities. Feedback from his DAS Educational Therapist revealed marked literacy difficulties, with slow progress in class. Hence, speech-language therapy goals that contained elements of literacy, e.g., answering visual text and completing a form, took longer for S to achieve (hence considered "goal not met" in the term it was introduced) due to his co-occurring literacy difficulties.

Taking into consideration S's not-so-good progress in speech-language therapy, moving forward, his intervention goals could be reduced to 3 or 4 goals to reap more benefits. As S could be easily distracted at times, to get S's attention, adult can say his name, touch or hold his hand before speaking and tell S that it's time to listen.

CASE STUDY 2

J was diagnosed with dyslexia as well as moderate-severe language impairment at DAS.

J attended a 5-hour Social Skills workshop that was conducted by the SLTs at DAS in November 2014. J's mother was concerned about her difficulty in social communication as well as J being 'shy' about making friends. J made good progress. She was observed to suggest ideas in a group activity as well as she

volunteered to answer questions towards the end of the workshop. J's mother saw the improvement that her child had made and thought that speech-language therapy would benefit J. Therefore, J began group speech-language therapy in April 2015. She had an average of 3 to 4 goals per term.

At the commencement of speech-language therapy, J presented as a quiet and soft spoken girl. She spoke very little during the group therapy. Whenever she answered a question, her facial expression seemed to indicate that she wanted assurance of success from the SLT. Such behaviour indicated that J was likely to have low self-confidence.

After working with J for more than a school term, she was able to share her ideas readily in a small group setting of 3 students. She could initiate conversation with the SLT. She spoke audibly and was able to elaborate her ideas when prompted. Overall, her self-confidence had improved. Similar observations were noted by J's mother.

An extract from an email sent by J's mother on 6 August 2015 to update the SLT on the changes she had observed after J attended speech and language therapy

1. her confidence raised - she always volunteers to answer questions given by teachers. In the past she kept quiet and smile at teacher as she was afraid of making mistake.
2. initiative and interested in learning more Nowadays she will ask us Daddy and Mummy to give her spelling and will ask questions when in doubt in the meaning.
3. composition skills - her writing skills improved because I understand her storyline despite of many spelling mistakes. In the past, she doesn't even understand what she wrote and afraid to make mistakes.
4. language - her sentence makes sense now as when she speaks, she thinks through and talk naturally. In the past, she blabbers and when people don't understand what she is saying. She gets frustrated and gave up.

These are the few observations by parents and teachers.

Really appreciate your great effort, because of your sharing and professional observations and guidance, J and us as a family had benefited from the program and most importantly is your genuine care and concern touches our heart.

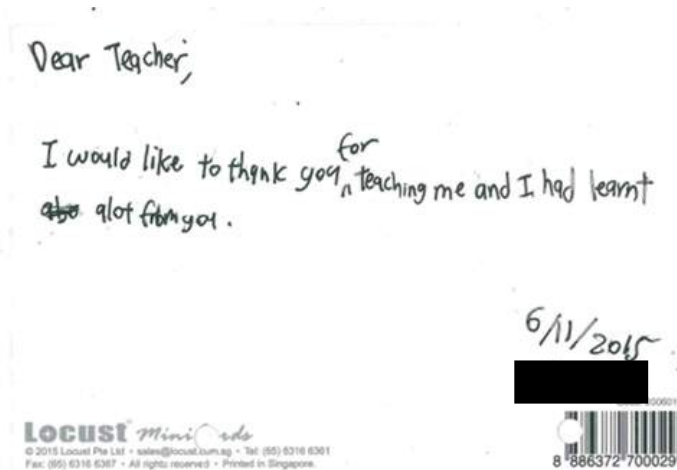
A heartfelt thanks from us and we're sure many other families and children will benefit from your guidance. Best regards, J's mum

More successful results are seen in case study 2 than case study 1 due to the

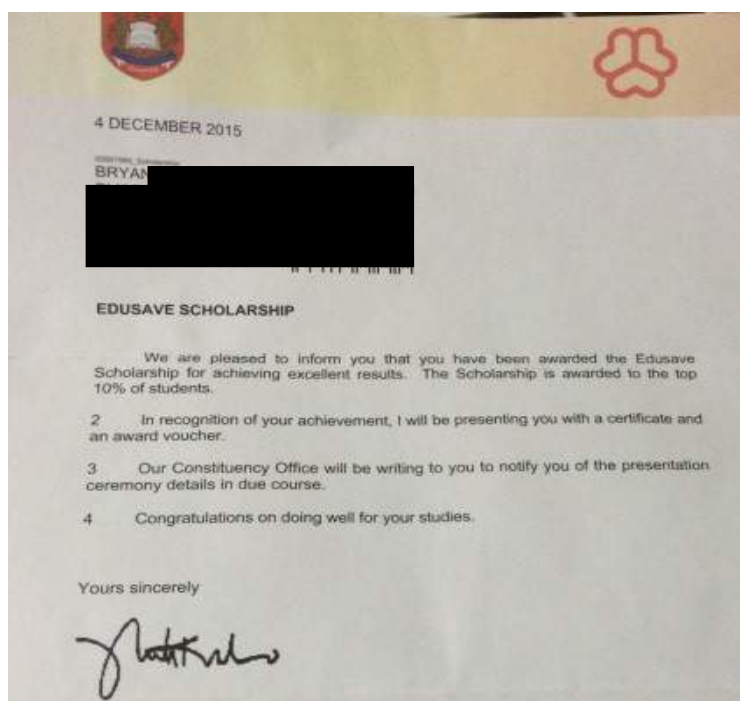
1. severity of language impairment
2. ability to sustain adequate attention in learning
3. the ease in engaging the child in language learning activities

OTHER VALUABLE INFORMATION COLLECTED

A thank you card from a
P6 student



Edusave scholarship
awarded to a Secondary
1NT student due to
excellent school results.
He will study NA
curriculum.



CONCLUSIONS AND FUTURE DIRECTIONS

It has been an exciting and fulfilling year for the SLTs. In terms of current students, alternative measures of self-esteem will be considered, and the issue of attention deficit will also be addressed, using tools such as Connor's ADHD index, which is suitable for teacher/therapist and parents to complete, or a more complex measure, the Brown ADD Index. The SLTs will continue to explore ways to measure the effectiveness and efficiency of the speech and language therapy. The team plans to embark on a research study on DAS students with dyslexia and language impairment with the National University of Singapore, subject to approval. The SLTs will also extend the range of clients to include voice disorder and stuttering as well as to conduct interviewing skills workshop for tertiary students, including DAS alumni. The team will continue to educate parents, teachers and other professionals on speech and language impairment as well as the role of oral language in literacy development. The team places a huge emphasis on the quality of their work and will continue to strive to improve their clinical skills through attending relevant training courses and regular discussions with the experts on speech, language and communication issues.

ACKNOWLEDGEMENTS

Special thanks to DAS Speech-Language Therapists, Ms. Elizabeth Lim Yien and Ms. Choo Ling Fong for their contributions.

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APPENDIX 1—INDIVIDUALISED INTERVENTION PLAN (IIP)



DYSLEXIA ASSOCIATION OF SINGAPORE
SPEECH-LANGUAGE THERAPY
Individual therapy – Tote Board Funded

Individual Intervention Plan (IIP)

Student's name:

Student's BC no:

Speech and Language Therapist in-charge:

Learning Centre:

Frequency of intervention:

Period of intervention:

Educational level in school:

Home language:

Date of plan:

Long Term Goal	Status at the end of funding (1 year)
(Student) will be able to effectively use his speech and language skills to access the MOE-aided Literacy Programme at DAS	
IIP Goals	Term 1
Receptive Language	
Expressive Language	
Grammar	
Vocabulary	
Remarks (e.g., reasons for early discharge)	

APPENDIX 2— SELF-ESTEEM ASSESSMENT

Name:			Date:	
BC No.:			Term:	
				
	Yes	Sometimes	No	Points
1. I am happy				
2. I am useless at lots of things				
3. I am a good friend				
4. I am lonely				
5. I am good at some things				
6. People listen to me				
7. People like me				
8. I am unhappy being me				
9. I feel bad about myself				
10. I have lots of good points				
Total				

*Adapted from Talkabout Relationship—Building Self Esteem and Relationship skills
by Alex Kelly pg 34*



SHUET LIAN HO

Senior Speech-Language Therapist

Ho Shuet Lian works at the Dyslexia Association of Singapore (DAS) as a Senior Speech-Language Therapist. She received her training, an MSc (Speech and Language Pathology) from the National University of Singapore, and has a Master Degree of Business Administration (with Distinction) awarded from the University of Leeds. She is a member of Speech and Language Therapy Singapore (SALTS) and is Allied Health Professions Council Registered (AHPC).

She provides speech/language/communication assessment and intervention services to children with specific learning differences. Her clinical experience includes working with children between the ages of 5 and 16 years. In addition, she provides advice and clinical support to Educational Therapists and newly qualified Speech and Language Therapists at the DAS. She also gives advice to parents on speech/ language/ communication issues. She conducts Social Skills workshops as well as give public talks on speech / language / communication difficulties faced by children with specific learning differences.



SHARON SANDRA REUTENS

Speech-Language Therapist

Sharon is a Speech-Language Therapist at the Dyslexia Association of Singapore. She holds a Master of Science (Speech and Language Pathology) from the National University of Singapore. Formerly an Human Resources Consultant with a child with Attention Deficit Hyperactivity Disorder (ADHD), she made a mid-career switch to follow her passion of working with children in mainstream schools, with speech and language difficulties.



Speech & Language Therapy

Specialised Educational Services

UNLOCKING POTENTIAL

Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore.

Therapy is an integral step following assessment for your child that has shown areas of difficulties. The Speech and Language Therapy service is available to all preschool to secondary school students, with no diagnosis of dyslexia required.

Most of our students at DAS attend therapy sessions due to speech (unclear pronunciation) and/or language difficulties (difficulty understanding others and/or expressing themselves). Depending on your child's needs, therapy is conducted individually or in small groups. Through games and functional activities that relate to their everyday life or school, the therapists will help your child become more confident and effective communicators. Speech and language therapy will also help your child to reach his or her full potential in better accessing the literacy programme at DAS and the mainstream curriculum at school.



**DYSLEXIA ASSOCIATION
OF SINGAPORE**
HELPING DYSLEXIC PEOPLE ACHIEVE



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