DAS HANDBOOK 2018

EDITOR: EMERITUS PROFESSOR ANGELA FAWCETT
MANAGING EDITOR: DEBORAH HEWES

DYSLEXIA ASSOCIATION OF SINGAPORE

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EDITORIAL NOTE

The views expressed in this book are those of the individual contributors, and do not necessarily represent the policy of the Dyslexia Association of Singapore (DAS). Whilst every effort has been made to ensure the accuracy of information given in this handbook , DAS cannot accept responsibility of the consequences of any errors or omissions in that information. In certain articles a gender pronoun, eg. his/her, this is used purely for the sake of convenience by the author.

DYSLEXIA ASSOCIATION OF SINGAPORE

DAS HANDBOOK 2018

A collection of research articles, essays, DAS programme evaluations, case studies and practical information for people with dyslexia, their families and for the professionals who work with them to help them embrace dyslexia.

DYSLEXIA ASSOCIATION OF SINGAPORE

DAS HANDBOOK 2018

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Lee Siang
Chief Executive Officer
Dyslexia Association of Singapore

2018 has been an important year in education in Singapore. The Ministry of Education has made important announcements to reduce the emphasis on exams and to allow children to focus on learning! This is very much in line with the objective of DAS programmes which seek to address the fundamental learning issues faced by children with dyslexia and associated learning differences which allows them to better access information in schools and even enjoy learning.

The Ministry of Education also wants "to move away from a narrow focus on past academic merit to recognise and celebrate a broader range of skills, talents and strengths". This is again in line with the DAS Embrace Dyslexia effort whereby we highlight and encourage the development of the strengths of those with dyslexia.

The development of our Speech and Drama and Arts Ventures programmes was with the above in mind. We are delighted to hear that one of our Speech and Drama students will be admitted to the School of the Arts from 2019.

MOE also sees education as a tool to lift social mobility. Minister Ong Ye Kung has said "Let's not cap the top, but do even better in lifting the disadvantaged". Once again this has been a main effort of DAS. Not only are DAS programmes lifting children who are disadvantaged by their dyslexia, but DAS has also worked hard to raise funds to provide bursaries for children with dyslexia from lower-income families so that they are not denied access to much-needed intervention because they cannot afford them.

> "MOE also sees education as a tool to lift social mobility. Minister Ong Ye Kung has said "Let's not cap the top, but do even better in lifting the disadvantaged".

The overwhelming importance of providing quality programmes remains unchanged and DAS will continue to emphasise scope, expertise and reliability, i.e.. a comprehensive and holistic range of programmes and services to meet the varying needs of children and people with dyslexia and their associated learning differences, investing in quality training to raise and maintain the expertise of DAS psychologists and therapists and the conduct of programme evaluation and research to ensure the efficacy of our programmes and services. All the above will be supported by the measured use of educational technologies and software.

I am delighted that the DAS Handbook 2018 reflects the above themes and areas of emphasis. I thank the DAS team and our wonderful supporters for another year of outstanding effort.

LEE SIANG
CEO—Dyslexia Association of Singapore

Mr Lee Siang assumed the post of Chief Executive Officer on 1st September 2014. He oversees the work of the DAS HQ Branches operations, supervises the management of the three DAS Divisions, namely the MOE aided DAS Literacy Programme (MAP), Specialised Educational Services (SES) and the Learning Centres and Outreach Division. He also sits on the Board of DAS subsidiaries, DAS Academy and DAS International. Siang sits on the Board of the International Dyslexia Association (IDA) which is based in the United States and chairs the IDA's Global Partner's Committee. He has 30 years of experience in leadership and management of which 17 years is at a senior level in non-profit organisations.

Siang observes that "unlike other industries, work in a non-profit organisation gives you immense satisfaction that your efforts are helping clients who need your support and who are likely to not receive it otherwise!"

Siang joined the DAS in December 2001 and has played a key role in the rapid growth of the DAS Family into a thriving social enterprise with a multi-disciplinary professional work force that provides a continuum of psychological, educational and training services . He emphasises that the DAS must view itself as a social enterprise and management "must strive to fulfil our social mission by combining entrepreneurial and business skills with the philanthropic characteristics of non-profit organisations".

Siang obtained his Bachelor's Degree from the National University of Singapore via the sponsorship of a Singapore Armed Forces Training Award. He also has a Postgraduate Diploma in Financial Management from the Singapore Institute of Management, a Masters in Business Administration from the University of Western Australia, a Certificate in Dyslexia Studies, a Postgraduate Certificate in Teaching and Learning in Higher Education from the London Metropolitan University and a Postgraduate Certificate in Specific Learning Differences, also from the London Metropolitan University. It is this unique balance of experiences and qualifications that has allowed Siang to oversee the diverse services and functions of the DAS Family.

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DYSLEXIA ASSOCIATION

DAS

OF SINGAPORE

Editors Message

Emeritus Professor Angela Fawcett
Research Consultant
Dyslexia Association of Singapore

It is a very great pleasure to share with you the fourth of our Dyslexia Association Handbooks, edited by myself with Managing Editor, Deborah Hewes. It is now several years since I started working with DAS, and this handbook has now grown exponentially, so that we made the decision in 2017 to wait until 2018 to publish the most recent findings.

I continue to be deeply impressed by the progress I have seen over this time period in terms of research output, innovation and development. As research consultant to DAS, I have been able to work with more and more staff to help them with formal evaluation of their work. It has been reminiscent of working with PhD students in universities in the UK, helping them to develop a research ethos throughout their practice. This is an aspect of the work that I find particularly rewarding!

We continue to work with local educational institutions to obtain independent evaluations and this aspect is developing further. This year we have been delighted to welcome Professor John Everatt from New Zealand and Professor Kenneth Poon, from the editorial board of the Asia Pacific Journal of Developmental Differences (APJDD) to visit us at DAS.

We are now about to publish our 11th issue of the APJDD, and our editorial management system is becoming stronger with every issue. We are now developing a Scientific Review Board, a committee of researchers who will assist with the peer review process. A number of suitable candidates have come forward in response to our invitation and their names will be published in forthcoming issues of APJDD, with a short section on their background and experience. I encourage you to check out the

> "I continue to be deeply impressed by the progress I have seen over this time period in terms of research output, innovation and development."

DAS website, where you can now access all the past issues of the APJDD as well as checking our editorial policies. This year we have focused again on UNITE SpLD, which continues to go from strength to strength as a major international conference. We continue to make substantial progress on the publishing front, and I am proud of what we have been able to achieve working together.

In this DAS Handbook 2018, we adapt the format adopted in previous years, with the first sections on the DAS SpLD Assessment Services, a new initiative started in 2017. This outlines the psychological services developed for DAS, which now include dyslexia, dyscalculia, dysgraphia, attention deficit, autism, giftedness, visual processing and school readiness. The article highlights the issues of co-morbidity we encounter at DAS, as well as the numbers attending and the bursaries provided to them. The next section is an in-depth report on the DAS Main Literacy Programme (MLP) funded by the Ministry of Education. This elaborates on the admissions procedures, and develops a number of new themes, including specialist topics such as the intensive remediation programme we have developed, with case studies of children taking part. A focussed study on the use of Educational Technology at DAS follows, together with an intensive evaluation of issues in comprehension for our students. The section concludes with an in-depth focus group analysis drawn from our educational therapists on their confidence in supporting children at different stages in their literacy, with recommendations for improving the skills of the teaching staff in response to changing demands on their expertise and an independent report by Temasek Polytechnic on the current joint study on programmes' efficacy. In my view, MLP is truly an example of a system that has developed and continues to evolve to fully understand the complex issues in SpLD for everyone involved.

The Specialised Educational Services, a division of DAS, cover a broad range of topics associated with dyslexia, including Maths, English Exam Skills, Preschool, Chinese, Speech and Language Therapy and Drama, as well as specialised support for children with severe difficulties who need one to one support. The first article in this section on Chinese presents details of the evaluation using Battery of Chinese Literacy and the Chinese Literacy assessment tool, both developed in house at DAS. Similarly, the Preschool programme works with a number of assessment tools designed in collaboration with interns from Ngee Ann Polytechnic, this year reporting on the development of a new scope and sequence, and children, parent and teacher's reactions to this programme. It is a pleasure to note the recognition this is receiving with a May Day Award for Wong Kah Lai, the Programme Leader. The English Exam Skills Programme has extended their reach this year, with evaluations including not only the dyslexic groups they normally work with, but also a group of children with non-defined difficulties. The next section identifies both quantitative and qualitative improvements in P4 children experiencing the Maths programme, here identifying ongoing problems with Word problems for this group. This year the

Speech and Drama Arts programme has utilised a new test to evaluate socio-emotional development, which is thought to be impacted by experience in drama. They present glorious pictures from a Shakespeare festival the children presented in 2016, and the Journey of Legends in 2017. Finally, in this section the Speech and Language Therapy Programme highlights a series of case studies on the impact of this service, outlines the evaluation and introduces the controlled study on the impact study on the impact of support in Speech and Language. It may be seen from these reports and the new developments ongoing, that DAS continues to grow and expand, with an ever-increasing number of children benefitting from the support we are able to provide. Once again, this year I have been impressed by the standards we achieve and maintain in providing support for children with difficulties, and the readiness of DAS to continually evaluate, upgrade and improve their provision.

This year we present an analysis of the DAS International Specialist Tutoring Programme, that now tackles a wide variety of developmental differences. This is followed by an update on the further development of online support for use internationally. A case study of the in-depth support provided for a 17-year old from Thailand in higher education is presented, emphasising the importance of meta-cognition in a student of high ability. To complete the DAS programme reports and evaluations the final article is from the DAS Academy, the training arm of DAS that is able to provide a range of courses that address the needs of our therapists and parents in terms of further training at all levels from workshops and certificates to Master's level. Together these Programmes and Academic initiatives provide a unique combination of theory and practice available to the region through DAS with their cohort of over 3500 children. It is interesting to note the broadening of our approach to address more of the wider implications of dyslexia, in terms of self-concepts and how these impact on performance.

As in last year's handbook, we present a section on Embrace Dyslexia, headed up this year by an article from Neil Alexander-Passe, extracted from his successful book on building grit and determination in children with dyslexia, by helping them to deal with failure. The section continues with an article from my husband David Fawcett, recounting for the first time the misery he experienced as an undiagnosed dyslexic all those years ago in the UK. He emphasises the importance of people who believe in you in helping you to become successful as a dyslexic adult. We also showcase a wonderful dyslexic photographer, Vickar Adam. He has allowed us to reproduce some of his photographs and his unique ability to capture brilliance for fashion. Finally, our

"We continue to make substantial progress on the publishing front, and I am proud of what we have been able to achieve working together."

own Deborah Hewes presents her perspectives on a challenging topic from Malcom Gladwell, should dyslexia be considered a desirable difficulty? You will be glad to hear that Deborah concludes that this could indeed be argued, when effective support is provided for that child.

In the next section, we move on to consider International Perspectives.   I have contributed the first article in this section on stress, anxiety mental health and the need for Positive Psychology in Dyslexia. Mental health has become a key issue in education internationally, with a startling growth in the number of children and students experiencing difficulties. Here I explain the theoretical background to stress in dyslexia, and the importance of co-morbidity in exacerbating existing difficulties. Finally, I move on to how to improve your self -image as a dyslexic, through a number of exercises designed to enhance self-esteem and positive outcomes. In the next article, our colleagues, Drs Kristiantini Dewi and Dr Purboyo Solek outline the development and standardisation of an Indonesian computer based early identification system for dyslexia. This aims to reduce the bottleneck in identifying problems based on the shortage of fully qualified personnel, with a questionnaire based system that can be delivered by lightly trained counsellors with experience of dyslexia. Comparison with diagnoses by skilled paediatricians reveals a good agreement, suggesting that this system can be fruitfully used more widely across Indonesia. Finally, in this section, we present a summary of the abstracts from the recent Unite SpLD conference held by DAS in Singapore. The conference again attracted record numbers of presenters and participants drawn from a wide range of participating countries, and was extremely well received. The conference concluded with an invited international research meeting dedicated to international collaboration, which is proving to be a highlight of the conference annually.

A new section this year considers a range of educational perspectives, entitled educational exchanges. This first highlights a study from DAS examining the impact of memory games on reading fluency and comprehension, highlighting just how difficult it can be to make changes on standardised tests. This leads to a number of recommendations for further research. The final article in this handbook is drawn from a number of our expert staff, who address the issues of facilitating learning for digital natives, presenting some of the programmes that have proved useful, and best practice in moving forward into the computer age.

I would like to congratulate all those working with DAS on what they have managed to achieve and will continue to achieve over the coming years, going from success to success and expanding their provision as world leaders in the field of dyslexia.

EMERITUS PROFESSOR ANGELA FAWCETT
Research Consultant
Dyslexia Association of Singapore

Emeritus Professor Angela Fawcett is a leading international researcher into dyslexia and other developmental disabilities, encompassing a range of theoretical and applied contributions to this field. Angela is also an Honorary Professor at the University of Sheffield. Her approach is broad and interdisciplinary ranging from child and cognitive development to educational screening and intervention, as well as developmental cognitive neuroscience. She is the Vice President of the British Dyslexia Association and also the Former Chair and Director of the Centre for Child Research at the Swansea University, UK.

Angela has worked with the Dyslexia Association of Singapore for a number of years and is currently a Research Consultant to DAS. She is currently the Editor-in-Chief of the Asia Pacific Journal of Developmental Differences.
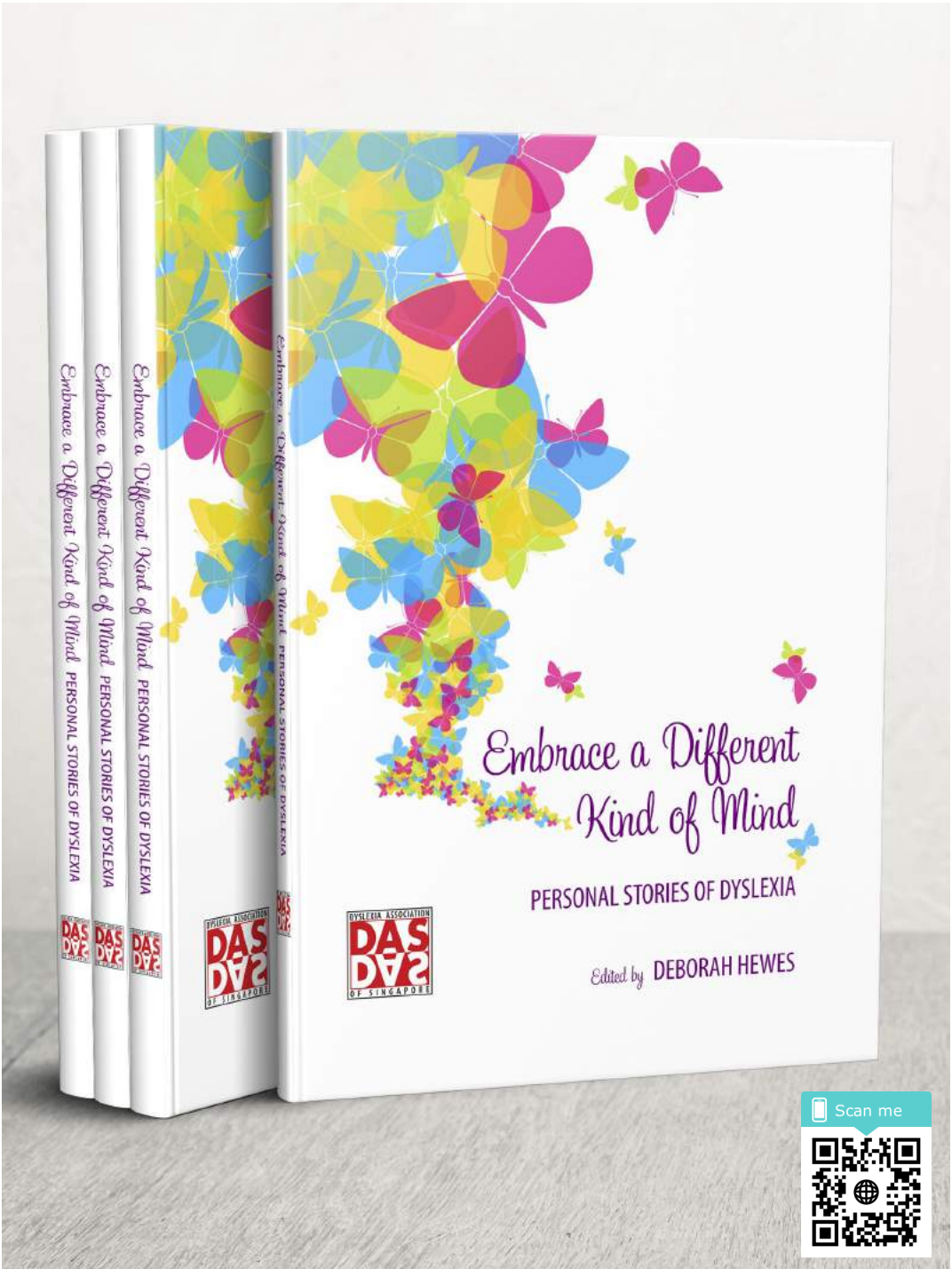
DAS SHOP— DAS.ORG.SG/ABOUT-DYSLEXIA/OTHERS/SHOP.HTML

Publishing for DAS

Deborah Hewes
Head of Publicity and Publications
Dyslexia Association of Singapore

The Dyslexia Association of Singapore is very proud of its publishing record and the many publications it produces for the community that support children with learning differences. As the organisation matures, and indeed with the passing of its 25 years of service to Singaporean community, DAS has increasingly provided an expert voice by way of articles, essays, media interviews, social media postings, website content, BLOG articles and books to share information that is necessary to aid the support of children that learn differently.

DAS is also at the forefront of research in Singapore on Special Needs and publishes a journal to share this information. The Asia Pacific Journal of Developmental Differences is in its 5th year of publication. Publishing bi-annually this journal now has over 70 journal articles in the field of Special educational needs. The journal addresses a range of special educational needs including dyslexia, autism, dyspraxia, dyscalculia, ADHD in the Asian context. The journal covers theory into practice and provides a showcase for research in the Asian context as well as highlighting research areas that have implications for further research within Asia and beyond. The journal is free and all journal articles are freely available to the public. DAS provides this service to ensure that educators have the latest information available to them.

Journal articles, and all other publications by DAS, can be found on the DAS website under PUBLICATIONS. Recently, DAS took the step to reduce its environmental footprint and therefore has ceased the printing of its publications. Therefore access to all publications is though the DAS website digitally. The savings on printing goes to better serve our clients from low income families.

This year DAS has developed a BLOG, here our CEO, Educational Therapists, Psychologists and Speech and Language Therapists share their insights into learning differences and how they support students learning. They provide tips for learning

as well as insights to supporting students at DAS. We also share success stories of individuals with learning differences as well as showcase their talents. Our CEO, Lee Siang has his own BLOG and is a regular contributor to the conversation we have about the things we do at DAS, embracing dyslexia and learning differently.

The 25th anniversary of DAS saw the publication of 'Clearly Different—Dyscovering the Differences', a book authored by Dr William Wan, General Secretary of the Singapore Kindness Movement. As a friend of DAS Dr Wan collaborated with us to produce a reflection of 25 years of service to the Singaporean community.

William reflected in his introduction to the book, "When I was asked to write this book, I demurred, not because I don't believe in what DAS has achieved, but because I was afraid I could not do it justice. However, with the same determination that they harness to serve the dyslexic community, they were unrelenting in pursuing me to tell their story. I am thankful for their confidence and glad for the opportunity of a ringside view to what this group of big-hearted, humble, and very giving people have done, not just for Singapore but for the wider world community of very special people as well. It is an honour to chronicle what they have done, with what they have had, where they were."

It was a pleasure to work with Dr Wan on this project that left such a meaningful and delightful chronicle of the work that DAS has achieved over the last 25 years. I am privileged to be in a role where I can produce the publications for DAS, it brings me great joy and purpose to serve the community of people who learn differently as well as provide a platform for those who work tirelessly to support them.

DAS is filled with committed, dedicated and passionate individuals who make a difference to the lives of children who learn differently every day. It is a pleasure to be able to work with them and they are an inspiration to many.

DEBORAH HEWES
Head of Publicity and Publications
Dyslexia Association of Singapore

She has been with DAS since May 2011. Deborah has dyslexia and passionate about raising awareness about learning differences. All three of her children have learning differences and as a result, she has spent most of the last 20 years supporting her children's academic careers as well as helping other families with children who have learning differences. Deborah has lived in Singapore since 2001 and she has devoted the first 10 years working in an International School as a Learning Support Assistant and parent volunteer supporting students who learn differently with math, reading and literacy. She has also worked as a shadow assistant for students with behavioural issues, ADHD and Asperger's Syndrome.

Deborah completed her Psychology honours degree at Singapore University of Social Sciences and her thesis was titled "Adolescents with learning disabilities: an investigation of academic self-concept, self-esteem and depression in International school students. "Deborah is currently completing her Masters in Special Education Needs with the University of South Wales and is conducting research for her dissertation into "Singaporean Entrepreneurs and Dyslexia."

Deborah is the Managing Editor of the Asia Pacific Journal of Developmental Difference and the annual DAS Handbook, editor of the DAS quarterly magazine FACETS and the biannual RETA Chronicles magazine. In 2015, she edited the first book of its kind in Singapore, "Embrace a Different Kind of Mind—Personal Stories of Dyslexia" and in 2017 designed and published the 25th anniversary book for DAS, "Clearly Different-Dyscovering the Differences"

DAS SpLD ASSESSMENT SERVICES (SAS)
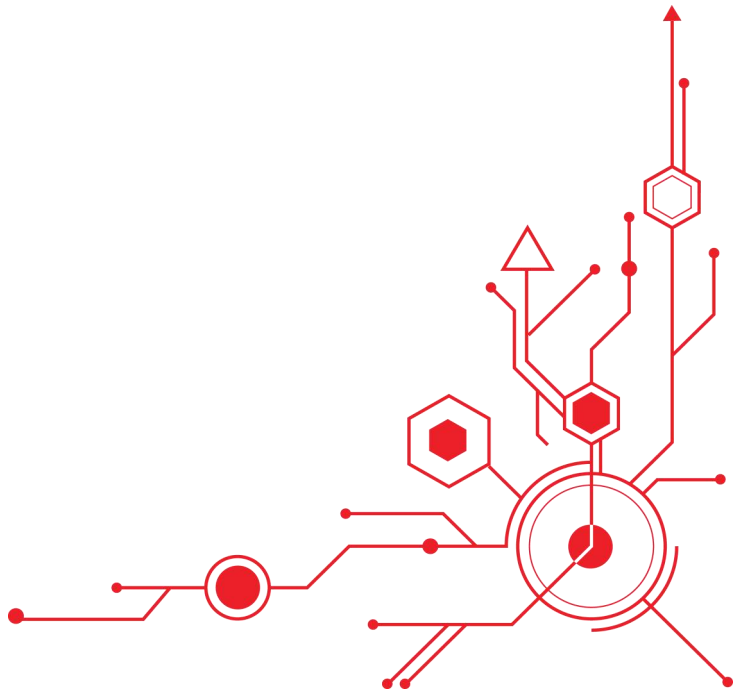
DAS SpLD ASSESSMENT SERVICES

SpLD Assessment Services (SAS) comprises of a team of Registered Psychologists and Specialist Psychologists who receive intensive training to ensure that they are well skilled to carry out psycho-educational assessments. SAS Psychologists see over 1200 referral cases each year and accumulate significant experience in conducting SpLD Assessments.

Once the child has been diagnosed to have dyslexia and/or other learning difficulties and is found suitable for DAS programmes, the psychologists would then determine the learner's profile. Each child has his/her own strengths and weaknesses which come together to make up their own unique learning profile. For the child who has been diagnosed with dyslexia and/or other learning difficulties and is found suitable for DAS programmes, the DAS Psychologists will differentiate his/her needs accordingly for placement in an appropriate class. This facilitates the DAS Educational Therapist in selecting suitable educational goals that address the child's needs more closely.

The progress of every student is monitored and reviewed by DAS Educational Therapists every six months. After three years, psychologists may conduct review assessments to determine the child's overall progress since his/her previous assessment. This assessment may also determine if the child is eligible for access arrangements for school and national examinations.

The DAS offers a range of psychological assessments that may help to address your concerns with regard to academic, attention and social skills. The difficulties that may be investigated include:

- Dyslexia
- Dyscalculia
- Dysgraphia*
- Autism Spectrum Disorder (ASD)
- Attention Deficit Hyperactivity Disorder (ADHD)

- Intellectual Disability (ID)
- Giftedness
- Visual Processing
- School Readiness

* requires OT assessment

DAS Psychologists can provide psycho-educational assessments for students (Primary to Tertiary) as well as school-readiness assessments for pre-schoolers. Assessments and consultations are also available for adults with concerns.

DAS SpLD Assessment Services (SAS)

Geetha Shantha Ram[1] and Yimei Liu[2]

1.   *Director of SpLD Assessment Services, English Language and Literacy Division and Staff Professional Development*
2.   *Registered Psychologist*

Dyslexia Association of Singapore

LAUNCH OF SPLD ASSESSMENT SERVICES (SAS)

The SpLD Assessment Services (SAS) as a division was launched in October 2017. It is a new, but not so new "kid on the block". Why so?

Prior to the inception of SAS, student admissions into DAS, for assessments or entry to our literacy programme, were managed through two systems. First, the former MOE-aided DAS Literacy Programme (MAP) Admissions department had oversight over the enrolment of students into MAP, which is now known as the DAS Main Literacy Programme (MLP). MAP admissions role included reading through referrals from parents and schools and determining whether the child is eligible for MLP, or whether the child would require an assessment to determine dyslexia. All the children who qualify for funding through the Ministry of Education (MOE) are Singaporeans, have dyslexia and attend Ministry of Education (MOE) schools. Should the child require an assessment to query for dyslexia, Psychologists would carry out the assessments. Second, the Specialised Education Services (SES) administrators had oversight of the enrolment of students into the SES programmes and their assessment arm assessed for difficulties in dyslexia and beyond for clients who are non-Singaporeans, and/or who do not attend a MOE school. Enrolment into SES programmes operated independently from MLP Admissions.

> "This unified service minimises the possible confusion and burden our clients may face in determining the services they can access at DAS."

Since October 2017, these admissions processes through MLP and SES into the DAS were unified through the launch of the SAS. It provides a single point of entry for all clients into DAS, regardless of the nationality and school, the type of assessment the client may need, as well as the type of programme(s) the client would like to enrol into.

This unified service minimises the possible confusion and burden our clients may face in determining the services they can access at DAS.

Merging the assessment arms within DAS and broadening the scope of work in assessments enabled SAS Psychologists to provide a one-stop assessment service. Under SAS, Psychologists are able to assess a range of issues which benefits clients in that they do not have two assessment services to consider.
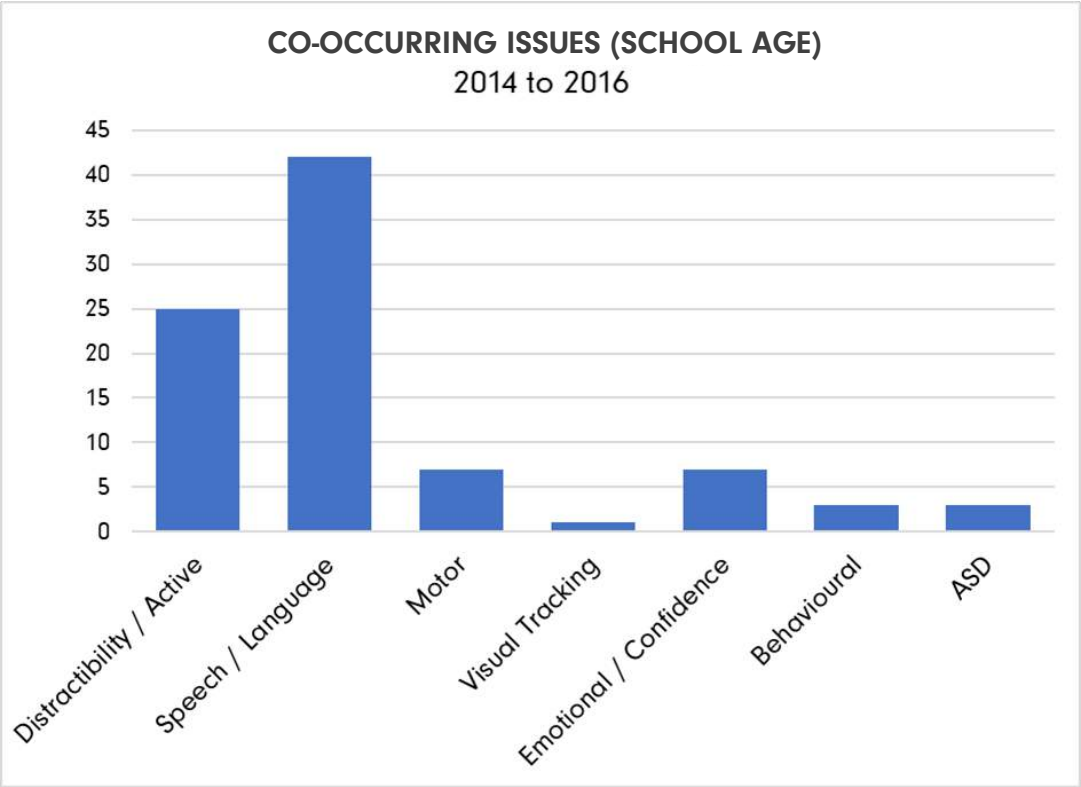
Figure 1. Co-occurring Issues in School Age Children from 2014 to 2016

One crucial observation made possible due to SAS was the comorbid rates with reference to DAS students. For instance, international rates suggest high comorbid rates (up to 50%) such as:

- 50% of children with dyslexia will meet the criteria for developmental coordination disability (Kaplan et al., 1998)

- 31-36% of children with Speech and Language Impairment (SLI) will develop later literacy difficulties (Catts et al., 2005)

- Co-occurrence between Attention Deficit (Hyperactivity) Disorder and Reading Disabilities is between 25-45%

SAS also found, in reviewing applications for programme enrolment and in conducting assessments, a number of students with co-occurring issues in varied areas. This certainly warrants further investigation and highlights the importance of an assessment / identification service that is able to effectively identify all potential needs of a learner so that support/ recommendations can be provided in a holistic manner.

SAS... IN NUMBERS

SAS has continued to provide services to meet the requirements of our clients. This is demonstrated in the number of assessments we have conducted and the increase in student enrolments.

In 2017, SAS received and processed 1590 applications. 762 were for assessments. 240 were placed into programmes. A total of 656 were referred for classes at DAS, which includes 281 from the Ministry of Education.

As a part of our mission to benefit all learners with dyslexia, potential students are given bursaries. As of end 2017, 39.6% of all dyslexia assessment applicants were granted a DAS bursary to assist with the payment of assessment fees.

DAS SPLD ASSESSMENT SERVICES
www.das.org.sg/services/assessments.html
Scan me to find out more!

ABOUT THE AUTHORS

GEETHA SHANTHA RAM

Director SpLD Assessment Services, Main Literacy Programme & Staff Professional Development

Geetha Shantha Ram is the Director of the MOE-aided DAS Literacy Programme (MAP) and has led curriculum enhancements for the DAS through the Essential Literacy Approach and the current integrated MAP curriculum. Besides MAP, Geetha oversees the Staff Professional Development division and the DAS Research Committee and is also an advisor in the Register of Educational therapists (Asia) (RETA). Formerly, the Assistant Director of the DAS Academy, Geetha trained Allied educators, parents and other professionals and continues to present at conferences, most recently at the 2014 International Dyslexia Association Conference.

Geetha has a Masters in English (NUS) and a Post Graduate Certificate in Learning and Teaching in Higher Education (Distinction) (LMU) while currently pursuing her doctorate. With over 12 years of experience supporting children and adults in the area of dyslexia, Geetha constantly aspires to provide a quality service to dyslexics that searches for and realises their true potential and provides them with a view to appreciate their own unique gifts.

LIU YIMEI

Registered Psychologist

Yimei joined the Dyslexia Association of Singapore (DAS) in 2007 with a Bachelor of Social Sciences (Hons) from the National University of Singapore. She has a Master of Arts (Applied Psychology) from the National Institute of Education, Nanyang Technological University, and is now a Registered Psychologist with the Singapore Register of Psychologists, Singapore Psychological Society. Other than conducting assessments as part of an investigation process for learning difficulties, she is also involved in the training and supervision of new psychologists at the DAS. Yimei has a keen interest in the area of dyslexia and Chinese. She obtained an Advanced Diploma in Chinese Language Teaching from the KLC International Institute and participated in the initial development of the Chinese Programme at the DAS. The research also brought her to presentations at conferences such as the International Dyslexia Association Conference and the International Symposium on Bilingualism.

EVALUATION OF DAS ENGLISH LANGUAGE & LITERACY DIVISION

DAS Main Literacy Programme (MLP)

"To map the way for young dyslexics to live a life of beauty and promise through a comprehensive, high quality service provided by inspired professionals"

Curriculum Framework - MLP provides a comprehensive and quality curriculum to support dyslexic students facing literacy challenges in a positive learning environment, engaging parents and other stakeholders to ensure the success of our students.

MLP Learning Components
♦ *Language and Vocabulary*
♦ *Phonemic Awareness*
♦ *Phonics*
♦ *Morphology*
♦ *Reading Fluency*
♦ *Reading Comprehension*
♦ *Writing*

MLP Learning Priniples
♦ *To promote and facilitate reading and spelling development*
♦ *To equip students with the essential comprehension skills needed to draw inferences*
♦ *To accentuate the importance of reading fluency through the deliberate planning of reading tasks that takes into account students' reading fluency and accuracy*
♦ *To emphasize vocabulary development of sight and high frequency word through instructions leveraging on Edu-Technology*
♦ *To develop diverse localised manuals, materials and resources to cater to the learning needs of students*

MLP Teaching Resources
♦ *Language and Vocabulary pack*
♦ *Phonemic Awareness and Phonics pack*
♦ *Morphology pack*
♦ *Grammar for Writing pack*
♦ *Advanced Writing pack*
♦ *Listening/Reading Comprehension pack*

DAS Main Literacy Programme (MLP)
All you need to know about MLP

Geetha Shantha Ram[1], Liu Yimei[2], Sujatha Nair[3], Serena TanAbdullah[4], Hani Zohra Muhamad[5] and Manmeet Kaur[6]

1. *Director of SpLD Assessment Services, English Language and Literacy Division and Staff Professional Development*
2. *Registered Psychologist, Assistant Director, SpLD Assessment Services*
3. *Assistant Director, Quality Assurance, English Language and Literacy Division*
4. *Assistant Director, Curriculum Development & Implementation, English Language and Literacy Division*
5. *Lead Educational Therapist and Educational Advisor*
6. *Staff Professional Development Division Executive and RETA Administrator*
Dyslexia Association of Singapore

BACKGROUND OF PROGRAMME

The Dyslexia Association of Singapore's (DAS) mission is to help dyslexics achieve.

DAS has adopted the Professional Practice Guidelines (PPG) definition of dyslexia which recognises it to be a specific learning difficulty of language learning and cognition that primarily affects accurate and fluent word reading and spelling skills with associated difficulties in phonological awareness, verbal memory and processing speed (Ministry of Education, 2011). In order to access the Main Literacy Programme (MLP)- formerly known as the MOE-aided DAS Literacy Programme (MAP), students would require a diagnosis of dyslexia by a registered psychologist to receive support and intervention at the DAS.

MLP offers intervention, taught in accordance to Orton-Gillingham (OG) principles, which is language based, cognitive, structured, sequential and cumulative, multisensory, diagnostic/prescriptive and emotionally sound. It aims to skill dyslexic students in the areas of phonics/phonemic awareness, reading, comprehension, spelling and writing.

MLP focuses on these elements:

♦ the recommended areas of instruction for learners with dyslexia *(National Reading Panel, 2000; Rose, 2009)*

♦ individualised group lessons taught in accordance to the Orton-Gillingham (OG) principles *(Ritchey & Goeke, 2006; Rose & Zirkel, 2007)* and modified in view of institutional and funding limitations

♦ a suggested framework of information bearing in mind cultural sensitivities and emphasising conceptual teaching of language components as "[k] nowledge organisation is one element that has been used to differentiate novices from experts" *(Ridgeway & Dunston, 2000)*

In the year of 2017, MLP has provided intervention for over 3000 students.

OUR VISION

Acquisition of literacy skills is far more than just being able to cope in school, it is to manage and live life with possibilities. MLP not only looks to provide learners with literacy skills but as an important by product of its intervention, MLP looks to instil them with the belief that they indeed can and deserve a future that is as beautiful as a child's dream and is full of promise – a potential that is not limited by their dyslexia but instead enhanced by it, once they've been given the tools to overcome its challenges and by identifying and nurturing their talents.

Given the responsibility of enabling our learners to achieve and to put this simply, recognising what is at stake if it doesn't, MLP has set itself very high goals and continuously looks towards enhancing its service, both in coverage of knowledge and skills as well as in quality. Not to be forgotten, the dedicated team of MLP educational therapists are reminded of the value of their roles in the lives of the learners and through their commitment to the cause, help them form these dreams and make them a reality.

To map the way for young dyslexics to live a life of beauty and promise through a comprehensive high quality service, provided by inspired professionals.

Hence, MLP's vision remains consistently clear:

PROGRAMME DESCRIPTION

MLP comprises three main functions: Admissions, Curriculum Development and Enhancement and Quality Assurance. The main roles of the various departments are summarised below:

- ♦ **Admissions**

  A team of psychologists from the SpLD Assessment Services Division participate in screening of learners to enable identification of at-risk students. Upon receipt of applications from parents, schools and other professionals supporting learners, specialists and educational psychologists conduct assessments to formally diagnose the needs of the learners, and subsequently, make placement referrals for intervention. A team of administrative staff support the referral process as well as bursary needs of students who may require financial assistance.

- ♦ **Curriculum Development and Enhancement**

  A team of experienced senior and lead educational therapists regularly evaluate the current curriculum and its relevance based on profiles of students and recommended intervention by the Admissions team. Further development, implementation and enhancement of the curriculum are based on these evaluations and proposals for additional programmes within the curriculum are also considered so that all students equally benefit from MLP.

- ♦ **Quality Assurance**

  A team of educational advisors conduct needs analysis, and assist with the development and support of educators through broad based support as well as intensive remediation guidance. The evaluation of educator performance and formulation of further training to groom educators further ensures that the educators are able to effectively translate the curriculum to meet the needs of their learners. Additionally, through progress monitoring of students and their graduation, this department keeps its view on the quality of the programme through the learners.

BANDING

In 2013, MLP introduced banding as a way to ensure that:

- ♦ Student's learning needs are matched with the level of teaching within the MLP curriculum

- ♦ Educational targets are set at the start of the intervention and adjusted as the student progresses through the MLP curriculum

- ♦ Teaching is more responsive to the student's changing literacy profile and so that measures can be put in place to address any lack of response to intervention

- ♦ Programme evaluation can occur and quality assurance standards can be met

- ♦ Student's exit from MLP is based, in part, on his / her progress from his / her initial banding

In grouping existing students, psychologists utilised available information from the students' psychological reports to position them as best benefiting from either the Band A, B or C curriculum - in other words, what are the more urgent requirements in the provision of intervention for that child. Within each band, there are three levels of literacy learning, making it nine levels in total. Each year, MLP monitors and seeks to understand the needs of students who are referred to its programme, knowing that each dyslexic student is different at different stages in their educational journey and some may require more intensive forms of support (e.g. speech and language therapy) or a different emphasis of teaching (e.g., more language based work versus more literacy based work).

For instance, Band A covers emergent literacy skills and students who are assigned to be in this band typically have language or cognitive weaknesses that co-occur with their dyslexia. They often show emergent literacy skills, such as having some awareness of the alphabet, how letters are formed, how text goes across the page from left to right and being able to read and spell some basic words. These students need support in boosting their listening and speaking skills while improving on their literacy foundations. They may also need a slower pace of learning, with more opportunities for repetition.

Band B, on the other hand, covers functional literacy skills and students who are placed in this band would likely have fairly developed language skills but significant

basic literacy difficulties. They may have some reading and spelling skills of familiar words but struggle with understanding and applying letter-sound correspondence rules in reading and spelling new words. They also have reading fluency, reading comprehension and paragraph writing difficulties.

Band C covers functional to advanced literacy skills and students who are placed in this band would likely have fairly developed language skills and some functional literacy skills but continue to struggle with reading fluency, reading comprehension and composition writing.

MLP... IN NUMBERS

STUDENT ENROLMENT

At the end of 2017, MAP enrolment stood at 3081, with a waitlist of 136 students.
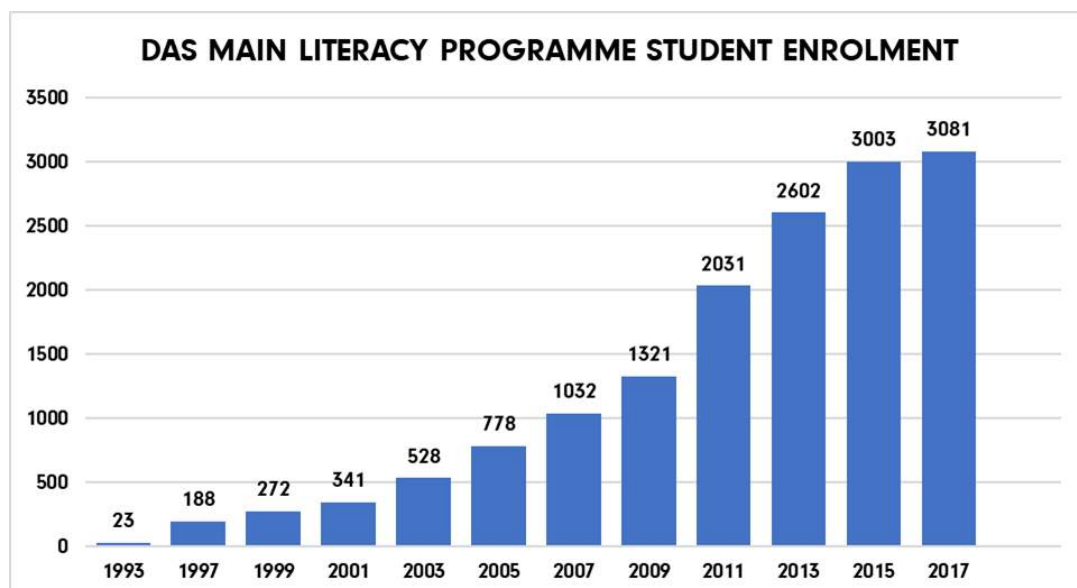
DAS ENGLISH LANGUAGE AND LITERACY PROGRAMMES
www.das.org.sg/services/about-our-services/english-language-literacy-programmes.html
Scan me to find out more!

Main Literacy Programme: Educational Technology—EdTech

Today, more than ever, the role of educational technologies is of great importance and it is becoming commonplace in the area of education to harness the interest of students and add value to the learning objectives.

Technology integration for digital literacy and the 21st-century skills of critical thinking and problem solving, collaboration and communication and information literacy have become increasingly important. By using technology, these skills can be imparted to the learners. However, to do this effectively, pedagogical models need to be used.

Some of the main guiding pedagogies employed by MLP EdTech are TPACK and SAMR models. The TPACK - Technological, Pedagogical and Content Knowledge - is about designing lessons incorporating technology to support the arranged content through a pedagogically supported approach (Figure 1).
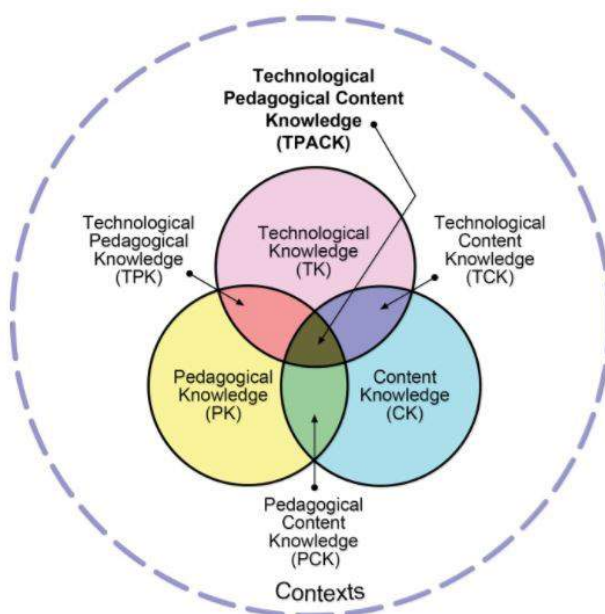
Figure 1. The TPACK, Hos-McGrane, M (2011)
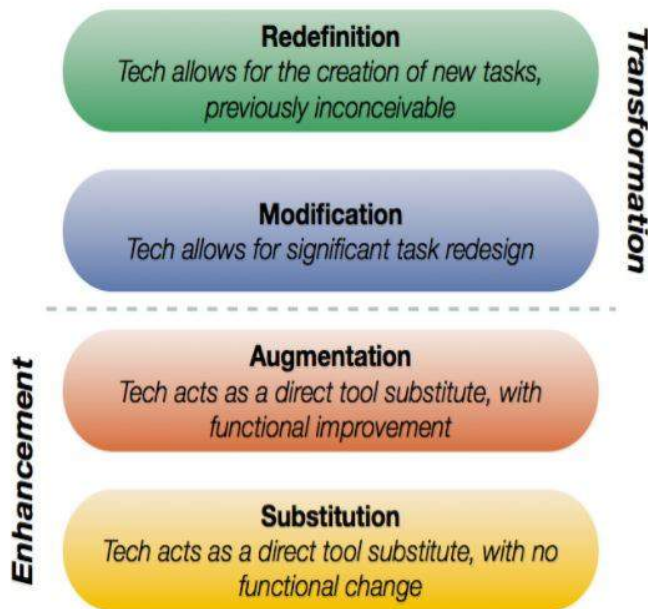
Figure 2. SAMR Model (Puentendura, 2006)

The SAMR model (Figure 2) on the other hand facilitates the practical aspect and scales the various levels of use of educational technologies into four broad levels so that educators can know the level of their technology integration in the lesson (Substitution, Augmentation, Modification and Redefinition) and how they can further elevate the activity.

The MLP EdTech Team is focused on the application and study of educational technologies and how it enhances skills and cognitive characteristics in both educators and learners. The team thus pilots and leads initiatives with educational technologies such as studying users' perceptions on uses of iPads in the MLP classrooms, the impact of Mimio Teach Smart Bars on educators and dyslexic learners, and the formative approach to the digitalisation of MLP's Curriculum-Based Assessments.

EdTech in MLP is at its beginning stages but the bigger plans are on the way to ensure that not only traditional learning methods are modernised but also that the use of educational technologies is purposeful to student-oriented learning.

Main Literacy Programme: Parents as Partners

COMMUNICATION WITH PARENTS

DAS has always viewed parents as partners. Parents entrust their children with us and we want to connect, converse and converge with them. This partnership and shared responsibility helps us provide a more holistic support to the students.

Supportive parents are important for students to succeed.   In the MOE work plan seminar in 2015, Mr Heng Swee Keat (Heng, 2015) stated the following:

> *"When parents, teachers and the community work together, we multiply our efforts to make every student an engaged learner. We multiply the domains in which our children can find success... indeed we create new pathways to success."*

In general, all our Educational Therapists conduct regular meet ups and contact with parents. At the beginning of 2015, we started increasing our contact time with parents so that we can exchange pertinent information on a regular basis.

Communication with parents takes place on a monthly basis and it is either in person or in any one of the following manner:

1. Phone call
2. Watsapp messages
3. Videos
4. Images on what the child is doing in class
5. Emails
6. Notes to parents

In 2016, we developed a parent Engagement framework to help our Educational Therapists communicate with parents. We also conducted training for them on how they can use the framework to improve how they connect with parents.

The following is a brief on how we have used parent-teacher communication to engage parents. The framework is adapted from Epstein's (Epstein, 1995) six different types of parent involvement.

1. **Parenting**
   a. Providing suggestions on how their child can be supported at home in areas like behaviour management and motivation
   b. Providing training and support for parents through talks and workshops

2. **Communicating**
   a. Developing effective home to DAS and DAS to home as well communication to and from MOE schools.

3. **Learning at Home**
   a. Educational Therapists share tips with parents on what the students have done in the classroom and how parents can support them at home to practise these skills.

4. **Collaborating with Community**
   a. We conduct activities through our Parent Support group – like PAWS for Reading, Behavioural management talks and etc

5. **Volunteering**
   a. Allowing parents to volunteer at our different learning centres to help in the library, act as chaperones for student in our learning, steering the Parent Support Group and etc

6. **Decision Making**
   a. Encouraging all our students' parents to join our Parent Support Group to become advocates of their child's learning

CLIENT SATISFACTIONS SURVEYS

In 2017, we started conducting Client Satisfaction Surveys on a bi-annual basis. These are the results from this survey. In total, we had about 477 participants for the survey.

In the area of **Educational Service**, 97 percent of our parents are aware of why their child attends the programme. 71% of the parents have an awareness of what our educational programme covers and 69 % of the parents felt that their child has improved in his / her studies after attending DAS classes.

In the area of **Customer Service**, 87% of the participants confirmed that they obtain regular updates from their Educational Therapist,

In the area of **Child Well-being**, 92 percent of our students were happy to attend classes at DAS, 75% of our students feel better about themselves as a learner. 62 % of our parents were aware about the existence of the DAS Parent Support Group. From the results, it is encouraging to note that that 92 percent of our students are happy to attend DAS classes. We are glad that our students are experiencing a joy of learning. One area that we will be working on is to help our students to transfer the skills that they have learnt at DAS to their school. We are also increasing our efforts to expand the Parent Support Group to empower parents.

PARENTS' POSITIVE FEEDBACK ABOUT MLP CLASSES
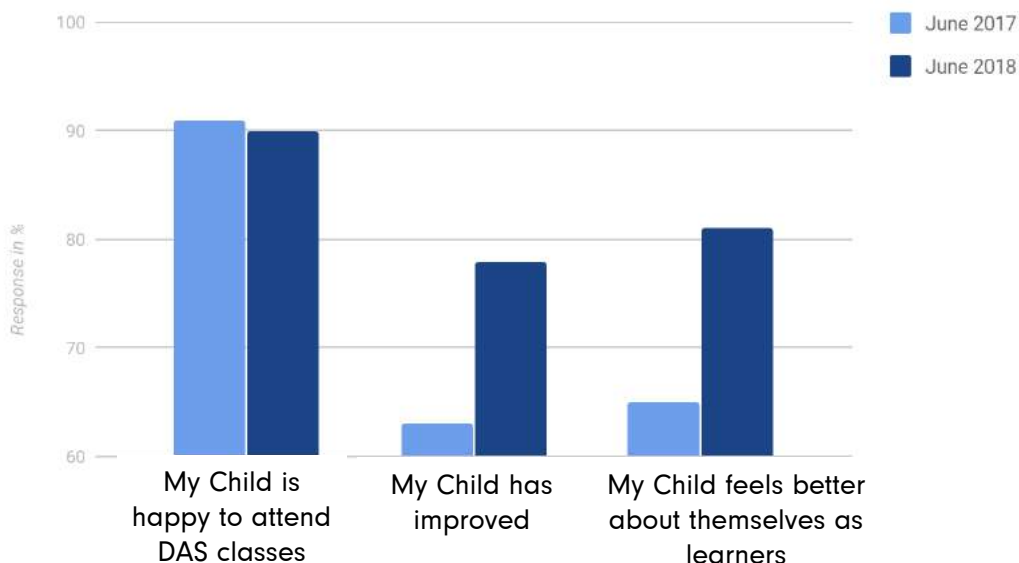
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Main Literacy Programme: Intensive Remediation (IR)

Intensive Remediation (IR) is a support system under the Main Literacy Programme (MLP) that focuses on helping Educational Therapists (EdTs) who have challenging students under their charge so that they are more able to teach and guide these students to achieve progress in literacy as well as show improvements in behaviour. An IR status will be conferred on such a student after an observation is conducted by an Educational Advisor (EA) who will then provide suitable advice and suggestions to the EdT on what can be done to improve the student's learning in addition to managing the class better.

Once a student is placed on IR, he/she will be monitored for progress every 6 months. This is done through an observation by an EA where another round of discussion is conducted and new strategies shared, if needed. 'Challenging' students are defined by their lack of ability to attend to literacy tasks given in the classroom and/or having behaviours that may cause disruptions to the student's own learning and/or to the learning of other students in the class.

EdTs with such student(s) may be able to conduct lessons for him/her in a smaller class setting after an IR status is conferred on the student by an EA. Additionally, such student(s) could also be highlighted by a psychologist who reviews the case or a preschool EdT who has taught this student at the preschool level. In 2017, the total number of students on IR increased, as shown in the table below:

> "Challenging students are defined by their lack of ability to attend to literacy tasks given in the classroom and/or having behaviours that may cause disruptions to the student's own learning and/or to the learning of other students in the class.

Table 1: Students in the Intensive Remediation Programme

IR 2017	JAN TO MAR 2017	MAR TO JUNE 2017	JUNE TO SEP 2017	OCT TO DEC 2017
Total	37	45	50	52

In seeking to understand the reasons for this gradual increase, the applications and feedback following observations were reviewed. The noted reasons include:

- ♦ There were more challenging cases in terms of behaviour and cognitive profiles

- ♦ More students with varied co-morbidities are being placed together in the same class

- ♦ Students' prolonged stay in IR due to the complexity of their profiles

The IR team under MLP will continue to monitor this with the intention to improve the management of students with complex profiles. In recognising the increasing co-morbid needs that our Edts encounter, DAS also intends to implement an SpLD Committee to review the needs of the students and teachers, while ensuring that the curriculum continues to be relevant to support such learners and has the necessary resources to carry out the intervention effectively.

OBSERVATIONS OF IR STUDENTS BY AN EDUCATIONAL ADVISOR - SUCCESS STORIES

STUDENT W

Student W is a student with autism and dyslexia. When he joined DAS in 2011, he displayed some behaviours that are typical of such children, for example preferring to have a familiar routine and getting extremely upset if there are changes to his normal routine, not being aware of other people's personal space, or being unusually intolerant of people entering his personal space, and seeming to talk "at" people, rather than sharing a two-way conversation. Additionally, Student W has reading and spelling difficulties as well as a weak working memory which are typical traits of children with Dyslexia.

Upon his enrolment, Student W was placed in a class with other classmates. With his strong headed nature, he was not able to get along well with one of them. In-class discussions and interactions did not go well and this was not merely a social issue as it had impeded his learning as well as that of others. In view of his low literacy skills (he was still having difficulties with Dolch List 2 words at P4 level) and social skills, he was placed on the IR as it was thought that he would greatly benefit from a 1-1 setting where strategies for the teaching of phonics and social skills could be specifically tailored to him. This, however, was meant as a short-term plan until Student W was able to show some proficiency in reading and spelling as well as

demonstrate some positive social interaction skills for another student to be placed his class.

As his progress in these areas was monitored and discussions with his EdT occurred regularly, another student was placed in Student W's class. This enabled his EdT to work on his social skills further; this time, his interaction skills and behaviour towards a classmate was the main focus of his remediation as he had shown commendable improvements in his literacy acquisition. Although things were not always smooth in the classroom, the EdT was able to cater lessons that were suitable for both Student W and his classmate.

I have observed Student W from the start, tracking his progress in literacy and social skills. Currently, Student W is a Sec 2 student who was recently selected to be a member of his school Student Council. Student W has indeed come a long way such that he and the his EdT no longer need the support from IR!

STUDENT R

The difficulties that Student R faced when he first started class at DAS were in the areas of behaviour, literacy as well as speech and language. As Student R was weak in his literacy acquisition, he had a tendency to avoid spelling and excessive writing, often saying he was "not good at it" despite the encouragement and assurance given by his EdT that she would guide him. Student R was not motivated to work on his own tasks when his EdT had to attend to other students. In addition, when he was unhappy, he would throw tantrums by kicking the chair or table repeatedly, wailing and crying loudly, and refusing to undertake any tasks. His hyperactivity and impulsive behaviour would result in him inflicting harm on himself, others and damaging properties.

In view of these behaviours which were disruptive to the other students in the class, an EA had suggested that Student R be given the IR status and placed in a 1-1 setting. Besides imparting Student R with the necessary literacy skills, the goal was also to work on his behavioural and emotional aspects, such as managing his frustrations and task avoidance towards learning. When the 1-1 lessons began with

Student R, the EdT found that she was able to engage him better at learning as he was less resistant and hardly showing any tantrums. Behavioural strategies such as the point-reward system were also working more effectively as Student R was more motivated to complete and undertake tasks given to him. This 1-1 setting allowed the EdT to build stronger rapport with Student R who was also experiencing some family issues at that time. The regular interaction with his EdT gave Student R an emotional booster which was somewhat lacking at home.

As Student R's motivation and compliance improved, so did his literacy acquisition. He was more able to tackle reading, spelling and writing with guidance from his EdT. Last year, he was presented the Elias Star Award for demonstrating his school's value of "Excellence" and for making good progress in his Prelim Exams, he received a special mention by the school principal for showing improvement in his academic results. It was shared with the entire school that Student R was realising his potential with hard work and practice and that he was also focused in class and self-motivated.

Student R is currently a Secondary 1 student who excels in Maths. Due to the progress that has been observed in Student R, his IR status was recently lifted off. Both his EdT and I hope that he will continue to advance further.

Social Learning and Technology

The Educational Technology team, known as EdTech at DAS, explored instructional strategies at a deeper level, targeting the concept of workplace learning for English Language and Literacy (ELL) Educational Therapists (EdTs). The idea of workplace learning stems from the theory of social constructivism in the 1960s (Vygotsky, 1978). The underlying principle is that learners learn most effectively by engaging in materials that are carefully selected for collaborative activities under the supervision of instructors, subject matter experts (SMEs) or leaders (Vygotsky, 1978). Collaboration is the most important characteristic of workplace learning. While instructors help to facilitate group interactions, learners have the option to self-select what they need to or want to learn.

A large body of critical analyses and research later indicated that learning is not an individual acquisition activity, but a social discourse (Hanson & Sinclair, 2008; Jonassen, Howland, Moore, & Marra, 2003; Lave & Wenger, 1991). Many studies strongly suggest that collaborative learning has proven to be more effective than individualistic learning in contributing to motivation, in raising achievement, and in producing positive social outcomes (Johnson, Johnson, & Stanne, 2000; Slavin, 1995; Snowman, McCown, & Biehler, 2009).

In the new digital age, Siemens (2004; 2005) and Downes (2007) proposed the connectivism theory, where social learning is integrated with both educational and social media technologies. In the world of social media proliferation, learning is not an internal, individualistic activity. Rather, learners gather information from connecting to others' knowledge using social and collaborative platforms. One of the principles of connectivism is that capacity to learn is more critical than prior acquired knowledge (Siemens, 2004).

The responsibility of a teacher is not just to define, generate, or assign content, but it is to help learners build learning paths and make connections with existing and new knowledge resources (Anderson & Dron, 2011). Social learning theories, especially connectivism, provide insights on the roles of educators in this social networked environment.

M-LEARNING WEEK

With that in mind, the M-Learning week was launched in April 2017 for the participation of all ELL EdTs. During this week, EdTs had to make 5 posts (one per teaching day) on Google Plus and have their peers comment or show their appreciation through the social platform. Google Plus is a feature of Google Suite that the DAS has been using for official emails, calendars and many more services. From experience, we note that M-Learning Week allows EdTs to showcase their integration of educational technologies into their lessons. While most of them feature the technologies used in lesson delivery, some posts were about administrative tools that teachers can use, such as reward systems. Over the past 2 rounds of M-Learning weeks, the EdTech team has seen an increase in the number of sign ups for competitive participation, which suggests that they are gaining familiarity and confidence in the use of technology.

This approach to social learning makes learning fun, easy and social. Instead of reading or sourcing for ideas externally, EdTs can gain more ideas from their colleagues and because the ideas are from peers, the process of adaptation is minimal as compared to adapting from resources externally; as those materials may not be designed with a dyslexic learner in mind and of the DAS context.

APPY HOUR

While M-Learning week provides a platform for EdTs to showcase what they have been doing, Appy Hour on the other hand allows the EdTech Team to put together some recommended tools for the EdTs to get to know. First, the recommended tools would be provided to the EdTs and they could give these tools a try in the following weeks. Subsequently, the EdTech representative and the EdTs would come together in their learning centre to discuss what worked, what didn't and to what profile of students the particular tool would work best with. This approach to informal workplace learning is directly related and beneficial to their work and provides ideas, insights and enhances communication despite the level of tech integration (beginner, intermediate or advanced tech user).

The EdTech team is also looking to design sets of e-learning modules in collaboration with the Staff Professional Development (SPD) team and the Curriculum Team (C.T.). Having designed our very first draft module on correction procedures for spelling activities, the team has greater insights on the required features and is in the process of getting feedback from team leaders. Having e-learning packages for new EdTs and experienced EdTs will help to facilitate anytime, anywhere learning with progress tracking options for line managers to monitor progress through the learning management system (LMS). Providing targeted information with ample practice and some assessment questions to assess

learning, the learner would be able to learn at their own pace, repeat any component as much as they need to and forward their questions to their educational advisors or relevant team for clarification. This reduces the need to have face to face exchange of information or knowledge, especially for those that can be shared through direct instruction. Thus, the face to face time can be used for higher order application questions which require teamwork or collaborative activities to enhance learning. For the experienced EdTs, e-learning would be for refresher modules, as advised by the respective educational advisor.

The DAS EdTech Team's core mission is to seek innovative teaching and learning practices that leverage on technologies to better engage the 21st century learners. In a broader sense, learning from and learning with educational technologies are the building blocks of EdTech's conceptual framework when integrating educational technologies into teaching and learning practices. Learning from educational technologies lean towards behaviourist theories whereas learning with educational technologies stems from constructivist and social constructivism paradigms. While learning from computers can assist students to better their performance on basic skills, learning with computers can facilitate the higher-order thinking and learning (Jonassen, 2000; Lim & Tay, 2003). To put these in perspective for the educator, the SAMR model is frequently spoken about to help educators self-evaluate their instructional designs such that they are able to elevate their designs as well as set lesson objectives at transformation levels of the model instead of the enhancement levels.

The incorporation of educational technologies into teaching and learning is one of the most important challenges for educational institutions today. Can EdTech help to meet the educational requirements of the 21st century learner? and Why should educational technologies be used in teaching and learning? are just two out of the numerous questions that are thrown to EdTech leaders almost all the time. Integration of educational technologies in the classroom is not new for it may be as old as the days when radios were used for listening comprehension and televisions were used for show students moral education videos.

While working with learners with learning differences, it is important that service providers and educators effectively integrate such tools to provide a sense of wholeness or completeness where all necessary elements are seamlessly integrated to make the learning experience whole. Instead of merely placing the hardware's in the classrooms, the employment of these should be pedagogically sound and be leveraged for beyond information retrieval purposes. Educators and leaders should understand that while educational technologies may not be essential in all lesson components, generally, it is most facilitative in increasing flexibility of instruction delivery, increasing access and facilitating differentiated instructional approaches.

Reading Comprehension Focus Group - For our Teachers to Teach our Students

The Reading Comprehension (RC) Curriculum is consistently updated to better tailor to the learning needs of the learners across the different bands and different levels (primary and secondary levels), where the emphasis is on the skills required for them to cope with the RC demands in schools. Apart from that, in the recent enhancements made to the RC curriculum, it also focuses on reading and question interpretation skills where learners are taught to interpret the various question patterns and their target skills, to further guide them in answering the required questions.

The enhanced RC curriculum was rolled out in Term 4 of 2016. With any enhancements made to the curriculum comes the necessity to train and provide in-house support to the Educational Therapists (EdTs) to ensure that they do not only acquire the content knowledge and skills but also the confidence and competence to plan and deliver lessons that are relevant, meaningful and beneficial to the learners.

Three mass training sessions were organised and conducted for all EdTs, emphasising the key essential reading comprehension skills that are aligned to the Ministry of Education's English Language Syllabus 2010. The process of teaching and scaffolding those skills using explicit and concrete explanation and techniques were also highlighted to help guide the learners towards independence and success. Further, the sessions were also video-recorded and shared with the EdTs to allow them to review and watch the videos at their convenience.

The RC resource materials designed were also presented in a structured, sequential and cumulative manner to facilitate the teaching of reading comprehension. The materials developed do not only emphasise the use of relevant and localised content with appropriate teaching principles, the topics of interest as well as the levels of difficulty within each band were also duly considered.

Ongoing support by the Curriculum Team is provided to the EdTs through platforms such as focus group and consultation session. Moreover, on the ground support by a team of Educational Advisors is also made available to the EdTs whenever they encounter challenges implementing and/or delivering the enhanced RC curriculum.

Recently, the Curriculum Team concluded a total of 4 focus group sessions held for all EdTs from the different clusters. The intent of the focus group sessions is not only to provide an avenue for the EdTs to share their feedback and suggestions in small group settings for more targeted interactions and discussions but also to take the opportunity to review and address any gaps highlighted by the EdTs. Thus, in order to ensure that the focus group sessions benefitted the EdTs and targeted their areas of needs, they were asked to complete a pre-focus group survey prior to attending the sessions.

The results for some of the survey questions have been highlighted and presented in the following graphs based on two broad classifications:

1) EdTs' perceptions and sentiments towards the enhancements made to the RC curriculum

2) Areas that EdTs still want more support in

Apart from getting the EdTs to rate their responses on a likert scale of 1-5, (with 1 being strongly disagree and 5 being strongly agree), some of the questions also required them to state their reasons, to provide a qualitative understanding of their responses.

1) EdTs' perceptions and sentiments toward the enhanced RC Curriculum

After having implemented the enhanced RC curriculum for at least six months, it is pertinent to gather feedback on whether the enhanced RC curriculum:

- includes skills that are relevant to the learners' varying profiles and learning needs

- provides more support to learners in reading comprehension

Do you find the Reading Comprehension skills relevant to the learning needs of students in each band?

80 responses
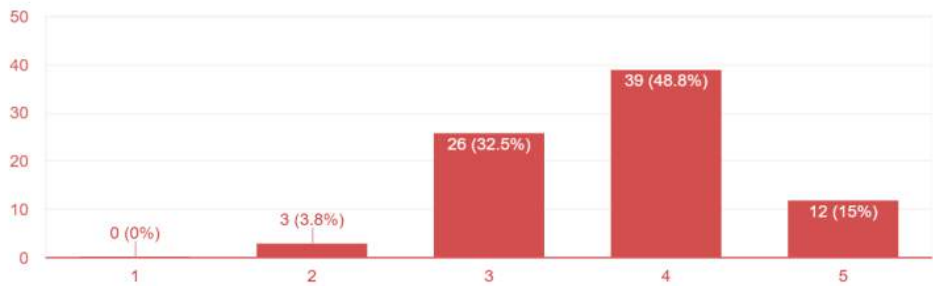
Reading Comprehension Resource Materials

Figure 1. Reading Comprehension Resource Materials

In Figure 1, based on a total of 80 respondents, 63% of EdTs (summing up those who agreed and strongly agreed) felt that the RC skills in the enhanced curriculum are relevant to the learning needs and profiles of learners in their classes. In other words, the enhanced curriculum as well as the materials developed support learners in their reading comprehension regardless of their literacy proficiency and needs.

Even though the enhanced RC curriculum was only implemented for less than a year at the time of the survey, the curriculum team wanted to obtain some preliminary results on whether or not the EdTs feel their learners have improved in their reading comprehension ability.

From Figure 2, it is heartening to know that none of the EdTs reported 'no improvements'. On the contrary, 21.3 % of the EdTs reported positive results while majority of them (78.8%) reported that their learners have somewhat shown some improvements. The results could suggest that given more time to implement the enhanced RC curriculum, the EdTs would observe more substantial progress in their learners' reading comprehension.

Do you feel that your students have improved in their Reading Comprehension after the implementation of the enhanced curriculum?

80 responses
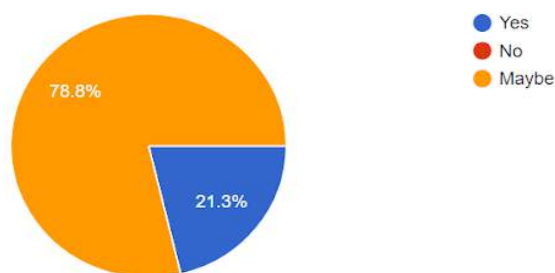
Figure 2. *Reading comprehension improvement after implementation of enhanced curriculum*

Some of the qualitative responses extracted (from the survey) and reflected in the table below also yielded encouraging feedback from the respondents.

READING CURRICULUM FEEDBACK FROM EDUCATIONAL THERAPISTS
"They (students) are more confident and are more able to apply the skills taught to them."
"better awareness in tackling questions"
"Have only covered a couple of skills, unable to track overall improvements yet. But I am confident over time they (students) will improve."
"Students are showing progress."
"Application of skills is not consistent, but there have been improvements when identifying types of questions."
"Yes in my class and It would also be encouraging if my students are able to transfer and apply the skills acquired in their school work."
"There is more structure in the teaching of RC concepts now. A single concept can be reiterated over a few lessons for better understanding."

2) Areas of gaps that EdTs still need more support in

Apart from providing a platform for the EdTs to come together, share their thoughts and feedback, as well as provide suggestions on ways to further improve the RC curriculum, the focus group also aimed at supporting the EdTs on areas that they still feel inadequate in. Hence, in order for the focus group sessions to be targeted and meaningful for the EdTs, the following questions were included in the survey:

1.   Which skills do you feel most confident teaching them to your learners?

2.   Which skills do you feel least confident teaching them to your learners?

The reason for including two extreme ends of the question was to ensure that the respondents chose their responses thoughtfully thereby, providing more objective responses.
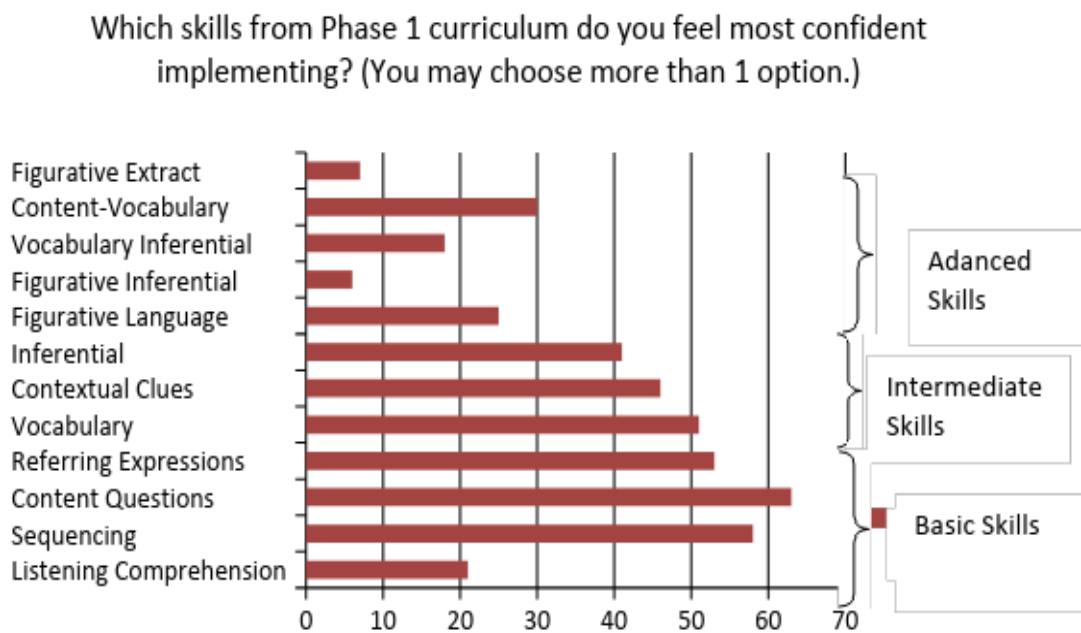
Figure 3. Most Confident in implementing

Which skills from Phase 1 curriculum do you feel least confident implementing? (You may choose more than 1 option.)
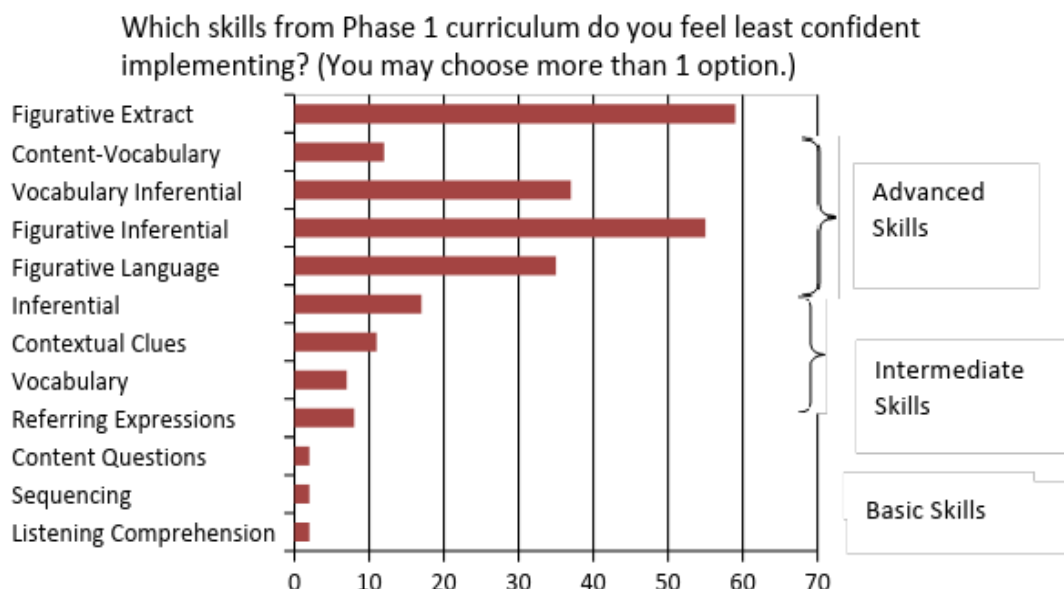
Figure 4. Least Confident in implementing

The comprehension skills were classified into three main categories- basic, intermediate and advanced comprehension skills. Figures 4 and 5 showed that the majority of the EdTs felt most confident when they plan and teach the basic level comprehension skills followed by the intermediate ones. Their confidence starts to dip when it comes to planning and teaching the more advanced comprehension skills, namely figurative language which is far more complex and abstract in nature.

Additionally, the EdTs also struggle with guiding the students to comprehend what they read in a concrete, explicit and systematic way that would aid their comprehension- annotation. In other words, how to scaffold and guide the students to annotate and what to annotate are some of the difficulties faced by the EdTs.

Hence, the focus group sessions included demonstrations and activities that highlighted the process of annotation to help the EdTs better scaffold students' capacity to notice textual details which in turn support the reading process as well as raising their awareness on the various types of textual features critical to the reading process and the teaching of Reading Comprehension.

Following the focus group sessions, a post focus group survey was administered to collect feedback on how the EdTs felt about the sessions and more importantly, to gather information on how their learners have benefitted from an explicit and structured way of teaching reading comprehension.

READING COMPREHENSION FOCUS GROUP SURVEY FEEDBACK

"The illustrations and demonstrations provided were instructive."

"I have a better understanding on how to demonstrate to my students. To be able to guide them on how to identify question types will help them in their exams."

"The training session was not just about content sharing. A lot of emphasis was on hands-on and practical aspects. This improves the confidence of educators."

"Learnt the skills on how to scaffold during the session and gained better understanding in teaching Reading Comprehension through the focus group."

"I have a better understanding of how I can teach the skills to my lower and higher functioning students."

"The session helped in reaffirming the teaching and delivery methods that I have been practising."

"Most of my students are unable to sequence events, infer or relate text back to the questions. The session provided me with more ideas about how to scaffold, plan and execute those areas.

"clear demonstration during the focus group session"

All in all, the feedback received was positive and encouraging. The following table details some of the feedback extracted from the post focus group survey.

Organising such focus group sessions with clear intentions not only creates a platform for the EdTs to get together and share good practices, it also provides opportunities to address any gaps in content knowledge and skills that the EdTs may have. Further, the enhancements made to the RC curriculum coupled with the continued support received through such training aim to increase EdTs' competence and confidence.

Learning and Growing Together: Bringing our Professionals Together as a Community of Practice

REGISTER OF EDUCATIONAL THERAPISTS (ASIA) (RETA)

RETA is an initiative by the Dyslexia Association of Singapore to bring together practitioners in the field of specific learning differences while at the same time recognising their professional status and endorsing their qualifications.

RETA has three advisors representing both the local and international needs and standards. They are:

PROFESSOR ANGELA FAWCETT
Registrar, Register of Educational Therapists (Asia)
Research Consultant, Dyslexia Association of Singapore

Angela is a leading international researcher into dyslexia and other learning differences, with a range of theoretical and applied contributions. Angela is now Emeritus professor at Swansea University, following her retirement in January 2011 and also holds an honorary professorship at Sheffield University. She was awarded a 2-year Leverhulme Emeritus fellowship until March 2014, to complete her research projects in Wales. She is one of the co-authors of the Dyslexia Screening Test (DST) and her visit to India in July 2012 to lecture at the World Education Summit generated 45 articles in the press on the launch of the DST-J India. Angela is Academic advisor to DAS, and editor of the APJDD.

MS GEETHA SHANTHA RAM
Director of SpLD Assessment Services, English Language and Literacy Division, and Staff Professional Development

Geetha Shantha Ram is the Director of the English Language and Literacy (ELL) Division, which includes the Main Literacy Programme (MLP) and has led programme enhancements for the DAS through the Essential Literacy Approach and the current integrated MLP curriculum. Besides ELL, Geetha oversees SpLD Assessment Services and the Staff Professional Development division. Formerly, the Assistant Director of the DAS Academy, Geetha trained Allied educators, parents and other professionals and continues to present at conferences, most recently at the 2018 British Dyslexia Association international conference.

Geetha has a Masters in English (NUS), a Postgraduate Certificate in Learning and Teaching in Higher Education (Distinction) (LMU) and is currently pursuing a doctorate in the area of giftedness and Specific Learning Differences. With over 10 years of experience supporting children and adults in the area of dyslexia, Geetha constantly aspires to provide a quality service to dyslexics that searches for and realises their true potential and provides them with a view to appreciate their own unique gifts.

DR KATE SAUNDERS
Chief Executive Officer,
British Dyslexia Association

Dr. Kate Saunders is the former Chief Executive Officer of the British Dyslexia Association, having taken retirement in February 2018. Kate has over twenty years of experience in the field of dyslexia and special educational needs, having worked as a Senior Specific Learning Difficulties/Dyslexia Advisory Teacher, Special Educational Needs Coordinator, chartered psychologist and lecturer. Kate has a Ph.D. in Education. She was co-editor of 'Dyslexia Friendly Schools – Good Practice Guide' published by the British Dyslexia Association and co-author of 'How Dyslexics Learn', published by PATOSS (the Professional Association of Teachers of Students with SpLD).

RETA, as a community of practice, enables members to access training and events such as focus group meetings and case management discussions, which are excellent platforms for collaborative practice and knowledge sharing.

These sessions often have invited guests as well as respective RETA members and the Dyslexia Association of Singapore (DAS) Educational Therapists.

2016

17 March 2016
Working Memory and Executive Functioning by Dr Charles Haynes

Presentation that covered the importance of multi-sensory teaching and the strategies one can use to help build up a child's expressive and language skills

8 April 2016
Case Management Session by Hani Zohra Muhamad and Angela Fawcett as moderator

A sharing session on 2 cases of students at the DAS who are on the Intensive Remediation Programme (IR) and how the programme supports them.

24 June 2016
Case Management Session by Christabel Hong

A sharing session on 2 cases of students who cannot read and write and their difficulties coping as well as methods and approach used for intervention.

29 December 2016
Risk Assessment Talk by Justin Peter

Presentation covered:
♦ Web of problems
♦ 8 assessment domains, i.e. Family, Peer, Education, Leisure Time etc.
♦ Theories to inform assessment

2017

16 February 2017
Integrated Assistive Technology System (IATS) by Mohamed Samunn

A sharing on how a 17-year old boy with special needs, who attends an international foundation program in one of the private universities in Singapore uses the IATS to manage his learning needs.

20 June 2017
Case Management at UnITE SpLD 2017 by Hani Zohra Muhamad, Vishnu Ragunathan, Ang Seow Li, Stephanie Ong , Steven Sim, Serene Low, Shakthi Bavani and Angela Fawcett as moderator

A sharing session on different case experiences by the DAS Educational Therapists on their students who are on the Intensive Remediation Programme (IR) and how the programme supports them, the methods and strategies used and their progression.

20 November 2017
Teaching Today's Learners on Their Terms by Soofrina Binte Mubarak

Presentation on using digital native to teach students and the sharing on instructional strategies an educator needs to employ to engage students – the methods used to teach and/or facilitate students learning in their own terms.

21 June 2018
Case Management at UnITE SpLD 2018 by Sujatha Nair & Hani Zohra Muhamad and Angela Fawcett as moderator

A sharing session on strategies and methods to use when managing the behavioural needs of students with special learning needs and the type of support to provide them with.

Currently, we have a total of 120 RETA members as at end of April 2018:

- ♦   Affiliate Member – 1
- ♦   Associate Member – 1
- ♦   Associate Member Plus – 21
- ♦   Member - 44
- ♦   Associate Fellow - 33
- ♦   Fellow -20

To find out more about RETA and become a member, please visit www.reta.sg.
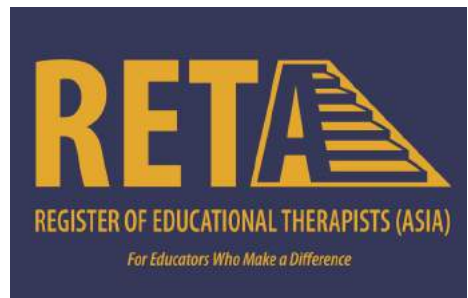
REGISTER OF EDUCATIONAL THERAPISTS (ASIA) - RETA

WWW.RETA.SG

Centre Management Teams (CMT): A Move Towards Collaborative Support Across Functions at DAS.

In 2016, a new innovative structure within each centre was formed. This structure is known as the "Centre Management Team" (CMT). The teams were formed to help support the operation of the Learning Centres and also to enhance inter-divisional communication and collaboration.

The teams consist of a Centre Manager, a Specialised Educational Services representative and an Educational Advisor.

As with all new teams, a mind-shift was needed. The CMT went through the phases of team development outlined by Bruce Tuckman (Teambuilding.co.uk, 2015) - Forming, Storming, Norming, and Performing.

At the Forming stage, when the idea of CMT was first mooted and the groups formed, there was no clear definition of each individual's roles as yet. The challenges the group faced at this stage were not being able to find a common time to meet, and confusion among members on what type of discussions should be brought up during CMT meetings.

Next came the Storming stage, where tolerance and acceptance were needed as slowly the groups started evolving. With the formation of the CMT there was input and advice coming from individuals and trust needed to be established. Feedback and team communication processes were slowly evolving.

During the Norming stage, ground rules and the importance of cohesiveness and co-operation were ironed out. The team started tapping on each other's strengths and area of expertise. Communication started getting smoother.

Currently the CMT groupings are at the Performing stage - structures and processes are in place. CMT meetings occur at regular intervals, i.e. once a term. Ad-hoc meetings are set as and when there is a need for inputs or advice from other team members.

At the 1 year interval, a survey was initiated and conducted by the Centre Managers to find out the efficacy of CMTs. The survey was sent to all CMT members. A total of 30 out of 33 participants responded and the following are some candid comments that were received.

FEEDBACK FROM THE CENTRE MANAGEMENT TEAMS

Collaboration between teams, and problem solving when possible. Listening to feedback from others and improvising accordingly.

I think the CMT is most helpful when we are coming together to resolve centre-related issues such as placement. It is useful because we get to see the same issue from different perspectives and it guides our decisions better.

Understanding the challenges of each program and section in the centre and our complementary roles in supporting our students. Understanding each other helps us work together better as a team.

1) Sharing of valuable feedback of the running of each programme.
2) Able to resolve standard issues and other issues.

Allowing colleagues from other divisions/departments to understand the challenges faced by LC. This will hopefully create some awareness when new initiatives are implemented.

Platform for all to come together and air out thoughts and clarify doubts hearing the expert voice and different viewpoints.

It is a good platform to discuss issues that CM may encounter at centre level such as:
   ♦ placement for different programmes
   ♦ recommendations on how to support newer EdTs when they have difficulty managing classes or difficult parents (supported by EA)
   ♦ manpower issues (long term MC relief teaching / events)

Providing Support for our Learners as well as our Educators

The Educational Advisors helped in the following areas at CMTs :

PLACEMENT SUPPORT

When new students come into the programme, the Centre Manager will look into grouping them and placing them into Edts' time tables. However, owing to the diversity of profiles, Educational Advisors give their educational inputs on suitability of the selected classes. The placements will take place and classes will commence. This step ensures a best fit and minimises delays in intervention.

BROAD BASED SUPPORT

When groupings of students are done, it is based on psychological profiles of students. However, as lessons progress certain behaviours might surface and classroom learning might be affected. When this occurs, the Edt can request for an observation by the EA to provide them with advice on how to manage the class. Areas where the EAs provided advice include differentiation, behavioural modification and curriculum support. Once advice is given, the EA will review with the Edt at timely intervals to check on the progress of the students.

The Educational Advisors have also worked with outside agencies to help our students in their learning, i.e. some students come from a children's home and the Advisors have visited these homes to speak to the caregivers and counsellors to provide a more holistic support for students.

CENTRE SHARING

For 2017, Educational Advisors conducted "satellite" training for Edts. "Satellite" training within the learning centre was necessary to facilitate small group discussions.

The range of topics that was covered for 2017 were the following:

1.   Quality Parent Communication Reports.

2.   Meeting Parents - the importance of engaging parents as partners in their child's learning journey was highlighted.

3.   Withdrawal Processes - It is our intention to have all our students leave DAS as graduates. We have a programme in place to support all learners and we want to ensure that our students reap these benefits to the fullest.

EDUCATIONAL THERAPIST SUPPORT AND TRAINING

For new Educational Therapists, there is a structured mentoring framework which has been in place since 2004. EAs mentor new Edts by providing them guidance, support and advice for the duration of their mentoring period. They help these new Edts to translate theoretical knowledge to practical aspects in the classroom. For senior Edts support is given in areas like curriculum and instructional planning, personal development (i.e. how to attain 50 CPD hours) and other ad-hoc support.

These are some comments that the EAs received from the mentees :

COMMENTS ABOUT EDUCATIONAL ADVISORS SUPPORT
I like that there's always someone for me to approach, officially. Any issues can be discussed openly and extensively. First, know your students as good rapport will lead to greater co-operation. Second, an enjoyable class is a memorable class, use games to plan meaningful activities..
Mentors were a great wealth of knowledge. It was reassuring having a mentor to fall back on whenever I needed help at work. 1. Gained greater understanding on how to plan lessons for different bands 2. Learned good strategies for managing specific problems and behaviours having someone to ask the questions we have. Learning how to teach certain concepts based on the past experiences of others.
I liked the fact that I was able to share difficulties with mentors without being judged. I liked the fact that they taught me how to differentiate for differentiate lessons for my students. 1. Strong social support was given by my mentors. 2. They were willing to share their own resources and gave me guidance on certain classroom behaviours. E.g. (creating hopscotch for students to do their spelling).
I liked that I've a mentor whom I can approach when I face any difficulties. Two takeaways: 1. To always have a heart for the students. 2. Plan and execute my lessons at the students' pace (not at mine).

Overall, the mentoring approach to supporting teachers has proven to be beneficial for our new EdTs to prepare them and provide them with the confidence required to manage and excel in their teaching.

DAS Educational Advisors

ANNUAL AUDITS

At DAS, our emphasis is on quality remediation and in order to attain this all Edts have to undergo annual audits to ensure that their lesson planning and delivery is in line with stipulated guidelines. All Edts are expected to attain competent status for both their lesson delivery as well as documentation audit.

Edts who do not receive competent status for their audit will be provided support and advice in the areas of weakness. In 2017, 77% of our Edts attained an exceeded target for their lesson delivery audits and none of the Edts required a repeat audit.

MLP Evaluation Project – 2 years (PEP)

BASED ON FINAL REPORT FROM TEMASEK POLYTECHNIC (2018)

The DAS Main Literacy Programme (MLP) provides a comprehensive and quality curriculum to support students with dyslexia develop and strengthen their literacy skills, and is designed for the local context. MLP curriculum integrates key essential learning components that are crucial in remediating students with learning difficulties. Its key essential learning components include Language and Vocabulary, Phonemic Awareness and Phonics, Reading Fluency, Reading Comprehension, and Writing.

Programme evaluation is an important component of any successful intervention programme. Successful intervention programmes provide evidence that they do indeed produce what they profess. Intervention that support students in addressing their learning difficulties would require a process of monitoring the students' progress as well as the effectiveness and efficiency of the programme.

In 2015, MLP collaborated with the School of Humanities and Social Sciences at Temasek Polytechnic to develop multiple sets of the of programme evaluation literacy tool used by MLP. In 2016, the interim results of the programme evaluation using these tools were reported in the DAS Handbook. This year, this write-up seeks to report the final results of this collaboration.

The monitoring tools developed through the MLP-TP Programme Evaluation Project (PEP) covers 3 areas of literacy – reading, spelling, and writing. Parallel forms were also developed and used for all the tasks across the sessions. The selection of words on the reading and spelling tasks were based on the MLP's word bank, with phonetically regular words graded in difficulty level according to its scope and sequence.

Table 1 shows the different tasks, what they measure, and what the participants were required to perform.

Table 1. Programme Evaluation Tasks

TASK	TASK REQUIREMENTS	WHAT THE TASK MEASURES
Reading Task	To read a list of 18 words presented in isolation as quickly and accurately as possibly within 3 minutes	Reading fluency and accuracy
Spelling Task	To spell a list of 18 words read out by the tester in the following 3 ways: 1. Sound spelling: Sound out phonemes that make-up the word 2. Letter spelling: Spell the word verbally 3. Written spelling: Write down the spelling of the word	Sound, letter, and written spelling ability
Writing Task	To write down as many sentences as they can regarding a picture shown to them, within 5 minutes	Writing competency skills

In total, 82 students who were enrolled into the DAS MLP were recruited into the study. These students aged 7 to 9 years old were categorized into 4 age-categories upon admission - Group A (7-7.5 years old), Group B (7.5-8 years old), Group C (8-8.5 years old) and Group D (8.5-9 years old). Students were assessed using these tools upon admission into the DAS MLP, and every 3 months thereafter for a period of 12 months.

The study adopted an age-controlled design as participants may not be receiving intervention concurrently, and it was unethical to delay the intervention for participants as a means of control. This meant, for example, that students in Group A (7-7.5years old) after 12 months of intervention (where their age range would then be 8-8.5 years old) were compared to students in Group C (8 - 8.5 years old age group) with 0 months of intervention.

Comparisons were made for intervention periods of 6 and 12 months. The results of the study revealed the following:

1. Early intervention is most helpful in improving students' reading accuracy and fluency

2. MLP was effective in improving students' reading fluency and accuracy and strengthening phonemic awareness and phonics

3. Apparent gains in sound spelling were noted only upon a longer duration of intervention (12 months, as compared to 6 months), whereas no significant improvement was found in letter spelling, written spelling and writing within the time frame of this study (12 months). It may be that more significantly positive results will only be apparent if the students' progress were tracked over a longer period of time.

Overall, the results of the study showed that MLP had been effective in improving the phonological aspect of language skills (which is important in the building of the foundational literacy skills), and some aspects of literacy skills of students with dyslexia within the duration of this study (12 months). Intervention had also been more effective for individuals who received intervention at an earlier age and for those who received a longer duration of intervention. This indicates the need for parents and students to work hand in hand with the DAS for a number of years for more complete progress in their literacy attainment.

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ABOUT THE AUTHORS

GEETHA SHANTHA RAM
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Geetha Shantha Ram has led programme enhancements for the DAS through the Essential Literacy Approach and the current integrated MLP curriculum. Besides ELL, Geetha oversees SpLD Assessment Services and the Staff Professional Development division. Formerly, the Assistant Director of the DAS Academy, Geetha trained Allied educators, parents and other professionals and continues to present at conferences, most recently at the 2018 British Dyslexia Association international conference.

Geetha has a Masters in English (NUS), a Postgraduate Certificate in Learning and Teaching in Higher Education (Distinction) (LMU) and is currently pursuing a doctorate in the area of giftedness and Specific Learning Differences. With over 10 years of experience supporting children and adults in the area of dyslexia, Geetha constantly aspires to provide a quality service to dyslexics that searches for and realises their true potential and provides them with a view to appreciate their own unique gifts.

LIU YIMEI
Registered Psychologist

Yimei joined the Dyslexia Association of Singapore (DAS) in 2007 with a Bachelor of Social Sciences (Hons) from the National University of Singapore. She recently completed the Master of Arts (Applied Psychology) from the National Institute of Education, Nanyang Technological University, and is now a Registered Psychologist with the Singapore Register of Psychologists, Singapore Psychological Society. Other than conducting assessments as part of an investigation process for learning difficulties, she is also involved in the training and supervision of new psychologists at the DAS. Yimei has a keen interest in the area of dyslexia and Chinese. She obtained an Advanced Diploma in Chinese Language Teaching from the KLC International Institute and participated in the initial development of the Chinese Programme at the DAS. The research also brought her to presentations at conferences such as the International Dyslexia Association Conference and the International Symposium on Bilingualism.

SUJATHA NAIR
Assistant Director, Quality Assurance, DAS English Language and Literacy Division

Sujatha joined the DAS in 2006 as an Educational Therapist and has over the years held the positions of Centre Manager and Resources Manager. Sujatha attained a Master of Education from The University of Adelaide in 2015 and a Bachelor of Business in Accountancy from Royal Melbourne Institute of Technology (RMIT) in 2001. Her other qualifications include a Cambridge International Diploma for Teachers and Trainers (Dyslexia) and a Diploma in Management Studies (SUSS). Sujatha is also a member of the Register of Educational Therapist Asia (RETA).

SERENA TAN ABDULLAH

Assistant Director, Curriculum Development & Implementation, DAS English Language and Literacy Division

Serena Abdullah is the Assistant Director with the English Language and Literacy (ELL) Division overseeing the development and the implementation of the curriculum at the DAS. She is also a Lead Educational Therapist who enjoys working and teaching children with learning difficulties. Her love and passion for teaching has led her to continuously seek new and innovative teaching methods to bring out the potential and self-confidence in her learners. She graduated with a Masters in Education (Curriculum and Teaching) from Nanyang Technological University/National Institute of Education (NTU/NIE) and has obtained a Cambridge International Diploma for Teachers and Trainers.

She hopes to continue enhancing the curriculum to ensure that learners from diverse backgrounds or those with varying learning needs benefit and learn effectively in class. Serena believes that every child progresses at their own pace but the process they take to reach the finishing line is what matters the most!

HANI ZOHRA MUHAMAD

Lead Educational Therapist and Educational Advisor

Hani Zohra Muhamad is a Lead Educational Therapist and an Educational Advisor (EA). Hani joined the Dyslexia Association of Singapore in 2006 and has over the years been teaching and working with students with dyslexia and other co-morbidities such as ADHD and SLI. As an EA, Hani contributes to the mentoring and training of new educational therapists, as well as support colleagues with challenging students. Hani holds a Masters Degree in Education (Special Education) from Nanyang Technological University (NIE-NTU), a Bachelor of Science (Hons) in Management from University of London (UOL) and a Cambridge International Diploma for Teachers and Trainers (Dyslexia). Hani is also a member of the Register of Educational Therapist Asia (RETA).

MANMEET KAUR

Staff Professional Development Executive and RETA Administrator

Manmeet Kaur joined DAS in 2013 as an Administration Officer for the Staff Professional Development (SPD) Division and was promoted to an Executive in 2015. Throughout her time, she has supported the SPD Division on staff training needs and assisting the Educational Advisors with administrative support. She organises the yearly DAS Teams Teaching Teams event since 2014. In 2015, she took on two other portfolios Administrator for RETA (Register of Educational Therapists Asia) and Research Coordinator. She has been on the UNITE SpLD Committee, assisting with the conference administrative needs since 2016 and always looks forward to assisting DAS colleagues to find the best professional development options so that they can provide quality services to DAS clients.

YOUR CHILD'S JOURNEY IN THE
MAIN LITERACY PROGRAMME

1. Application form is processed.

2. Assessment is scheduled.

3. A diagnosis of dyslexia is established.

6. Diagnostic and prescriptive lessons using our integrated curriculum begins in a group.

5. The learning centre is given the profile of the child for placement in a suitable class.

4. The profile of the child is drawn up.

7. Our Educational Therapist will monitor the child's progress bi-annually.

8. The child's progress is discussed periodically and during the parent-teacher conferences.

9. The child is recommended for graduation.

DYSLEXIA ASSOCIATION OF SINGAPORE
HELPING DYSLEXIC PEOPLE ACHIEVE

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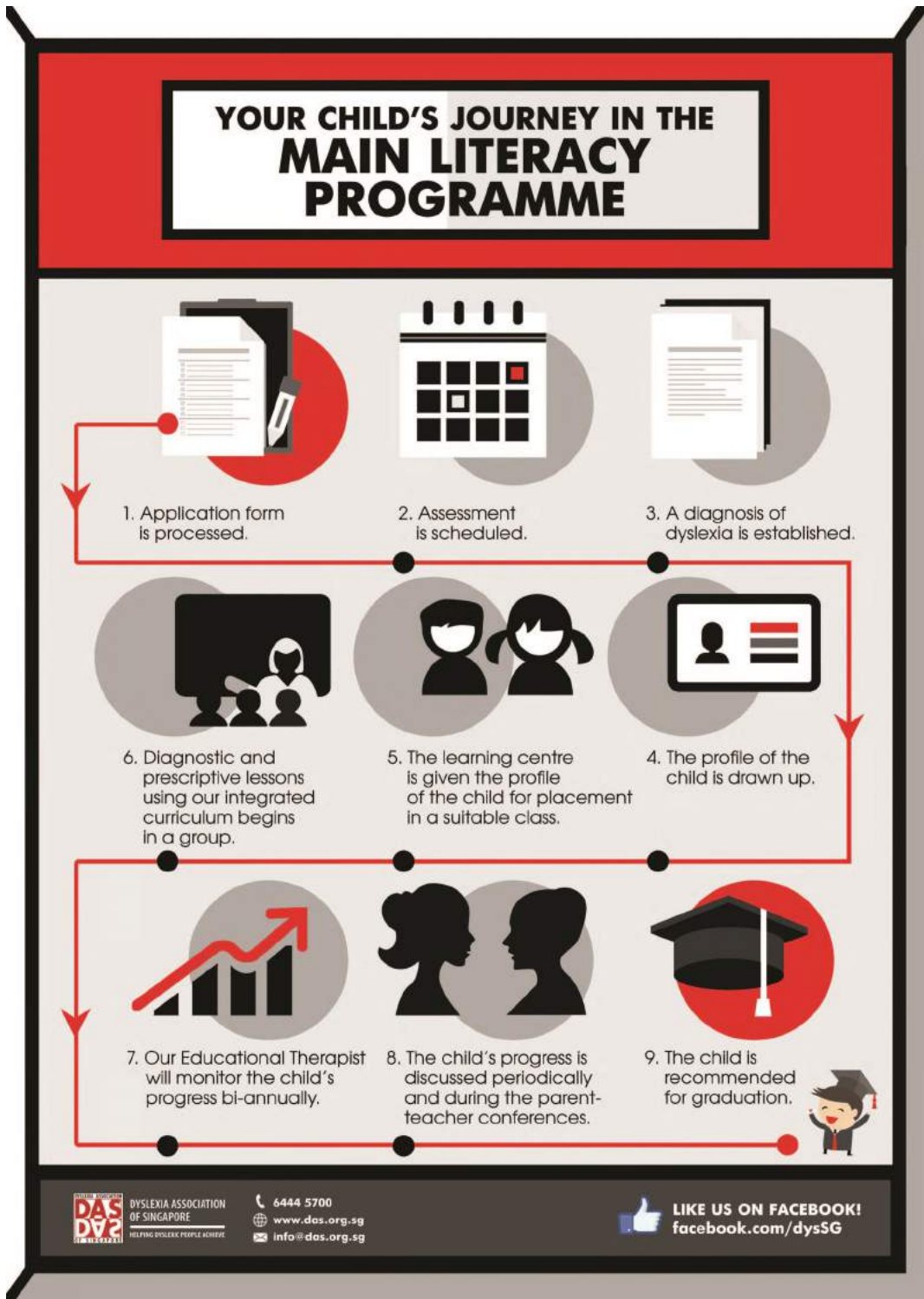
OF SINGAPORE

EVALUATION OF DAS SPECIALISED EDUCATIONAL PROGRAMMES

SES is a division of the
Dyslexia Association of Singapore
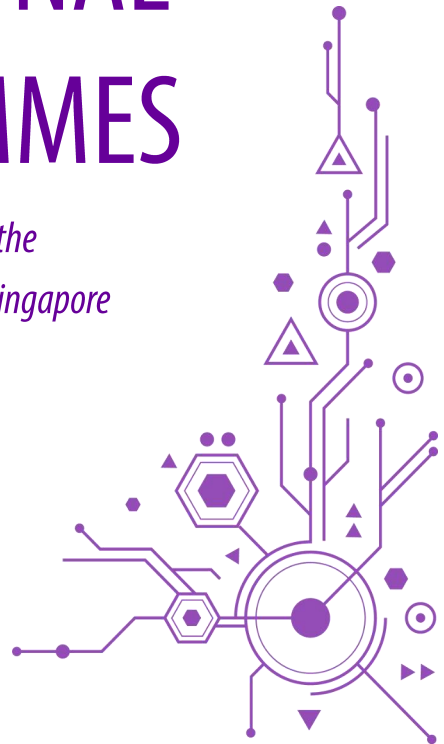
DAS SPECIALISED EDUATIONAL SERVICES

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

OUR VISION

Nurturing persons with learning differences to achieve success and impact society positively.

OUR MISSION

Unlocking the potential of individuals with learning differences.

SES programmes offer support to students who struggle to learn in other academic subjects and also offers talent development programmes. SES programmes are tailored to fit the learning needs of students with a learning difference.

All of our programmes are tailored to fit the learning needs of students with learning differences. The curriculum and the methodology adheres to the principles which have been proven to be beneficial in helping them learn.

All of our programmes are:

1. Structured, Sequential and Cumulative
2. Flexible
3. Multisensory
4. Direct and Explicit
5. Cognitive
6. Emotionally Sound

DAS Specialised Educational Services Our Programmes

The Specialised Educational Services (SES) is a division of the Dyslexia Association of Singapore which aims to uncover the true strengths of individuals with learning differences and empower them with the necessary skills and strategies to succeed.

All of our professionals are highly qualified and specially trained to help persons with learning differences who may be struggling in different areas of their lives. We have a good understanding of the curriculum and the demands that today's education systems place on a student and strive to bring out the very best in every individual that we see.

All our classes have a low teacher to student ratio, with an average of four students in a class, except for our Speech and Drama Arts Programme. This arrangement enables us to attend to the individual needs of your child and maximise learning opportunities for success.

Programmes that are offered by SES:

- Maths
- Chinese
- Preschool
- Speech and Drama Arts
- Speech and Language Therapy
- English Exam Skills
- Science
- ArtVenture
- Holiday Workshops

DAS SPECIALISED EDUCATIONAL SERVICES
www.das.org.sg/services/about-our-services/specialised-educational-services.html
Scan me to find out more!

Specialised
Educational
Services
UNLOCKING POTENTIAL

CHINESE PROGRAMME

The aim of the SES Chinese Programme is to help students with dyslexia become independent, inquisitive learners in the Chinese language. The programme focuses on the following aspects to help increase efficiency in learning and interest in the Chinese language:

- ♦ Common vocabulary and sentence structure to enhance learner's expressiveness in Chinese
- ♦ Word recognition strategies instruction to enhance learner's ability to recognise Chinese characters.
- ♦ Morphological awareness to expand learner's vocabulary network
- ♦ Reading comprehension and writing strategies instruction for learner to gain competency in higher order literacy skills.

OUR APPROACH

The programme helps to foster your 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 in the child 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
4.   Comprehension and writing activities are also carried out for students who have developed good oracy skills.

DAS Specialised Educational Services Chinese Programme

Kong Yun Rui
Chinese Programme Manager
Dyslexia Association of Singapore

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 to help them learn Chinese. The aim of the programme is to help students become independent and inquisitive learners in the Chinese language.

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.

PROGRAMME EVALUATION

A total of 34 students who joined the programme in 2017 were evaluated for their progress in their ability to read characters, form words and to spell. There were two different set of test items used to measure their progress - the Battery of Chinese Literacy Tests (BCLT) and the Chinese Literacy Assessment Tool (CLA). Both test sets were developed by the Chinese Programme team at the Dyslexia Association of Singapore, with the CLA being the newer and revised tool.

Ten students who were measured on the Battery of Chinese Literacy Tests showed significant improvement in their reading of characters (27.9 to 38), $p=0.002$, word forming (26.8 to 34.2), $p=0.034$ and spelling (1.7 to 2.8), $p=0.017$. On average, the students were 112.3 months old at the time of post-test and had undergone an average of 17.4 weeks of intervention.

Twenty four students who were measured on the Chinese Literacy Assessment Tool showed significant improvement in their reading of characters (22.5 to 28.6), p=0.008, word forming (22.0 to 28.2), p=0.004 and spelling (13.7 to 18.7), p=0.000. On average, the students were 104.8 months old at the time of post-test and had undergone an average of 17.8 weeks of intervention.

Battery of Chinese Literacy Tests

A comparison of students in the same class with some measured on the BCLT and others on the CLA were made. The observations made suggest that the CLA tool is able to capture progress more accurately in terms of the gains.

TEST	BCLT	CLA	OBSERVATIONS
Reading	Selected according to school level	Selected based on high frequency characters	Students had a greater gain in their reading score on CLA compared to their classmates
Spelling	Single character spelling in a word context Gains: 0, 1, 2	Spell vocabulary words in a sentence context Gains: -3 to 16	Students had a greater gain in their spelling score on CLA compared to their classmates

ENTRY CRITERIA

A profiling test using the CLA will be conducted to ascertain their language proficiency to determine the suitability of the programme for the student.

WHO THE PROGRAMME IS FOR

The programme is open to students from 6 to 14 years old who have dyslexia. Priority is given to students not exempted from the learning of Chinese in school.

QUALITY ASSURANCE

To ensure that the programme is of high quality, annual audits of classroom teaching are conducted. An annual programme evaluation measuring the progress made by students is also carried out to ensure the effectiveness of the programme. Progress of students is also shared with parents bi-annually during the meet-the-parents session. Dr Tan Ah Hong, who is the consultant for our Chinese programme, helps oversee the quality assurance of the programme.

TEACHER TRAINING

All teachers have a Professional Certificate in Chinese Language Teaching offered by the DAS Academy. They also have a Chinese proficiency of Hanyu Shuiping Kaoshi (an accredited Chinese proficiency test by Chinese Language Council International, China) Level 6. Dedicated teachers are required to complete a Diploma in Chinese language teaching. All teachers also have a postgraduate certificate in Special Education Needs. In-house training and professional development is conducted internally and with Dr Tan Ah Hong, a former curriculum specialist with the Ministry of Education and current lecturer in the National Institute of Education. She has since conducted training for the team on curriculum development, improving teachers' competency, word recognition, reading comprehension and writing.

DESCRIPTION OF INITIATIVES TAKEN THIS FINANCIAL YEAR

CURRICULUM & RESEARCH

Initiative 1: Secondary School Bridging Programme

The trial for the Secondary School Bridging Programme commenced in March 2017 with 14 students. The bridging programme is slated to be a two-year programme to

bridge the learning gap between primary and secondary school and is curriculum-based instruction. Half of the students were learning Chinese in school as a subject. The other half who were exempted from learning Chinese wanted to continue to be exposed to the learning of the language.

Initiative 2: Evaluation of Reading Comprehension Pack

The reading comprehension pack was completed in 2017. The pack comprised of different reading and comprehension strategies alongside scaffolded instruction to answer the various question types listed under the Bloom's taxonomy. The teaching resources and pedagogy were trialled with a group of 19 students from Primary 3 to 5. The results suggest that with scaffolded instruction and learning of strategies, students are able to better answer reading comprehension questions in the written format.

Initiative 3: Preliminary Study on Teaching Writing to Upper Primary Students

A preliminary study on writing was conducted with 15 students who were in Primary 4 to 5. The students underwent five weeks of writing intervention. The incorporation of technology in the teaching process allowed for collaborative learning, where the teacher facilitated the learning process. Students who were weaker could then also model students who were better in the language. The inclusion of thinking skills and allowance for learning choices also seemed to better engage students in classroom learning. While improvement was observed in their writing there remained a gap between verbal and written ability.

Initiative 4: Research Presentation and Publication

Two research studies (Reliability and Validity of a Chinese Literacy Assessment Tool for School Learners in Singapore; The Effectiveness of a Chinese Intervention Programme for Dyslexics and Struggling Learners) have been presented at the Taiwan Annual Symposium for Learning Disabilities (Taiwan), Annual Conference by International Dyslexia Association (USA) and UnITE SpLD (Singapore). The research on the Reliability and Validity of a Chinese Literacy Assessment Tool for School Learners in Singapore has been published in the Asia Pacific Journal of Developmental Differences in January 2018.

Initiative 5: Holiday Workshop for Students

A Hanyu Pinyin workshop was conducted during the November school holidays for students from Kindergarten Two to Primary Two. Students learnt how to differentiate between sounds which cause confusion in Chinese and English, such as telling apart

tie in English and tiě in Chinese and also learning the difference between the 's' and 'sh' sounds in Chinese.

ENGAGEMENT AND AWARENESS

Initiative 6: TIPS talk and Trial Class for Students

2 sessions of the TIPS talk and trial class were held at Tampines Learning Centre in May 2017. This is the first time the session was held concurrently, 1 for the parents for the TIPS talk while their children attended the trial class to experience what goes on in the classroom. The sessions were also divided into 2 different levels, whereby lower primary students attended the morning session while the afternoon session catered to upper primary students. The students really enjoyed themselves at the trial class.

Initiative 7: Engaging Parents

To better engage parents, two focus group discussions and a sharing session was organised. Parents of students whose children were in upper primary and secondary school were invited to provide feedback on their child's learning and the programme. The feedback gathered is currently being reviewed and would inform classroom teaching and curriculum development. Parents in the DAS Parent Support Group were invited to a 1.5 hour sharing on how to help their child prepare for the weekly Chinese spelling test and retain what they have learnt. Parents found the sharing practical and useful in helping their children to learn Chinese.

Initiative 8: Educating Educators

Educators in the mainstream school are pivotal to the learning success of students. An awareness talk was conducted with about 20 Chinese language teachers from St Nicholas Girls' Primary School. Apart from a deeper appreciation of dyslexia and the Chinese language, the teachers were also equipped with strategies to help their students. The teachers were keen to learn more strategies to support their students who are struggling to learn Chinese.

Initiative 9: Empowering Colleagues

A total of eight sessions were conducted with the educational therapists, learning centre managers and psychologists to equip them with the knowledge of the mother tongue language learning landscape in Singapore. There was also a sharing of what is taught in the DAS Chinese Programme and access arrangements that can be made for students. The sessions were welcomed by colleagues who found the

information useful to share with parents that they encounter on a daily basis. They also had a better understanding of the mainstream curriculum to share with parents.

STUDENT NUMBERS

Total enrolment for the Academic Year

Total enrolment for the Academic Year	191
No. of Chinese dedicated educational therapists	8
No. of Chinese dual specialists	7
Bursaries provided for beneficiaries	42

TESTIMONIALS / SUCCESS STORIES

Parent 1's feedback on observations on the progress of his child

"His willingness to learn, he's motivated when his effort paid off, when he sees that his grade improved. His interest in Chinese, he doesn't complain about learning anymore."

Parent 2's feedback on child

"After attending class here, my child has initiated Chinese conversation with me."

Parent 3's feedback on the observations on progress of her child

"Interested and willing to learn. Teacher is supportive. My son is very willing to open up with his learning."

ABOUT THE AUTHORS

KONG YUN RUI

Chinese Programme Manager
Senior Educational Therapist

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.

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 DAS Main Literacy Programme.

DAS Specialised Educational Services Preschool Early Literacy Intervention

Wong Kah Lai
Preschool Programme Manager
Dyslexia Association of Singapore

BACKGROUND, DESCRIPTION, FRAMEWORK

The Preschool Programme (PP) 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, PP was extended to admit Kindergarten Year 1 (K1, 5-year olds) students. The programme has since reached out to 1748 children in Singapore. It gained the support of NTUC INCOME in 2012 as part of their corporate social responsibility (CSR) initiative. To date, NTUC INCOME ORANGEAID FUND supports about 20% of pre-schoolers on the Preschool Programme yearly, on intervention and assessment costs, and continues to offer bursaries to children from low income families.
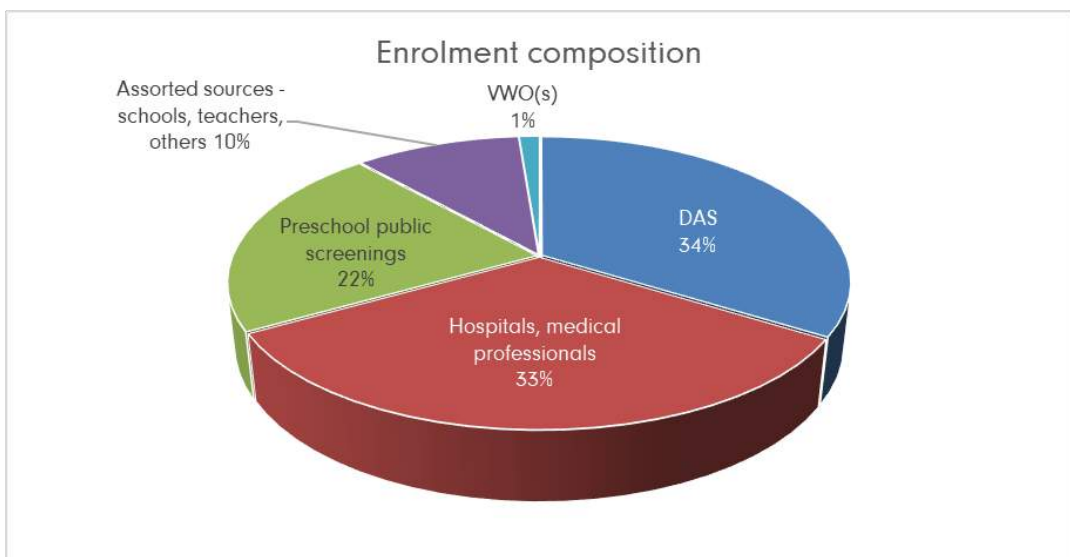
Table 1. Growth of the Preschool Programme since its inception in 2006

Year	DAS learning centre(s) offering Preschool Programme	Total annual enrolment	Location
2006*	1	15	Bishan (BJ8) *started in Term 3*
2007	2	40	BJ8, Queenstown (QTN)
2008	3	62	BJ8, QTN, Bedok (BDK)
2009	4	82	BJ8, QTN, Woodlands (WDL), Tampines (TPN)
2010	4	73	BJ8, QTN, WDL, TPN
2011	5	82	BJ8, BDK, QTN, WDL, TPN
2012	5	117	BJ8, BDK, QTN, WDL, TPN
2013	7	135	BJ8, BDK, QTN, WDL, TPN, Jurong Point (JPT), Sengkang (SKG)
2014	8	268	BJ8, QTN, WDL, TPN, JPT, SKG, CCK, YSH
2015	9 + *1 (off-site, satellite)	280	BJ8, QTN, WDL, TPN, JPT, SKG, CCK, YSH, Rex House (REX), *PCF Sparkletots@Ghim Moh Link (GML)
2016	9 + *2 (off-site, satellites)	275	BJ8, QTN, WDL, TPN, JPT, SKG, CCK, YSH, REX, *GML, *PCF Sparkletots@Admiralty (ADY)
2017	9 + *5 (off-site, satellites)	319	BJ8, BDK, QTN, WDL, TPN, JPT, SKG, CCK, YSH, *GML, *ADY, *PCF Sparkletots@Fengshan cluster blocks 76, 117, 103 (FSH 76, FSH 117, FSH 103)

The Preschool Programme works in close collaboration with Child Development Units (CDUs) of hospitals KKH, NUH, SGH, Jurong Medical Centre and so on. In 2017, 28% of Preschool Programme total enrolments were referrals from KKH. NUH, Jurong Medical Centre and private practices accounted for another 5% of referrals, with 22% from public screening exercises conducted nationwide.

The growth of the Preschool Programmes can be seen in Table 1.

The Preschool Programme complements the services of the PCF SEN team in offering support to children with special learning needs. In July 2014, the Preschool Programme established literacy intervention services on-site at Joyful Juniors PCF Ulu Pandan Ghim Moh Link (now known as PCF Sparkletots@Ulu Pandan Ghim Moh Link) at the strong urging of the Principal, Madam Nirmala Thevi, for her students staying in nearby rental flats. This was supported by the constituencies advisor and Member of Parliament Mr. Christopher De Souza. Since then, the Preschool Programme extended the reach to support PCF Sparkletots@Admiralty in 2016 and in PCF Sparkletots@Fengshan blocks 76, 103 and 117 (aka Fengshan cluster) in 2017. This strong partnership from ground up led to the signing of a 5-year memorandum of understanding between PCF HQ and DAS in May 2017.

ENTRY AND EXIT CRITERIA

Entry – children with early literacy learning difficulties in reading, spelling, and writing with an observable gap of six months or more as compared to same age peers. i.e. despite supportive efforts from home and school. Formal diagnosis for dyslexia is not a necessary criterion for enrolment into the programme.
Exit criteria – at the end of K2

WHO THE PROGRAMME IS FOR

Preschool Programme admits kindergarten aged children (K1 and K2) attending childcare or kindergarten. Children typically progress into mainstream primary school.

THE PRESCHOOL CURRICULUM

The Preschool Programme believes that early literacy intervention should be delivered in a holistic and authentic way. Summarised in the figure 1 are lesson components of a typical 2-hour session carried out by Preschool Programme's early literacy intervention educational therapists (EdTs), guided by Orton Gillingham principles and sound early childhood pedagogies.

CURRICULUM DEVELOPMENT PROGRESS UPDATE

Preschool Programme has, in her possession, already developed several learning resource kits in collaboration with interns from Ngee Ann Polytechnic. Namely, Preschool Sight Words (2013), Oracy Package (2014), Social-Emotional Literacy (SEL) (2015), Phonogram kit (2016), READIT SMACK and READIT MILKY WAY (2017) and Move It With The Boggles (2018) learning kits.

These specially designed learning kits are customised to meet the varied learning needs of K1 and K2 children entering the programme at different points of time. No two children are the same, though certain learning challenges e.g. in learning to read, spell, write, manipulate letter sounds (i.e. phonological awareness) may be similar. Developmentally speaking, play is a child's work. Engaging young children with early literacy learning difficulties (and possibly with other comorbidities) to effectively learn, requires specialised tools for teaching and learning. These resource kits are our EdTs' customised tools. DAS Preschool Programme's brain child that Ngee Ann interns helped deliver annually.

In the development of these tools the Preschool Programme team first need to train the interns – background knowledge into dyslexia, how to teach, (i.e. lesson plan, classroom management, etc) as would be expected of a regular preschool EdT. Only after passing their practicum would these interns commence working on their project. Project mentoring, pilot testing, reviewing and reworking the design till the prototype is as fail-safe as possible before mass production, a tough journey for all. The outcome is well worth it. A tool that will meet the real needs of our learners and their teachers (EdTs) is forged and born.

Our latest versions of teaching resources, from 2015 onwards, come with demo videos and have built in differentiation activities that cater to diverse learning needs of children within the same classroom. It allows the therapist the flexibility of doing the same activity with the entire group while being inconspicuously demanding of individual children. For example, in READIT SMACK! Children may be engaged in smacking words with fly swappers, but everyone is actually reading/revising words that are tailored according to his/her scope and sequence to learning.

A tool is only as effective as her user. Interns were provided with opportunities to share with/train the entire preschool team of Educational Therapists on the use of their teaching resources. A lively and meaningful exchange.

Lastly, Preschool Programme has completed the revision of its scope and sequence and lesson plan template to better reflect and accommodate the needs of our learners as identified in 2016 (DAS HANDBOOK 2016, PP.106 -111). Our progress

report (techno) template, providing information to parents during Parent Teacher Conferences, has also been streamlined and dovetailed according to our revised scope and sequence. The impact and effectiveness of our curriculum will be discussed further in PROGRAMME EVALUATION: DESIGNS, FINDINGS AND RESULTS, DATA ANALYSIS AND DISCUSSION.

LEARNING RESOURCE KIT 2016 – PHONOGRAM KIT

+ VIDEO

LEARNING RESOURCE KIT 2017 – READIT SMACK! AND READIT MILKY WAY

TEACHER TRAINING

All teachers are continuously trained in their work with pre-schoolers with specific learning difficulties through courses and workshops including monthly in-service training. There is a recommended training pathway for different categories of teachers. More details can be found in DAS HANDBOOK 2016 pp 116-119. A review of these training pathways is currently underway. Updates, if any, may be available in future edition(s) of the DAS Handbook.

In addition to prescribed training pathways, teachers also attend additional workshop(s) by DAS Academy, in-service in use of new curriculum resources, teams-teaching-teams and so on.

In-service training topics for preschool team – 2016

- ♦ Use of teaching resource kit – Social Emotional Literacy kit (refresher)
- ♦ Use of new teaching resource kit – PHONOGRAM KIT
- ♦ Preschool seminar workshops – peer learning through each other's presentation
- ♦ School Age Assessment procedures and protocols
- ♦ SES workshops (at NVPC)
- ♦ Use of newly revised progress report template (techno version)
- ♦ Training on the use of Preschool's revised Pre/Post Informal Early Literacy Test Kit
- ♦ Audit related practices -programme, resources, funding

In-service training topics for preschool team – 2017

- ♦ Use of new teaching resource kit – READIT SMACK! READIT MILKY WAY
- ♦ Preschool seminar workshops – peer learning through each other's presentation
- ♦ Speech and language development, delays and case studies (2 sessions)
- ♦ School Age Assessment procedures and protocols
- ♦ Ipad training -use of new apps & sharing of new discoveries
- ♦ A Learning Journey: Creative use of teaching resources for differentiate teaching and learning in a DAS Preschool classroom (2 sessions)

An in-service training on doing differentiation within the same classroom

An in-service training on school age assessment related protocols and information for parents

Left: An in-service on use of curriculum resource

Below: Receiving professional advice from Professor Angela Fawcett

Above Right: Programme manager and core team celebrating preschool's achievement with key administrative officers supporting the programme.

Below Right: Meet some Educational Therapists from the preschool team

Over Page: Preschool team celebrating team success with a makan (malay word meaning eating) session

PRESCHOOL PROGRAMME MANPOWER

Preschool Programme manpower has been stable and consistent over the last few years with very low attribution rate. In fact, the team is steadily growing in tandem to the increase in student enrolment.

CATEGORY	2016		2017	
Teaching:	Head count (not inclusive of attrition)	Attrition & reason(s)	Head count (not inclusive of attrition)	Attrition & reason(s)
Dedicated Preschool Specialist Educational Therapists	7	Nil	7	1 going university
Dual Specialists Educational Therapists	8	2 (1 family reasons & 1 work redeployment)	9	Nil
* Core team	2	Nil	2	Nil
Programme Manager	1	Nil	1	Nil
Programme Officer	1	Nil	1	Nil

QUALITY ASSURANCE

The Preschool Programme conducts annual classroom teaching audits including programme evaluation of student achievement. Student progress is also monitored and tracked through pre-post tests. The results are analysed and published as programme evaluation. The Preschool Programme evaluation is published annually in retrospect. Professor Angela Fawcett, academic advisor to the DAS, oversees the publication of this content (and research findings) in the DAS Handbook. It is also published in Asia Pacific Journal of Developmental Differences (Vol. 5 No. 1 January 2018).

The Preschool Programme was nominated by her donor INCOME OrangeAid Fund for CARE (Social Enterprise) Award 2016 and won dual awards in recognition for the programme's efforts in moving upstream, working with pre-schoolers. Excerpts below.

CEO Lee Siang receiving an award from Secretary-General of National Trades Union Congress (NTUC) Chan Chun Sing on behalf of Dyslexia Association of Singapore

Above: Preschool Manager Wong Kah Lai receiving an award from Secretary-General of National Trades Union Congress (NTUC) Chan Chun Sing on behalf of DAS Preschool Programme.
Below: Group Photo at the May Day 2016 NTUC Partnership awards and the DAS Award.

MDPA 2016 – NOMINATION FORM FOR CARE

SECTION B: NOMINEE'S ACHIEVEMENTS

Please provide a write up with **specific examples** for each contribution the worker/company is being nominated for and attach relevant supporting documentation (if any).

Brief description of nominee

Dyslexia Association of Singapore (DAS) is an organisation dedicated to helping dyslexic people and those with specific learning differences in Singapore. They do so by raising public and professional awareness of dyslexia and providing assessment services for those identified to be at risk. They also provide education programmes and other support services for those with specific learning differences. Besides raising awareness and educational programmes, DAS also assists and elicits financial and social support for people with dyslexia and their families, as well as enables professionals (teachers and care givers) with skills and knowledge to help with dyslexic individuals. It carries out research and partners other local and international organisations to bring best practices to the DAS and Singapore.

Challenges Faced

Dyslexia is thought to affect around 10% of the population, 4% severely. A child with dyslexia may mix up letters within words and words within sentences while reading often due to difficulties in phonological awareness. Hence at the age where young children are picking up the skills and interest to read and understand story books, young dyslexic children lose motivation and grow a disinterest towards reading and often result in having low literacy levels.

Also, most of the times dyslexia is hereditary. It is very probable that a percentage of the low income families of today have roots in low performance in school in the yesteryear. Parents with low literacy levels are also unable to support their children academically and this results in an educational challenge for people with dyslexia through generations. The lack of support systems and available resources to help them cope and have a level playing field with other children their age is limited. Then, there falls a great gap in the society.

Especially in the case of children and their families from lower-income bracket, reaching out for help through these special programmes come with the great opportunity cost of money and time that could be spent on meeting basic daily needs. Hence, children with learning difficulties from marginalised backgrounds have no help on building a strong foundation and coping mechanism and often go into Primary School with a disadvantage that dampens their self-worth and confidence over time. Something needs to be done and the DAS has a solution that is distinctively different from any other non-profit's work.

MDPA 2016 – NOMINATION FORM FOR CARE

Nominee's Achievements

For the first time in Singapore's history of early childhood development, there is a solution to tackle the problem all the way upstream at the point when the children learn to read and show early signs of learning disability.

The Preschool Programme in DAS was set up to help pre-schoolers who are potentially at risk of dyslexia, or has developmental delay in early literacy, develop skills and strategies to overcome the learning challenges themselves. In doing so, they can become confident achievers when they enter primary school.

NTUC Income OrangeAid supports the Preschool Programme with bursary awards for K1 and K2 children from especially the lower-income bracket that require specialized early literacy intervention, to lessen the financial burden on families and also to reduce the chances of these children falling through the gaps.

The programme helps children 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. At the end of the preschool programme, children are better equipped with coping strategies and have built a good foundation in reading and spelling. They then go through an extensive School Age Psychological Assessment, and children who are then determined not dyslexic, leave DAS and are ready to join mainstream primary schools to continue their education.

Apart from the above, being a sustainable business with a social mission, DAS views itself as a social enterprise. They reinvest their surpluses to fulfil social objectives and in doing so, combine the entrepreneurial and business skills with philanthropic mission characteristics as a not-for-profit organisation.

Some examples of their investments in the community include training and awareness outreach to help care givers and teachers be better equipped to spot symptoms amongst children in school. One of such is their Preschool Seminar, which discusses early signs of learning difficulties as well as intervention strategies available to help preschool children. Early intervention is critical to improving the academic and life outcomes of dyslexic children. In order to provide early intervention, it is key that children must be identified as early as possible. These workshops are opened to parents, educators and stakeholders working with the children.

Another area is that they have demonstrated that they will fund children with special needs themselves is they cannot find resources from the outside. They have a "turn no child away" policy, which we respect greatly. They were funding seven children annually before NTUC Income OrangeAid's entry to partnership. We have grown it to support up to 57 children in 2015.

Another contribution they have made is intrinsic: Their existence has provided and increased work and development opportunities for learning intervention professionals. This is a critical value that they bring to Singapore as a progressing nation.

MDPA 2016 – NOMINATION FORM FOR CARE

Overall, DAS addresses a critical need in the community that cannot be filled by any other organisation for a problem that affects some 10% of population in varying degrees. They not only have wide outreach awareness initiatives, but also contribute through education programmes and support systems for children and families involved. Through extensive research and partnerships with various stakeholders, DAS is the leading specialist, advocate and service provider in early childhood literacy intervention in Singapore.

CONCLUSION

NTUC Income OrangeAid is proud to be associated with the Dyslexia Association of Singapore because it enables us to be a part of early-stage upstream solutions to social issues, investing in screening, remediation while at the same time preventing long term social problems. This fits neatly in OrangeAid's strategy for long term social impact.

Second Stage Questions:

Dyslexia Association of Singapore - Nominated by NTUC Income
1. Are there any individual advocates who went an extra mile for the initiative to be successful?
2. Include example of the advocate's contribution
3. Success stories of the initiatives (if any)

1. *Are there any individual advocates who went an extra mile for the initiative to be successful?*

Yes. Ms Wong Kah Lai, Preschool Programme Manager, Dyslexia Association of Singapore.

2. *Include example of the advocate's contribution*

Ms Wong has worked extensively with the Principal of PCF Ulu Pandan @ Ghim Moh Link to educate parents and bring light to the topic of spotting risk of dyslexia early amongst pre-school children at the centre. By conducting talks and 1-to-1 interventions in order to get children who are at risk of dyslexia to join the pre-school programme and go through the assessments, Ms Wong was able to convince many parents whom would have otherwise believed that their children were merely academically weak.

This is especially the case for parents from the lower-income bracket whom tend to avoid extra remediation and help as they are not able to bear the extra costs involved. Ms Wong goes the extra mile to reach out to this group of children and educate their parents on the Preschool Programme with bursary awards, supported by NTUC Income OrangeAid, for K1 and K2 children from especially the lower-income bracket that require specialized early literacy intervention, which would eventually lessen the financial burden on families and also reduce the chances of these children falling through the gaps.

MDPA 2016 – NOMINATION FORM FOR CARE

Ms Wong is enthusiastically and unceasingly active, reaching out to more pre-school education centres through awareness talks for parents and teachers, particularly where there may be more residents from lower income families.

3. *Success stories of the initiatives (if any)*

Eg 1)   A Simple Wish And A Humble Ambition: The Story of Ziq and His Younger Sister

A small rental flat houses a family of six. A bedridden grandmother, a father working as a delivery person, a housewife mother with 3 kids – toddler, preschooler and kindergartener.

Ziq (not his real name) was the kindergartener. His teachers and principal described him as always being happy, and easy-going, a boy with a big heart. Ziq was flagged by his kindergarten as potentially at risk of dyslexia or specific learning difficulties because he was falling behind his peers by an awful lot when it came to learning his letters, numbers, reading and writing.

Ziq's younger sister was showing similar difficulties, and she wasn't a happy preschooler in class. All the family members were concerned.

Ziq spoke in halting English as he confidently drew simple stick figures while happily explaining that he was going to be a postman when he grew up. He observed people smiling happily whenever his dad delivered things (furniture and so on) to them at their homes. He wanted to be strong like his dad and to give people things every day. He explained that when you give people things (as a postman does on a daily basis), people smile and are happy.

Both Ziq and his younger sister are beneficiaries of the NTUC Income OrangeAid Fund bursary fund.

Ziq is in Primary Two now. Dyslexic, Ziq strives on as he struggles with the demands of his academic studies.

His younger sister, a kindergartener now, is a happy and confident little girl who sings in class and plays happily with friends in school. Her teachers and principal commented on the significant and observable difference that they see in her. Amazing, they said. It was a far cry from the crying and clingy child who disliked coming to school daily.

Thank you donors of NTUC Income OrangeAid Fund, for giving hope to us parents, teachers, and principals alike. This aids in creating a cascading effect that gives children a sustainable chance to better their lives.

-Ms Wong Kah Lai, Preschool Programme Manager, Dyslexia Association of Singapore.

Eg 2)   Children with dyslexia should not be deprived of intervention and remediation just because of their financial status.

When my son, Aniq, was five years old, he was found to be at risk of dyslexia. By the time he turned six, he was diagnosed as a dyslexic. He could only speak in isolated words, was unable to differentiate between left and right, and was writing letters in reverse.

MDPA 2016 – NOMINATION FORM FOR CARE

That was when I turned to the Dyslexia Association of Singapore (DAS) for help and Aniq was enrolled into the DAS Preschool Programme through a bursary funded by NTUC Income OrangeAid.

The lessons conducted through the preschool programme had interactive activities such as treasure hunts, iPad games, sand play as well as a multi-sensory approach to learning with the use of plasticine.

Within a year and a half, I noticed significant improvement in Aniq's articulation and writing abilities as well as a boost in his self-esteem. His handwriting is now much neater and he also has better psycho-motor skills.

This was definitely a result of the unwavering support rendered by the dedicated educational therapists from the Preschool programme who were always willing to go the extra mile in support of my son.

-Lilys, Mother of Aniq

PRESCHOOL STUDENTS

Enrolment and Bursary

YEAR	ENROLMENT	NO. OF BURSARY STUDENTS
2012	117	46 students supported by Income OrangeAid Fund
2013	135	40 students supported by Income OrangeAid Fund
2014	268	63 students supported by Income OrangeAid Fund *29 students on DAS bursaries
2015	280	57 students supported by Income OrangeAid Fund *15 students on DAS bursaries
2016	275	57 students supported by Income OrangeAid Fund *37 on DAS bursaries
2017	319	57 students supported by Income OrangeAid Fund *77 on DAS bursaries

K1 and K2 Composition

YEAR	KINDERGARTEN 1 (K1)	KINDERGARTEN 2 (K2)
2015	42	238
2016	56	219
2017	61	258

School Age Assessment outcome: Dyslexic versus non-dyslexics

	2013	2014	2015	2016	2017
Dyslexic	68	120	125	91	113
Non-dyslexic	36	53	58	42	47
Total no. of assessments carried out	104	175	183	181	*162

*2017 -1 student (non-conclusive, repeating K2 in 2018, reassessment recommended), 1 student with assessment outcome pending at the point of publication.
Author's note: Assessment for diagnosis of dyslexia is recommended to parents but not made compulsory due to cost and other family reasons.

EVENTS	2016	2017
PUBLIC EDUCATION:		
Awareness talks for mainstream kindergarten and childcare teachers and parents	12	24
PUBLIC OUTREACH:		
Public screening exercises	3	3
ADVOCACY:		
Seminar and conferences Learning Journeys Project talks	4 4 3	3 6 2

Preschool team (left to right) Jacklyn, Yiyao, Kelly, Thila and Rahayu presenting a workshop at ECDA conference 2016

Engaging Preschool Stakeholders, meeting with SEED Institute

Engaging Preschool Stakeholders, meeting with KK Hospital

Learning Journeys – A series of info talks to trainee teachers from SEED Institute (6 runs)

Learning Journeys – Asia International College Project Talks (2 Runs)

Awareness Talks – SparkleTots Preschool

Teacher training for preschool teachers at PCF Sparkletots (Fengshan cluster of centres) on how to conduct Placement Checklist, screening K1 and K2 children with early literacy learning difficulties

PROGRAMME EVALUATION:

DESIGNS, FINDINGS AND RESULTS, DATA ANALYSIS AND DISCUSSION

Method

434 students (273 male, 161 female) kindergarten year one and year two (26 five y/o, 367 six y/o, 41 seven y/o) attended an average of 64 hours of intervention.

DAS ELIP Early Literacy Informal Test Kit (Wong, 2016, p. 110) was used as the pre-test and post-test measure of alphabet knowledge, phonogram knowledge, sight words, ability to read and spell in combinations ranging from vc, cvc, ccvc, ccvcc to cccvcc (v=vowel, c=consonant)

Specific gaps in learning of the five areas (see above) were carefully noted and early literacy intervention plans drawn up. Early literacy intervention was then carried out holistically using sound early childhood pedagogy guided by OG principals. Intervention progress was carefully monitored and recorded.

Students were post-tested at the end of the programme year and results indicated highly significant improvement in all five areas of literacy.

1) Alphabet knowledge
Letter naming, letter sequencing, ability to correctly form all lower and upper-case alphabet letters. showing improvement of 26.24 marks with large effect size of 0.93

2) Phonogram knowledge
Letter sound correspondence of the 26 letters as well as 37 advanced phonograms (e.g.: consonant digraph, trigraphs, magic e) showing improvement of 12.7 marks with a large effect size of 1.45

3) Learnt word knowledge
Ability to read up to 50 sight words showing an improvement of 15.33 marks with a large effect size of 0.99

4) Reading ability
Split into words of increasing difficulty starting with vc, cvc, ccvc, ccvcc, cccvcc and magic e words with 3 words in each level, showing an improvement of 5.67 with a large effect size of 1.49

Children reading at vowel-consonant (vc) level had moved up to cvc and ccvc level by the end.

5) Spelling ability
Similar to reading, spelling words of increasing difficulty starting with vc, cvc, ccvc, ccvcc, cccvcc and magic e words., showing an improvement of 3.7 marks with a large effect size of 1.25

Children unable to spell with success 1 out of 3 words at vowel-consonant (vc) level moved up to cvc and ccvc level by the end.

STAKEHOLDER FEEDBACK

Children, parents and our Educational Therapists perception of our programme is critical into helping us work most effectively. Feedback forms were competed by parents, students and Educational Therapists to get constructive feedback at the end of year.

STUDENT FEEDBACK

Student feedback was pictorially represented with emoji's to describe how the question made them feel. 233 responses were recorded.

| I love it | Happy | "It's ok" (neutral) | Angry | Sad |

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 it learning in school now or is it a struggle ? (e.g. I don't know what teacher teaches)

While children generally appeared happy to with the programme, there were still struggling learners who felt angry and sad in tackling specific areas of learning. Their feelings are perfectly understandable, and we empathise with them. It may not

Q1. How do you feel about coming to DAS Preschool Programme for classes?
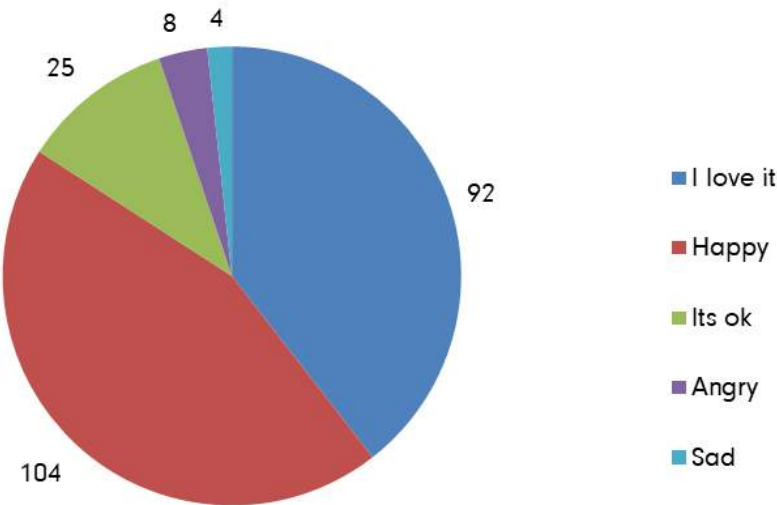
8   4

25

92

104

- I love it
- Happy
- Its ok
- Angry
- Sad

Q2. How easy is it for you to sequence the alphabet?

15   7

76

55

80

- I love it
- Happy
- Its ok
- Angry
- Sad

Q3. How easy is it for you when you write?

- I love it
- Happy
- Its ok
- Angry
- Sad

85, 78, 49, 10, 11

Q4. How much do you enjoy doing 'words-to-read'?

- I love it
- Happy
- Its ok
- Angry
- Sad

71, 71, 54, 24, 13

Q5. How much do you enjoy doing 'words-to-spell'?

17
22
71
54
69

- I love it
- Happy
- Its ok
- Angry
- Sad

Q6. How much do you enjoy doing 'card drill'

5 9
56
94
69

- I love it
- Happy
- Its ok
- Angry
- Sad

Q7. How easy is it learning in school now or is it a struggle?

10   9

53

91

70

- I love it
- Happy
- Its ok
- Angry
- Sad
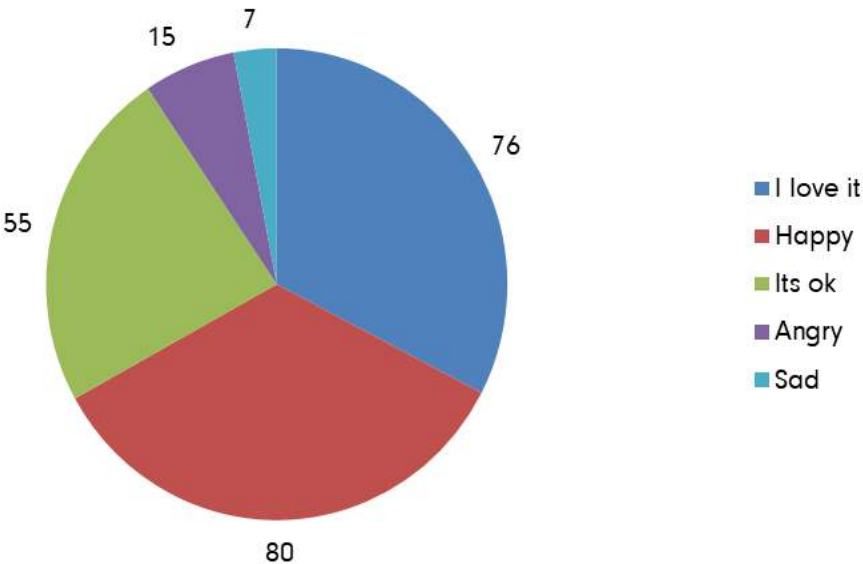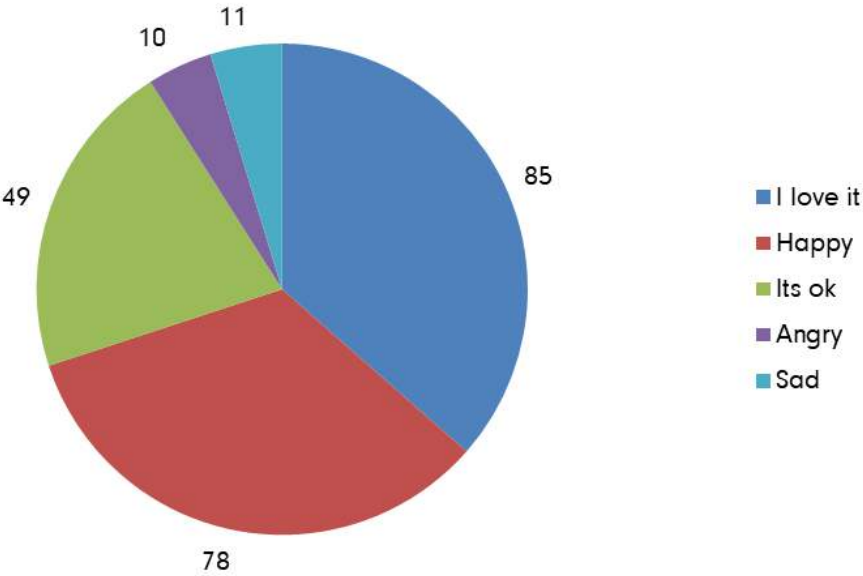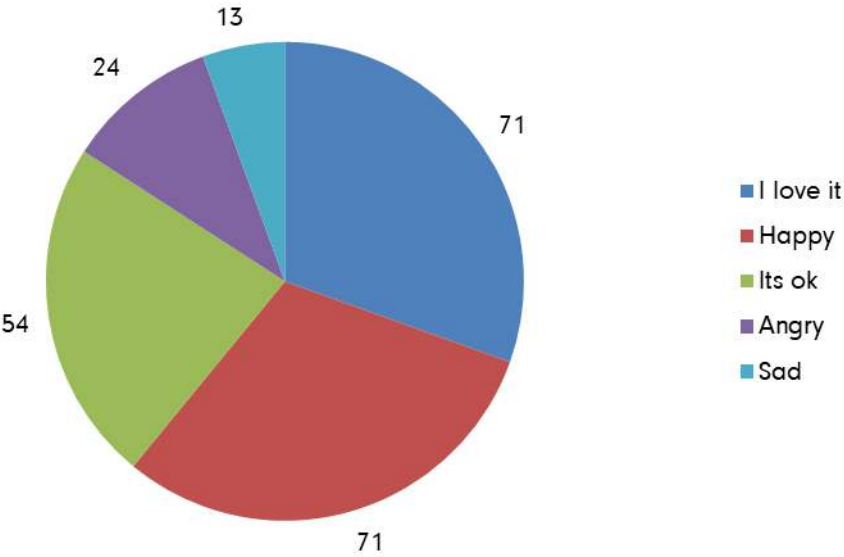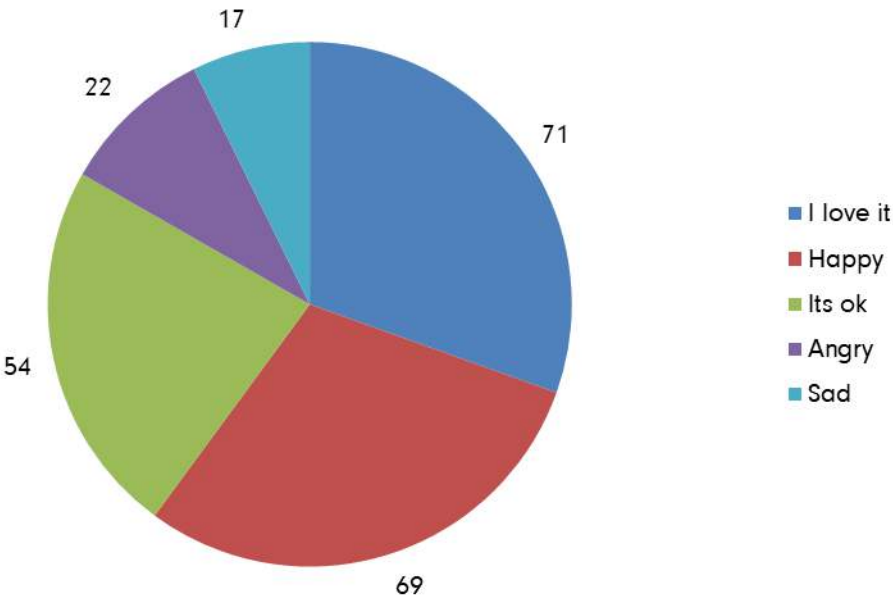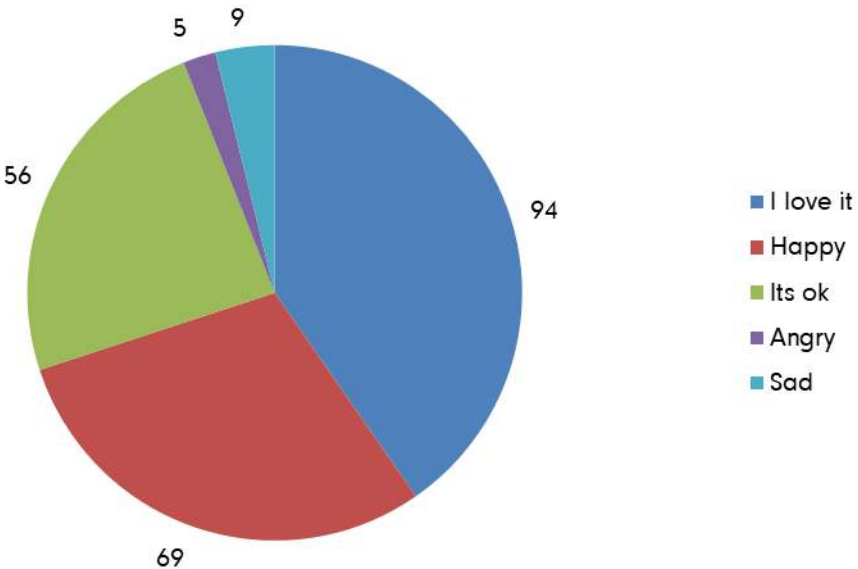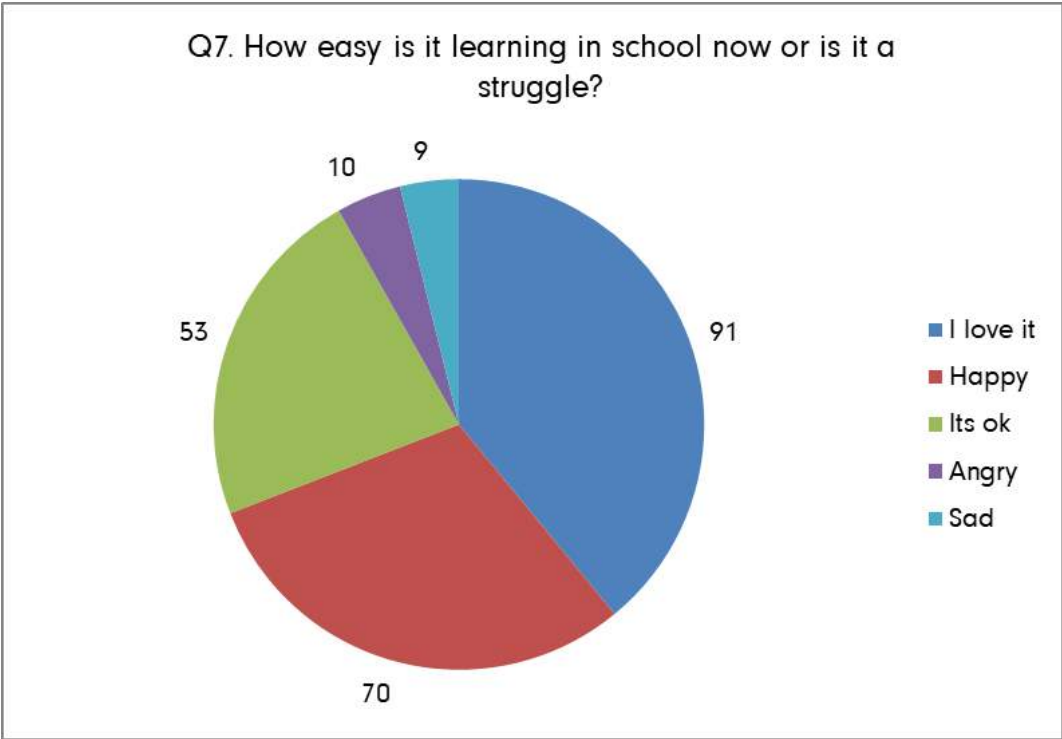
seem logical from the eyes of a young child adults who love them are making them do activities that cause stress and anxiety. Preschool Programme acknowledges that and we try our very best to use innovative learning resources as one of the many ways to engage children in learning. By taking as much stress and anxiety away from our EdT-children interaction, we hope to increase effective and impactful learning taking place within our classrooms.

An interesting side observation from the collected student feedback forms. There were random form(s) where all emoji cons were appropriately circled (or decorated with sunshine/tears/fire and lightning bolts) except for one or two questions being (deliberately?) left blank or "unanswered". It seems to suggest that a child is saying "no comment" to questions (phrased "how much do you enjoy…) about aspects or components that he/she does not enjoy it at all but must do it anyway.

PARENT FEEDBACK

The parent feedback form was also on a five point likert scale where 1 indicated strongly disagree and 5 indicated strongly agree. The 191 parents responded to our survey and rated their children's behaviour and abilities via the following questions

1.	My child appears more confident, happier.
2.	My child's school teacher(s) tell me that my child is generally doing much better in class.
3.	I can see and/or my child's school teacher(s) tells me that my child's most significant/observable improvement is in alphabet knowledge.
4.	I can see and/or my child's school teacher(s) tells me that my child's most significant/observable improvement is in sight word recognition.
5.	I can see and/or my child's school teacher(s) tells me that my child's most significant/observable improvement is in reading phonetically.
6.	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.
7.	My child is able to apply what he/she has learnt.
8.	My child has benefitted from the preschool programme.
9.	I am happy with the Preschool intervention programme.

It appears that majority of the parent respondents were happy with Preschool Programme and their children appeared to be both happy and confident. Almost all seemed to agree that children appear to have made progress in alphabet knowledge, sight words, reading phonetically and writing. Most observed their children's ability to transfer learning from intervention to other settings. Clear majority also appear to agree that their children benefitted from having received early literacy intervention from DAS Preschool Programme.

Parent Feedback

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Strongly Disagree	1	3	1	0	0	1	1	1	1
Disagree	1	2	5	6	9	4	3	1	1
Neutral	19	36	29	47	44	52	30	16	14
Agree	88	81	91	90	93	88	87	69	65
Strongly Agree	82	69	65	48	45	46	70	104	110

Parent Interview Questions

Strongly Agree ■ Agree ■ Neutral ■ Disagree ■ Strongly Disagree
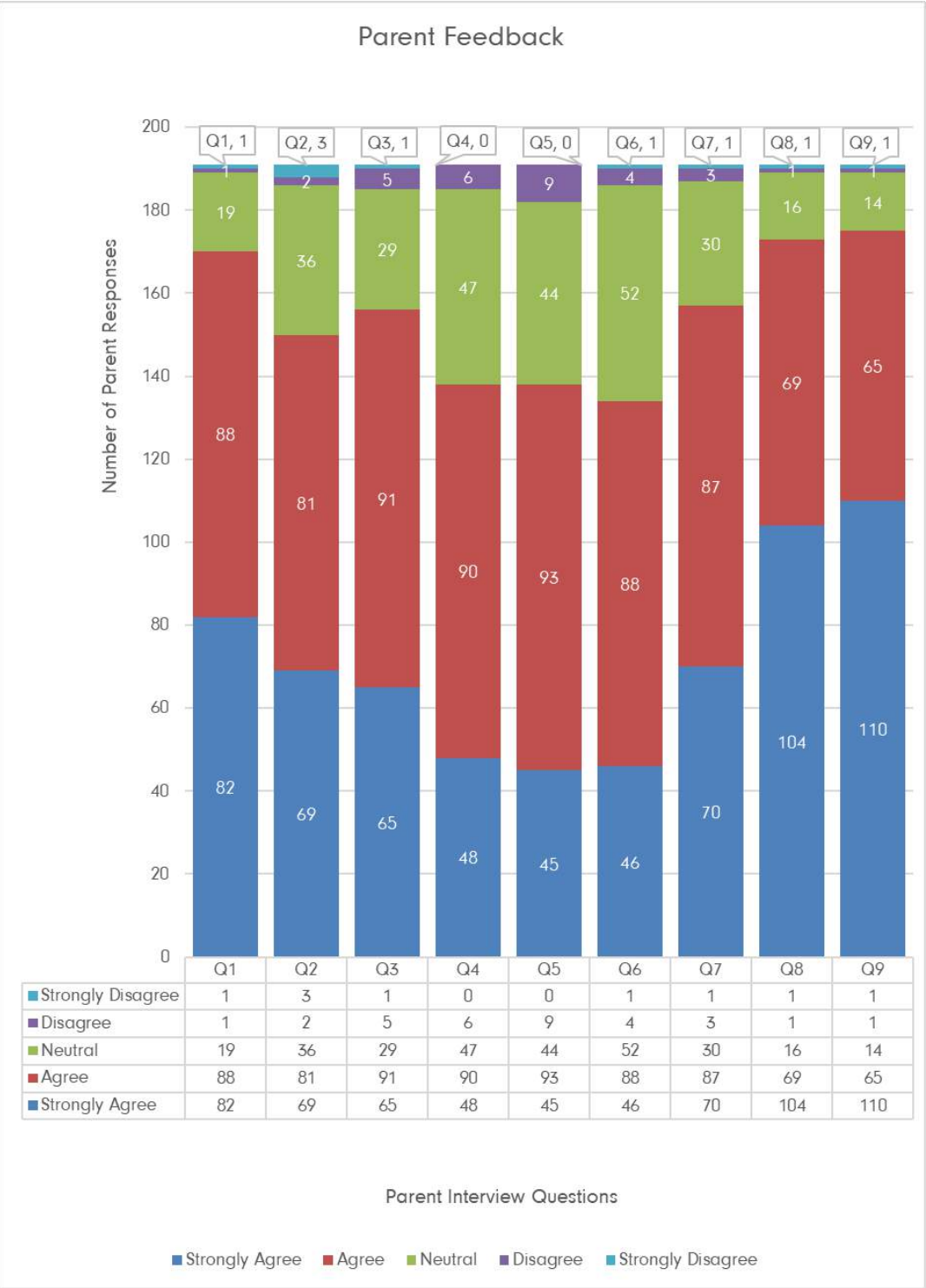
TEACHER FEEDBACK

The teachers feedback form was on a ten point likert scale where 1 indicated strongly disagree, 9 indicated strongly agree. Ten educational therapists provided feedback on 245 students on the following six questions

Generally, Educational Therapists felt that students were more confident by the end of intervention as compared to when they first came in to the programme. They saw overall positive early literacy gains in their students.

1.	How would you rate your student's general confidence now
2.	How would rate the progress made by your student in term of alphabet knowledge?
3.	How would you rate the progress made by your student in terms of writing?
4.	How would rate the progress made by your student in term of sight word knowledge?
5.	How would rate the progress made by your student in terms of reading?
6.	How would rate your students overall achievement?
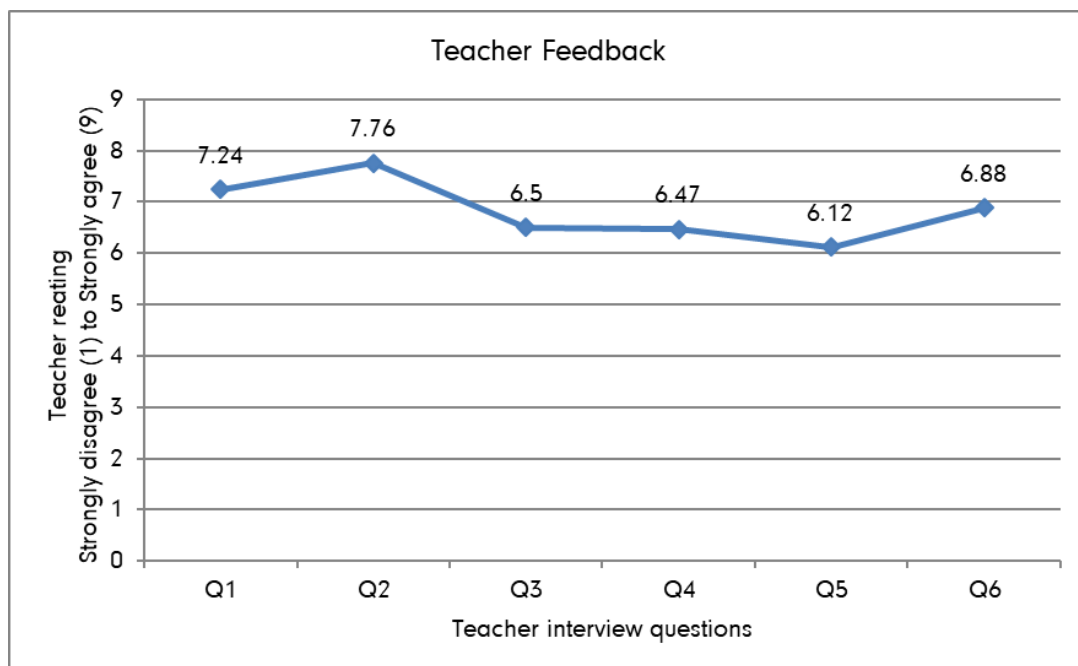
Everyone seems to agree that students made notable progress in alphabet knowledge, an essential fundamental in early literacy and phonics learning. Opinions seem to differ slightly amongst therapists in terms of progress made in writing, sight word and reading. These differences may possibly be attributed to the duration of intervention as children came on board the programme at different points of time. (Preschool Programme's registration is open year round) It could also be attributed to varied learner profiles, including learner needs and challenges, such as a significant learning gap and/or logistical issues such as making it to class with regularity.

CONCLUSION

The evaluation of the preschool programme indicated improvements in two key components. As described earlier, the intervention programme shows gains in the five areas of literacy that it targets. These being alphabet knowledge, phonogram knowledge, sight words, reading and spelling. These improvements are both statistically significant with large effect sizes. Students have also largely indicated in the survey conducted at the end of intervention that they are better able to write and sequence and that they enjoy reading and spelling activities. As they make literacy gains, parents and teachers are reporting that preschool students are showing increased confidence as well. Confidence in reading and finding learning enjoyable has shown to positively correlate with word reading success which in return boosts confidence (McGeown et al, 2015). The preschool programme hopes to continue to provide a strong foundation for positive learning.

FUTURE DIRECTIONS

In 2016, Preschool Programme stated that:

> "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" (DAS Handbook 2016, p.144)

That remains true today. Outlined throughout this chapter, are many of Preschool Programme's efforts toward improving effective teaching practices while humbly contributing towards supporting the early childhood fraternity at large, E.g. Preschool seminars, conferences and workshops, learning journeys and many more.

The Preschool Programme has engaged stakeholders actively and continues moving upstream. Hopefully, Preschool's active engagement with hospitals, fellow VWOs (NGOs), government agencies, preschools, training agencies, polytechnic and many more will result in more pre-schoolers receiving timely help.

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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.

income orangeaid

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 EARLY LITERACY INTERVENTION

OUR AIM

The SES Preschool Programme aims to help pre-schoolers at risk of having dyslexia or developmental delay in early literacy, acquire skills and strategies to become confident achievers when they enter primary school.
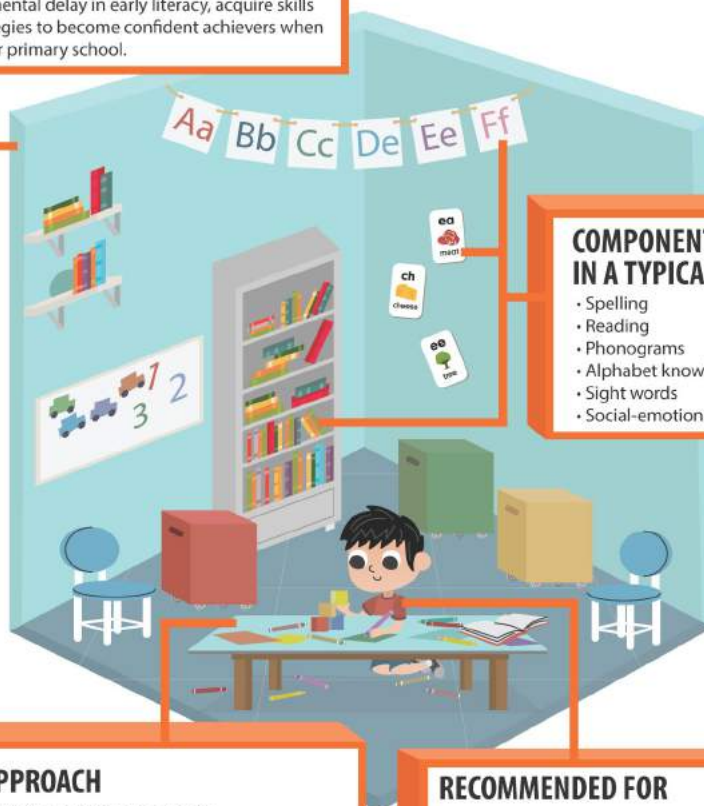
COMPONENTS COVERED IN A TYPICAL LESSON:

· Spelling
· Reading
· Phonograms
· Alphabet knowledge
· Sight words
· Social-emotional learning

OUR APPROACH

Three key features of our approach:

1. Hands-on and multisensory activities: In teaching alphabet knowledge, phonograms and sight words.

2. Interactive and engaging lessons: When practicing skills and strategies in reading, spelling and writing.

3. Incorporation of Social-emotional Literacy (SEL) in sessions: To foster soft skills necessary for greater Primary 1 readiness.

RECOMMENDED FOR

K1 and K2 children attending kindergarten, childcare centre and/or EIPIC programmes who have difficulties in learning to read, spell and/or write.

Preschoolers in our programme will be advised to go for a School Age Psychological Assessment when they turn 6. Children diagnosed with dyslexia have the option to continue with the Main Literacy Programme.

For more info, visit www.das.org.sg

Specialised Educational Services
UNLOCKING POTENTIAL

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
5. Annotation Skills

The curriculum has been carefully designed and frequently evaluated by our team to ensure its suitability to our students. Lessons are in line with the MOE English Language Syllabus, and reference the Orton-Gillingham principles.

DAS Specialised Educational Services English Exam Skills Programme

Tuty Elfira Abdul Razak[1], Siti Asjamiah[3], Andy Wang[2]

1.   *English Exam Skills Programme Manager*
2.   *Senior Educational Therapist*
Dyslexia Association of Singapore

The English Exam Skills Programme (EESP) started in 2013 with the aim of supporting primary school students with dyslexia in their English subject of the Primary School Leaving Examinations (PSLE). Prior to the launch of EESP, the team analysed past years' English examination papers and evaluated the learning needs that our primary school students require support with. The EESP team found that students with dyslexia faced difficulties in the Grammar, Editing, Synthesis and Transformation, Cloze passage and Comprehension components of the English PSLE. The EESP team strongly believes students with dyslexia can acquire skills and strategies to cope with these challenging components. Thus, a set of curriculum has been uniquely designed and developed to specifically address the challenges seen in these components of the English PSLE paper. Classes are conducted on a weekly basis over a period of ten weeks, with each lesson lasting an hour.

The EESP lessons are conducted in a way that is multisensory, structured, progressive and emotionally sound. The EESP team also came up with our own instructional approach: RIMAIR (Review, Introduce, Model, Apply, Independent (application), Recap). Previously learnt concepts are constantly reviewed and new concepts are introduced systematically. Within each lesson, students are expected to gradually progress towards an independent application of skills through attempting PSLE format question types.

ENTRY AND EXIT CRITERIA

Students who are enrolled into EESP should have an official diagnosis of dyslexia, are between Primary 3 to 6, and currently attending the DAS Main Literacy Programme (MLP) of the DAS. Students are to attend at least one term of MLP to be eligible for enrolment into EESP. This is to ensure students attain prior knowledge of basic phonogram concepts, spelling and suffixing rules that are taught in the MLP and for them to be able to successfully apply this knowledge into the Editing component. In addition, students are required to have a reasonable level of reading fluency so that emphasis can be placed on the acquisition of new skills and concepts of the English examination and not on decoding words. Hence, the EESP team will take into consideration the feedback from educational therapists on students' level of reading fluency at the point of application to assess their suitability for entry into the programme.

Students who meet the above-mentioned criteria will be placed into the programme only at the beginning of every term. Attaining the basic skills and concepts taught at the start of the term ensures students are able to acquire the cumulative set of skills as they progress through the term.

Students who join the EESP may continue to be in the programme till Primary 6 wherein they will leave at the end of Term 3, just before the commencement of the PSLE. However, with effect from Term 4 2018, students who wish to continue in the EESP may choose to take up the English Pre-Secondary Bridging Programme that will be conducted in Term 4. This bridging programme is a new initiative under the Short-Term Programmes (STP), which you may find more details about in the later section of this report.

WHO THE PROGRAMME IS FOR

The EESP programme is specially designed to support Primary school students from Primary 3 to 6. There are three different categories of classes students will be placed in: the Primary 3 and 4 stream, the Primary 5 and 6 Foundation stream, and the Primary 5 and 6 Standard stream. Each stream has its own unique set of curriculum and level of difficulty tailored to suit the learning needs of its students. Students eligible for the programme may join at the beginning of any term of the year.

Distribution of components (Grammar, Synthesis and Transformation, Editing, and Comprehension) covered in each stream can be found in Table 1. The Primary 3 and 4 stream focuses on building up the language foundations of student, with an emphasis on attaining basic grammatical concepts and establishing simple skills in understanding reading comprehension passages. The Standard and Foundation

streams focus on topics, skills and answering techniques that resemble the PSLE examination format.

P3 AND P4	FOUNDATION	STANDARD
Grammar Editing Comprehension	Synthesis and Transformation Editing Comprehension	Synthesis and Transformation Editing Comprehension

QUALITY ASSURANCE

In order to ensure that students benefit from the programme, it is important that teachers are equipped with the content knowledge and skills to teach EESP classes. To ensure that we continue to deliver a programme of high quality, all EESP dual specialists will be observed by a Core Member through the annual Quality Assurance Audit (QAA) process every financial year. The annual QAA lesson observation assesses each EESP teacher in 3 main aspects: lesson execution- where focus is placed on maintaining a consistent lesson delivery structure, communication with students and class management.

TEACHER TRAINING

Educational therapists who have expressed interest to teach in the EESP need to have at least a year of teaching experience at the DAS before they are selected from a list of applicants. Between August and September 2017, a total of 6 educational therapists underwent 5 sessions of training which was jointly conducted with the DAS Academy. These newly recruited EESP teachers were provided with opportunities to understand the theoretical background, programme objectives, topics and concepts in the EESP curriculum and to plan and deliver lesson components as part of the dual specialisation training and assessment.

In addition, all EESP dual specialist teachers are required to attend teacher training INSETS (In-service Education and Training) at the start of each term, facilitated by the Core and Contributing members of the EESP who are also the programme's curriculum developers. A total of 3 INSETS were conducted in March, June and

September, where teachers were encouraged to share their experiences and the challenges they faced in the conduct of their EESP classes and provided with updates on curriculum and administrative matters.

NEW INITIATIVES

The two main initiatives this financial year would be our development of 3 curricula for short term programmes and 2 research projects that we have undertaken through the year. On top of these, the team have also completed 4 video lessons for teaching comprehension for Primary 3 and 4 students.

Short Term Programmes (STP)

The STP is a pilot project under the SES division. Although these programmes are conducted across one term or a block delivery period of 5 days, they will be guided by the same instructional approach and teaching principles as those currently used in the EESP. Each STP has been designed to provide students with skills and strategies to address the examination needs of primary school students at the DAS in the hope of enhancing their confidence and preparedness for some components of the PSLE English exam that are not included in the main EESP and guide them towards a smooth transition to cope with the English Language syllabus at Secondary One.

The 3 STP we will be offering in the next financial year are:

1. English Oral Exam Skills
2. Comprehension Cloze (Cloze Passage)
3. English Pre-secondary Bridging Programme

We have received feedback from parents that their children needed help beyond Editing (Spelling), Synthesis and Transformation and Reading Comprehension and some requested for tips and strategies that they could use to guide their children in other components such as Comprehension Cloze as well as conversation topics for PSLE Oral. In addition, feedback received from Educational Therapists providing literacy intervention for secondary school students, English Language teachers and Allied Educators in mainstream secondary schools, as well as parents with children in secondary one, demonstrated the students lack of readiness in skills required to cope with the rigours and demands of the secondary school English curriculum and examination. Each STP curriculum will be explained in more detail in the following sections.

i) English Oral Exam Skills

The programme is designed to prepare students for the two components of the PSLE English Oral Examination - Reading Aloud and Stimulus - based Conversation. The programme aims to equip students with the necessary skills and strategies that will enable them to read with good pronunciation, articulation and appropriate intonation to convey information in the reading passage. It also aims to provide students with exposure and practice in giving personal responses while engaging in a meaningful conversation based on a topic or visual stimulus given.

ii) Comprehension Cloze

The programme is designed to prepare P5 and P6 (Standard) students with skills and strategies for the Comprehension Cloze component of the PSLE English Paper. The programme aims to build their confidence in attempting cloze tasks by equipping them with skills and strategies through a sequential and cumulative approach. It also aims to provide students with exposure and practice to cloze passages that discuss different themes and topics.

iii) Pre-secondary Bridging Programme

The programme is designed to provide P6 students graduating from the EESP with a glimpse of the secondary school English curriculum and examination format before making their transition to secondary one. It aims to support students by providing them with exposure to some of the basic expectations and required skills areas to enhance their confidence and readiness to meet some of the demands of the lower secondary school English syllabus.

Video Lessons

Our EESP teachers and interns from Nanyang Technological University (NTU) pooled their ideas and resources together to create video lessons to introduce comprehension concepts to Primary 3 and 4 students. The videos were purposefully designed to provide students with a basic understanding of key concepts such as concrete nouns, abstract nouns, adjectives and a step by step approach to answering 'True or False' questions. As the videos will be used in the 'Introduction of new concept' component of comprehension lessons, the team ensured that the choice of words and explanation of terminologies are clear and direct for students' understanding. These are complemented with pictorial and visual cues to demonstrate the application of concepts they have learnt. To encourage students to engage in learning through the videos, instead of watching them on autopilot, teachers are given cues to pause at specific parts to ask students to stop, think and

respond to the questions posed. This feature is useful in allowing teachers to check on their students' understanding of the new concepts and if necessary, provide a more elaborate explanation or relevant examples that will aid their understanding.

PROGRAMME EVALUATION

RESEARCH

i   Exploring the classroom practices of the English Exam Skills Programme for Singaporean primary school children

Results of the study demonstrated that the students who underwent the EESP showed significant improvement in their test scores after a 20 week intervention. The results of this study suggest a consistent retention of concepts and skills over a longer period of time which play practical importance as students will need to remember and apply the concepts and skills they have learnt in the EESP into their exams. The results obtained from the classroom observations 20 weeks intervention revealed a consistent teaching style which explains a certain teaching routine or value system that the teacher follows. There was also evidence of teachable incidence and the process of tracking and understanding the progress of the students in the classroom.

Essentially, all of the observations revolve around scaffolding students into establishing their own metacognitive strategies in answering English questions. The study revealed that administration of multisensory, structured, progressive and emotionally sound principles in the classroom is equally or possibly even more important for the success of the students in the programme than the curriculum. The results of this study suggests that above and beyond the curriculum of the programme, the key to the success in the Exam Skills programme lies in the delivery of lessons that subscribe consistently to the RIMAIR (Review, Introduce, Model, Apply, Independent (application), Review) approach.

ii   Effectiveness of the English Exam Skills Programme on non-identified struggling learners

The study showed that learners who were not diagnosed with learning disabilities but were struggling in their school English examinations benefitted from the English Examination Skills Programme (EESP) after a 20 week intervention. Aligning with Universal Design for Learning (UDL) framework, the EESP curriculum is designed to be flexible for adaptation by providing all learners with multiple examples, opportunities to practice with support and adjustable levels of challenge. This study investigated the effectiveness of the EESP curriculum, over a period of 20 weeks, on a group of Primary 4 to Primary 6 non-identified struggling learners who were scoring below 65% in their school English Language examination paper. The results of this

study illustrate that the non-identified struggling learners were able to apply the skills and strategies taught in the EESP but needed more reviews and practice in order to reach a level of accuracy. The results and findings of this study are important in helping the EESP evaluate its teaching pedagogy and practices as it moves towards accepting learners with various learning disabilities in the future.

STUDENT NUMBERS

Total enrolment for the academic year	144
No. of students graduated	75
No. of teachers/therapists	29
Bursaries provided for beneficiaries	59

TESTIMONIALS & SUCCESS STORIES

Parent's Feedback:

Mrs Choo (Mother of Rayner Choo, P6 Standard)*
Educational Therapist: Ms Kavitha, Woodlands Learning Centre

'I was concerned about my son's English grade. He had scored 58.8% which was a grade 'C' when he was in Primary 5. We understood the increasing demands of the primary school English curriculum and examinations and wanted to support him as much as possible. Upon the advice of my son's MAP teacher, Ms Kavitha, we enrolled him in the English Exam Skills Programme. Over a period of one year, I have seen his English Exam results improve tremendously. He has recently attained a score of 75.3%, which is a grade 'A' for his P6 mid-year examinations! We were very delighted and thankful for the great effort put in by Ms Kavitha and the English Exam Skills Team to enable our son to achieve such commendable progress. We believe that the unique approach of the English Exam Skills programme and Ms Kavitha's relentless efforts in providing our son with the skills and strategies that he needed most have given him an extra boost of confidence and the ability to keep up with his school's learning tempo. Thank you Ms Kavitha!'

Student's Feedback:

Jayden Chua (P6 Standard)*
Educational Therapist: Ms Camillia, Woodlands Learning Centre

'I joined EESP in late March 2016. My English result has improved from C grade to B. I can now do Open-Ended Comprehension questions more confidently. The 3-step method Ms Camillia taught me helped me answer True and False questions. I am also more confident in answering Synthesis and Transformation questions as I am exposed to different types of sentence patterns. Before joining the programme, I would not even try answering the harder questions but now, I have more confidence when answering such questions.'

*Names have been anonymised for personal protection data purposes.

ABOUT THE AUTHORS

TUTY ELFIRA RAZAK
Programme Manager for English Exam Skills

Tuty is the Assistant Director of Academic Programmes for the Specialised Educational Services (SES) Division.

Tuty is a Lead Educational Therapist and a Programme Manager of the English Exam Skills team. Since she joined the Dyslexia Association of Singapore in 2010, Tuty is driven by the belief that teaching with compassion is the essence to a more meaningful learning journey for all children. With a keen interest in helping children with dyslexia bridge learning difficulties, Tuty believes that picture books are flexible literary forms that encourage creativity, broadened minds and imagination in both children as well as adults. Tuty has a Bachelor of Arts degree in Sociology by the National University of Singapore and has also attained a Masters in Special Educational Needs from the University of South Wales. Her research interests include self-efficacy, social-emotional learning and promoting philosophical thinking among children and young adults.

SITI ASJAMIAH ASMURI
Senior Educational Therapist

Siti Asjamiah Asmuri is a Senior Educational Therapist who joined the Dyslexia Association of Singapore in 2012. Over the years, she has been teaching and working with students with dyslexia and other co-morbidities such as Attention Deficit Hyperactivity Disorder (ADHD) and Speech and Language Impairment (SLI). She is also currently a Core member of the English Exam Skills Programme (EESP) team and has been a contributing member since 2013 where she has been directly involved in curriculum and resource development, evaluation and research, training and extending support to both students and parents in challenging components of the mainstream school and PSLE English Exams.

Siti attained her Post-Graduate Certificate in Specific Learning Differences (SPLD) in 2014 and is currently pursuing a Master of Education in Curriculum & Teaching at NIE-NTU. Together with her colleagues in the EESP, she has since completed and co-presented a paper at the NIE Conference and UNITE SPLD Conference in 2017. She has a special interest in curriculum design and programme/curriculum evaluation and hopes to enrich her professional journey in education with her direct and continued involvement in providing support for learners with special educational needs. She also hopes to continue motivating her students to pursue their passion and instil in them the innate curiosity and desire to constantly seek knowledge in their fields of interest.

ANDY LEOW WANG
Senior Educational Therapist

Andy has over six years of practical experience in the field of Specific Learning Differences, especially Dyslexia. His current work as a Senior Educational Therapist at the Dyslexia Association of Singapore (DAS) since 2012 has allowed him to take on a practical hands-on approach and remediation for students with various special needs. He is a member with the Register of Educational Therapists (Asia) and actively contributes to the curriculum development of the English Exam Skill Programme at DAS as a core team member. Andy has a keen interest in increasing public awareness and understanding of Dyslexia. His role as an awareness speaker has helped DAS in reaching out to various audience platforms— educators, parents, medical practitioners and the general public. His postgraduate academic achievements include a Postgraduate Certificate in Special Educational Needs with the University of South Wales and a Master of Education (Special Education) with the National Institute of Education, Singapore.

Seeing our dyslexic students' improve not just academically, but also in their self-esteem and confidence bring great joy and fulfilment to Andy.

**Specialised
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UNLOCKING POTENTIAL

MATHS PROGRAMME

OUR APPROACH

The aim of the SES Maths Programme is to effectively support students with dyslexia who have persistent difficulties in mathematics, particularly with maths word problems.

The programme helps to bridge the gap between your child's ability and the mainstream syllabus by addressing areas they are weaker in. This is done through a C-R-A (Concrete-Representational-Abstract) approach. 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 maths 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 forward and backward, understanding of number relationships, place value, timetable facts and following multi-step calculations.

DAS Specialised Educational Services Maths Programme

Rebecca Yeo
Maths Programme Manager
Dyslexia Association of Singapore

BRIEF DESCRIPTION OF THE SUB PROGRAMME

MATHS PROGRAMME

The SES Math Programme was officially launched in 2009. This programme helps our dyslexic students who are struggling with mathematics by teaching Math concepts in a manner that makes sense to them. This helps them to bridge the gap between what they know and what the mainstream syllabus expects them to know.

The Essential Maths curriculum aims to build students' understanding of the essential concepts and topics covered in the mainstream syllabus. Students are exposed to model drawing and problem sums related to the concept they are learning 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 working. Every stage of learning ensures that the child links mathematical ideas in a progressive and cumulative way.

The Problem Sums for Upper Primary curriculum is offered to students taking Standard Mathematics at Primary 5 and Primary 6. It aims to strengthen students' mathematical problem solving skills by encouraging students to share their thinking processes in solving a problem before the teacher explicitly demonstrates how to break down higher-order word problems and to solve them.

ENTRY CRITERIA

The programme accepts primary school students with a valid diagnosis of dyslexia, satisfying the criteria below:

P1-4	scoring below 50%
P5 & P6 Foundation	regardless of score
P5 & P6 Standard	scoring below 75%

All students exit the programme at the end of the Primary 6 year.

WHO THE PROGRAMME IS FOR

The programme is intended for students with dyslexia who display persistent difficulties in these areas of mathematics:

1) Difficulties remembering mathematical facts and procedures
2) Difficulties with perceiving the magnitude of number and size
3) Difficulties with accurate and fluent calculation
4) Difficulties understanding word problems.

QUALITY ASSURANCE

Classroom observations for all Maths educational therapists are conducted once every financial year to ensure that our teachers uphold the standards of quality mathematics teaching set out by the organization. All Math educational therapists are evaluated on their lesson planning, lesson execution, communication, and classroom management. A total of 27 Math educational therapists were assessed for quality assurance in classroom teaching practices in 2017-2018. The observations were conducted by the core team members either through in-class or video observations of their lessons. The newly trained Maths dual specialist therapists were exempted from this exercise as they had just completed their initial teacher training in the same year.

TEACHER TRAINING

A group of 11 educational therapists, with at least a year of experience teaching literacy to students with dyslexia, were trained as Maths dual specialists in 2017. They started their training with a 15-hour Certificate in Dyscalculia and Numeracy Teaching course by DAS Academy, followed by a 5-week Maths practicum. In addition, they attended 4 insets conducted by the Maths Core Team. These inset sessions addressed issues such as lesson planning and using concrete manipulatives in mathematics teaching to teach Math.

DESCRIPTION OF INITIATIVES TAKEN THIS FINANCIAL YEAR

Initiative 1: Focus group sessions for beginning teachers

Beginning teachers who have obtained their Professional Certificate Course (PCC) in Maths are expected to teach Maths classes by the next school term. To better support our teachers in their new endeavour, two focus group sessions were initiated. These focus group sessions sought to instil greater confidence in the teachers by providing them a platform to share their difficulties and for the Maths core team members to share best teaching practices.

Based on the initial feedback of their needs, the second session was tailored to cater to these needs in greater depth. Teachers were facilitated through group work, presentations and demonstrations to deepen their understanding on the use of concrete manipulatives as well as the implementation of C-R-A in lessons.

Initiative 2: New workshop initiatives

Two new workshop initiatives were conducted during the Nov-Dec 2017 school holidays to test parents' interest for Mathematics support for students in two new age groups.

The Primary Maths Readiness for K2 students was held on 23 and 24 November. The workshop aims to prepare students for primary maths by instilling confidence of pre-maths skills through hands-on activities. This was the first collaboration of workshop between the DAS Preschool and Maths teams and we had an attendance of 4 participants.

The Bridging to Secondary school Maths workshop was held on 13 December. The workshop had an attendance of 6 participants and covered the teaching of secondary 1 concepts such as prime factorisation, integers, squares & square roots, cubes & cube roots and problem solving through hands-on activities.

PROGRAMME EVALUATION

At the Dyslexia Association of Singapore (DAS), it is observed that students begin experiencing greater difficulties with Mathematics at Primary 4. This study aims to study the effectiveness of the DAS Maths teaching approach in helping students to improve their knowledge of number concepts at the Primary 4 level, measured in the form of test scores on a pen-and-paper test and to explore the types of errors students were making with number concepts at this level.

Method

The DAS Maths intervention programme identifies students' learning gaps in light of what the mainstream syllabus expects them to know and provides the support to fill those gaps. Teachers abide by dyslexia-friendly teaching principles such as being structured, sequential and cumulative; being multisensory in their teaching, and being sensitive to the emotional needs of the student. All concepts are taught by getting students to enact the mathematics using real world objects, observe the consequences of the mathematics action and record their observations meaningfully through pictorial representations (e.g. drawings, bar models, etc.) and mathematical equations.

The concepts tested in this study were from the topic of Whole Numbers at the Primary 4 level (refer to Table 1). The teachers involved in this research taught these concepts and documented their teaching in a programme plan which was collected at the end of the study. The intervention was conducted an hour per week over ten weeks (equivalent to 1 term at DAS). Thirty-four Primary 4 students from 10 learning centres participated in this study. They had been grouped into classes of similar ability based on an analysis of their school exam performance when they first entered the programme.

A pre-test was conducted during the first week to assess students' knowledge prior to teaching. The researchers had designed a test with 20 questions (a short-answer question for each concept and 4 word problems). This same test was administered at the last week of intervention to measure students' learning. The results were analysed qualitatively and quantitatively.

Results

The pre-test results revealed that some questions were attempted only by a minority of students. This low participation rate was because the students had not acquired the knowledge to answer the questions. The participation rate of individual items were analysed and those with less than 80% participation rate were excluded from further analysis (refer to Table 1). Word problems testing these concepts were also excluded.

Table 1 Participation rate for each concept at pre-test

CONCEPT	% OF STUDENTS' PARTICIPATION
Writing numbers up to 100 000 in words	96.9%
Writing numbers up to 100 000 in numerals	100%
Place value	100%
Ordering numbers	100%
Comparing numbers - find the subject of comparison	96.9%
Comparing numbers - find the difference of two numbers	90.9%
Number patterns	96.9%
Rounding off whole numbers to the nearest ten*	66.7%
Rounding off whole numbers to the nearest hundred*	57.6%
Rounding off whole numbers to the nearest thousand*	54.5%
Estimation of sums*	63.6%
Estimation of differences*	48.4%
1-step comparison word problem* (involving rounding off to the nearest thousand)	84.8%
2-step comparison word problem (involving rounding off to the nearest ten)*	84.8%
Factors*	60.6%
Common factors of two whole numbers*	54.5%
Multiples*	48.4%
Find first common multiple of two whole numbers*	36.3%
Word problem testing common multiples*	39.4%
Word problem involving factors *	48.4%

After removing the questions with low participation rate, only 7 items remained for further analysis. These items tested concepts that students would have learned since Primary 3, but used numbers up to 100 000.

Table 2 Students' performance on the remaining items.

CONCEPT	PRE-TEST SCORES		POST-TEST SCORES		T
	MEAN	SD	MEAN	SD	
Writing numbers up to 100 000 in words	0.43	0.43	0.57**	0.41	-2.54**
Writing numbers up to 100 000 in numerals	0.59	0.50	0.74	0.45	-2.64**
Place Value	0.56	0.50	0.62	0.49	-1.16*
Ordering numbers	0.71	0.46	0.88	0.33	-2.88**
Comparing numbers - find the subject of comparison	0.85	0.36	0.94	0.24	-2.80**
Comparing numbers - find the difference of two numbers	0.71	0.46	0.82	0.39	-2.99**
Number patterns	1.79	0.54	1.91	0.38	-1.65

Note. *p < 0.05   **p < 0.01

How effective was the DAS teaching approach in improving the scores of the students at post-test?

Students did make a significant improvement from pre-test ($M = 5.63$, $SD = 1.85$) to post-test ($M = 6.49$, $SD = 1.85$), t(33) = -3.98, p < .01. This suggests that the DAS approach was effective in improving the test scores of students.

What kinds of errors were students making with number concepts?

This section covers the types of errors made for the item: Express 27 948 in words. This item was selected because it had the lowest mean score.

Spelling errors

There were significantly fewer spelling errors at post-test ($M = 2.43$, $SD = 2.37$) than at pre-test ($M = 3.43$, $SD = 2.88$), t(6) = 2.51, p < .05. Spelling errors could be classified into whether they resemble the correct spelling of the word (look-alike errors, e.g. "eigth") or how the word is pronounced (sound-alike errors, e.g. "fourte"). There were more look-alike errors than sound-alike errors at pre-test and post-test. However, as most of the words spelled incorrectly (except forty, twenty and nine) are sight words (words that cannot be spelled accurately using phonics), this result is no surprise. Teachers should take note of which number words are sight words and should explicitly teach students strategies to memorize the spelling of these words. Sound-alike errors were observed only for phonetically regular words like forty, twenty and nine. This suggests that the students knew when to use their knowledge of phonics to spell these words and were actively using phonics as a coping strategy to spell difficult words. Adults should encourage students with dyslexia to sound out phonetically regular words since about 86% of all English words can be spelled accurately using phonics.

Table 3 Errors in spelling number words

NUMBER WORD	ERRORS AT PRE-TEST (FREQUENCY)	ERRORS AT POST-TEST (FREQUENCY)
Forty	fourty, fourthy, froty or fofty (9)	fourty, fourte or frothy (7)
Eight	eigth or eght (3)	eigth or egiht (2)
Seven	sveven or save (2)	not observed at post-test
Twenty	tewenty, tow, twote or twity (5)	tewty, twote, tewenty or twanty (4)
Hundred	hunrerdes, handrnad or huneght (3)	hunred or hejrd (2)
Thousand	thunns or thousend (2)	thousend (1)
Nine	not observed at pre-test	niy(1)

Punctuation errors

At both pre-test and post-test, students were observed to omit the hyphen in the spelling of 2-digit numbers such as twenty-seven. They had also omitted the comma after the word "thousands" to break up the clauses in the sentence (e.g. twenty-seven thousand, nine hundred and forty-eight).

Sentence structure errors

The main difficulty students have with writing 5-digit numbers in words is in recognizing that a 5-digit number in words can be expressed in the form of total number of thousands, hundreds, tens and ones. Teachers should use the place value chart as a visual aid to help students break up the sentence structure and help them see how the parts are connected when spelling and reading number words.

Students have also been observed to either use the connector "and" too many times or to omit it unnecessarily. Teachers should get students to practice saying and writing 3-digit numbers in words first to reinforce the position of the connector before practicing on bigger numbers.

Conclusion

This research investigated the effectiveness of the DAS Maths teaching approach in helping students to improve their knowledge of Primary 4 number concepts and explored the kinds of errors students were making with the number concepts. The results show that the intervention was effective in helping students to express numbers up to 100 000 in words and numerals; compare and order numbers; and answer place value and number pattern questions. Students were found to make spelling, punctuation and sentence structure errors when expressing 5-digit number in words. Qualitative analysis of the data yielded rich information about the errors students were making. In future papers, we would share the analysis of the other test items.

STUDENT NUMBERS

Total enrolment for 2017	364
No. of students graduated	73
No. of teachers/therapists	37
Bursaries provided for beneficiaries	207

TESTIMONIALS / SUCCESS STORIES

Dear Teacher Siti,

The DAS Math programme had helped my daughter, Charmaine* a lot.

A pass for this subject is impossible since P4 and improvement was like baby step when she started the DAS programme.

We were surprised she managed to get a C for her PSLE and she is coping well now.

You had played an important role, without a good teacher to deliver the good programme, i doubt she will be able to make it. Math is a very dry and boring subject for her, with your cheerful personality you had made it into a interesting subject, easier for her to digest and good result was produced.

She managed to pass her recent class test. Her improvement is no longer baby step, is teenager step now. LOL.

If there is programme for secondary level , it will definitely benefit her. Secondary Math is not easy, especially Secondary 3 onward.

My opinion? Simple, start the programme for Secondary students.

Best Regards
Mrs Leong*
Parent of Charmaine*
Student of Ms Siti Aishah
Bishan Learning Centre

Dear Ms Siti Aishah,

Thank you for teaching me Maths and Helping me improving. I really appreciate it. I will miss you'n. Thank you for every thing you have done for me. I will always miss you.

From:

written on Friday, march 9 2018

Thanks for putting up with my nonsense :)
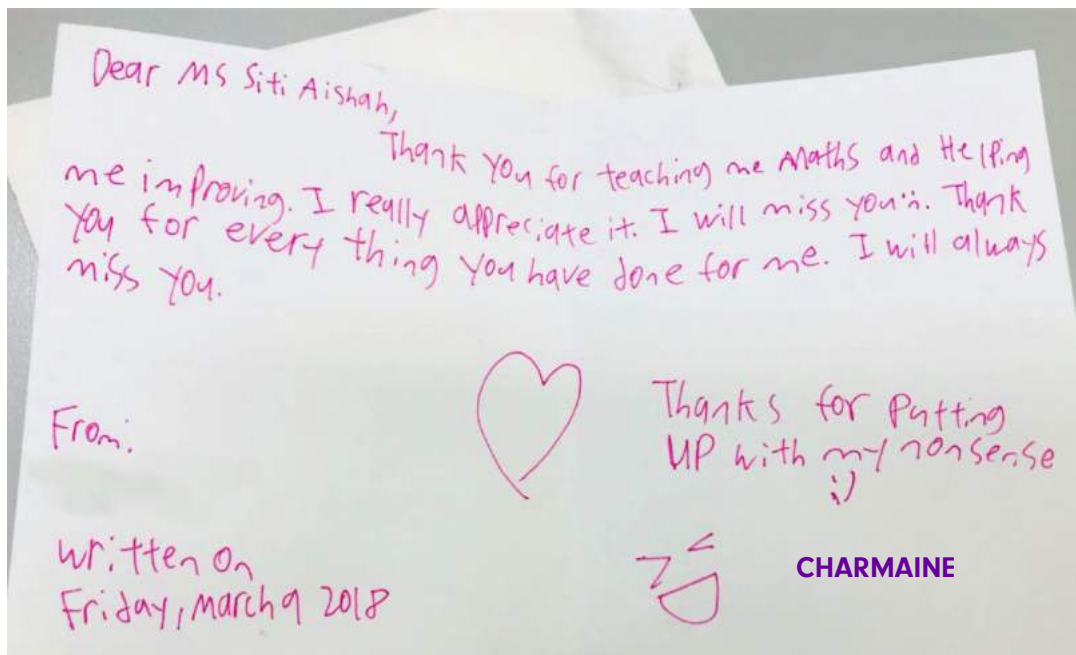
CHARMAINE

Above: From: Charmaine* Student of Ms Siti Aishah Bishan Learning Centre
Below: From Kimberly* Student of Ms Rebecca Yeo Chua Chu Kang Learning Centre

Thank YOU.!

Dear Ms Rebecca,
Thank you for being an AwsomE Math teacher to me.
I would still like to vist you again!
I will miss you!

Don't stop being funny!
I really enjoyed all the lessons! ☺
God bless you!
Take core!
With love,

KIMBERLY
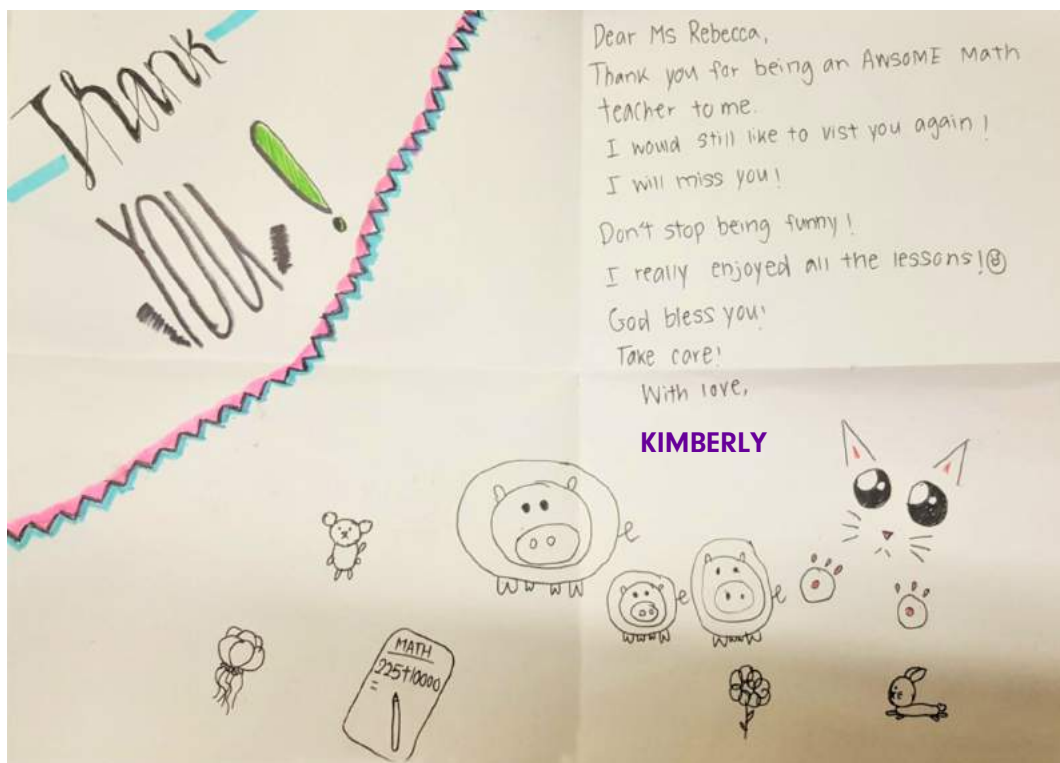
MATH
225+10000

ABOUT THE AUTHOR

REBECCA YEO
Maths Programme Manager

Rebecca Yeo is a Lead Educational Therapist with more than 7 years of experience providing Mathematics intervention to primary school students with dyslexia and mathematical difficulties at the Dyslexia Association of Singapore (DAS). As the manager for the Maths programme at the DAS, she oversees the day-to-day operations of the programme and has contributed to the development of the Math curriculums as well as the training of new Math dual specialists. Furthermore, she has conducted student workshops, teacher sharing sessions and talks with parents to provide them with strategies to help their children with Mathematics.

Rebecca has also presented at regional conferences (SENIA, February 2016; February 2017) and local conferences (Unite SpLD, June 2016; UWCSEA, May 2017).

Specialised
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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.

DAS Specialised Educational Services Speech and Drama Arts

Pushpaa Arumugam[1], Muzdalifah Hamzah[2] and Amrit Gill Kaur[2]

1.   *Assistant Director, SES Enrichment Programmes*
2.   *Senior Educational Therapist and Drama Teacher*
Dyslexia Association of Singapore

OVERVIEW 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 Speech and Drama Arts Programme focuses on three main goals. The first is to develop drama and acting skills. The next is to develop language skills through drama activities and the third goal is to enhance the social-emotional development of the students.

THE PROGRAMME AND ITS OBJECTIVES

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 Drama and Acting Skills

The majority of our students have difficulties in expressing and communicating their thoughts. Drama activity such as role-play provides stimulation to students to express themselves creatively using imaginative skills. Ranging from classroom lessons to stage performances, students are required to understand the fundamental of stage directions, character dialogues, music and light cues.

Drama, being a multimodal pedagogy, uses props, body language, facial expressions, sounds and images along with words to convey meaning (Palechourou and Winston, 2012).

Develop Language Skills

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. 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 the different level of entry. A multimodal form which combines visual, aural, verbal and kinesthetic language allows students to retain a particular learning experience firmly in their minds (Chang, 2012). Also, the 'malleability' of the learning process enables teachers to swiftly respond and adapt to any student's comments, questions or ideas (Chang, 2012).

Enhance Social-Emotional Development

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).

Other than building rapport among students and teachers through drama 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. The activities we conduct also enable the students to work together, cooperate, contribute, listen and accept the viewpoints of others and be a good team player.

CURRICULUM DEVELOPMENT

There are three individual modular based programmes, catering to different age groups, in our Speech and Drama Arts programme. In 2016, the team developed a new curriculum - "Drama, Music and Movement" that will significantly 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.

- ♦ 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

Descriptions of the various modules are as follows:

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!

Creative Drama Curriculum

Module 1: Exploring Voice and Emotions Through Coral Reading
Module 2: Dramatic Storytelling
Module 3: Role-Play and Improvisation
Module 4: Playbuilding Towards Performance

Literacy Through Drama Curriculum

Module 1: Let Idioms And Phrases Do The Talking - Idioms And Phrases
Module 2: Between The Lines - Comprehension
Module 3: Tricks Of The Trade - Vocabulary And Oral Communication
Module 4: Get The Show On The Road - Scripting A Play

Entry Criteria

The entry criteria for the Speech and Drama Arts Programme: - all primary school and lower secondary school students are welcome to enrol.

Who The Programme Is For

The Speech and Drama Arts Programme is recommended for students who want to explore the learning of language through drama skills while improving their self-esteem and ability to express themselves.

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.

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 kinesthetic approaches (Baldwin and Fleming, 2003). Gardner's Theory of Multiple Intelligences provides a theoretical foundation for recognising the different abilities and talents of students (Gardner, 2003, Pearson, 2001). Approaching and assessing learning in this manner allows a broader range of students to participate in classroom learning successfully.

Orton-Gillingham Approach

Language-based – Exposure to different texts to enhance students' appreciation of English language through Drama.

Cognitive – the activities are crafted to engage their cognition e.g. 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 a 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.

QUALITY ASSURANCE FOR SPEECH AND DRAMA ARTS PROGRAMME

We assure the quality of the programme by appropriate placement of students. Before placing the students in our SDA classes, the Educational Therapists teaching the MLP programme, are required to fill up a form indicating information such as standard score, the speed of learning, type of learner and if the student is on IEP status. This is so that the drama instructors have prior knowledge about the students.

Next, we evaluate our students' progress after each drama module is covered, by using rubrics to evaluate four different components/ skills taught during 10th lessons. A progress report will be given upon completion of each level to the parents. Other areas we look into to assure the quality of the programme are quality of our curriculum/lesson plans, class observation by Programme Manager and obtaining feedback from parents.

PROGRAMME EVALUATION DESIGN

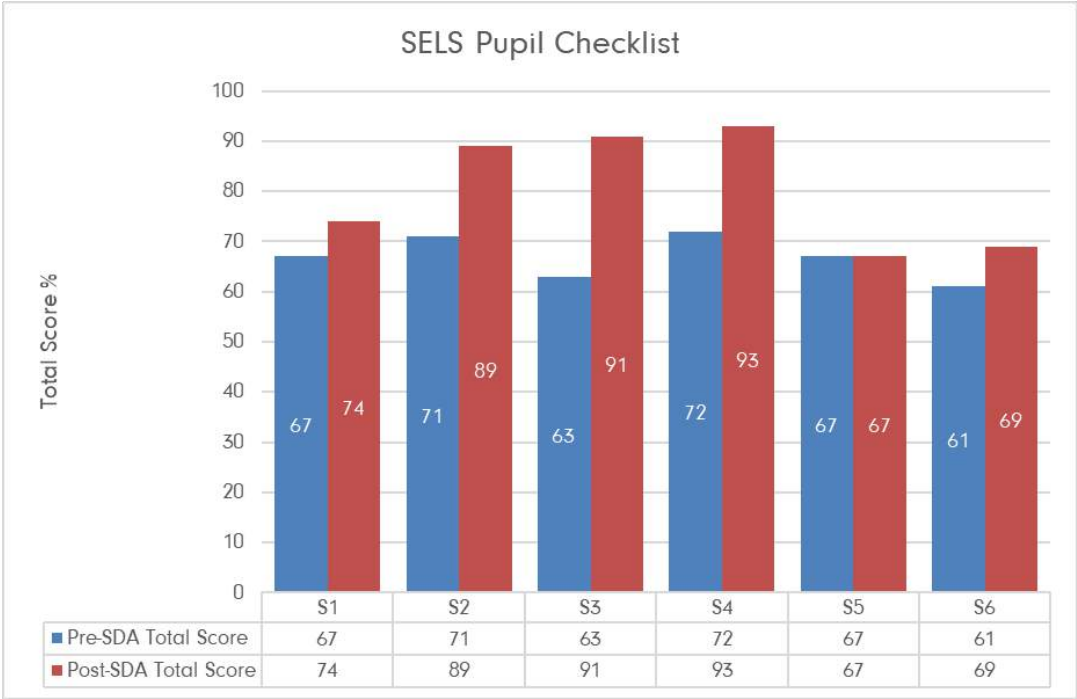### Southampton Emotional Literacy Scale (SELS) Questionnaire

With the increased awareness to discover students' strengths and weaknesses in the area of emotional literacy and 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.

The SELS questionnaires were developed by Southampton Psychology Service, which thoughtfully adapted Goleman's (1996) categorisation of skills and competencies that were relevant and will contribute to the emotional and social development of children. The questionnaires focus on two main components; personal competence and social competence. Personal competence refers to an individual's level of motivation, self- awareness and self regulation, whereas social competence centres on empathy and social skills.
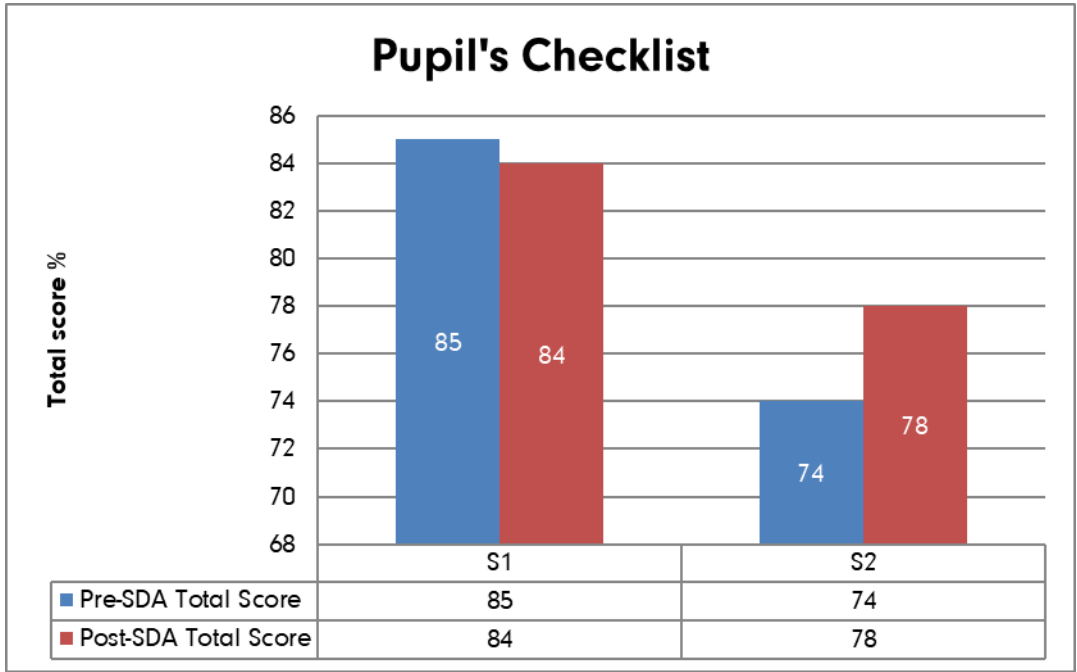
SELS Findings In 2016

Apart from being evaluated in their skills through the progress reports, new students will be given a checklist to complete. This checklist will be a reflection of their personal competence and social competence standings. The table below is the results of a pre & post pupil's checklist score in 2016.

Comparison of Pre & Post Pupil's Checklist scores in 2016.

SELS Pupil Checklist

	S1	S2	S3	S4	S5	S6
Pre-SDA Total Score	67	71	63	72	67	61
Post-SDA Total Score	74	89	91	93	67	69

Comparison of Pre & Post Pupil's Checklist scores in 2017.

Pupil's Checklist

|	S1	S2
Pre-SDA Total Score	85	74
Post-SDA Total Score	84	78

Overall, we could conclude that new SDA students who stayed in the programme for one year made good progress; and this was reflected in their post-SDA scores. However, there was no change between pre-SDA and post-SDA scores for S5. There could be many reasons that contributed to such outcomes, for example, age and ability to understand the statements in the questionnaire, which is worth exploring in the future.

SELS Findings In 2017

In 2017, SDA received 4.5 new students on average each term. Due to the criterion set for this findings, such as age, diagnosed with dyslexia by medical authority and had completed 4 terms of SDA Programme (Jan – Nov), only 2 students were identified for this comparison. From this relatively small data size, we could see that not all children with dyslexia perceived themselves as weak and incompetent among their peers. This notion is worth exploring in the future.

SELS Post-SDA Data from 2015-2017

	S1	S2	S3	S4	S5	S6	S7
Post SDA 2015	72	78	80	72	59	62	87
Post SDA 2017	87	73	72	73	71	71	75
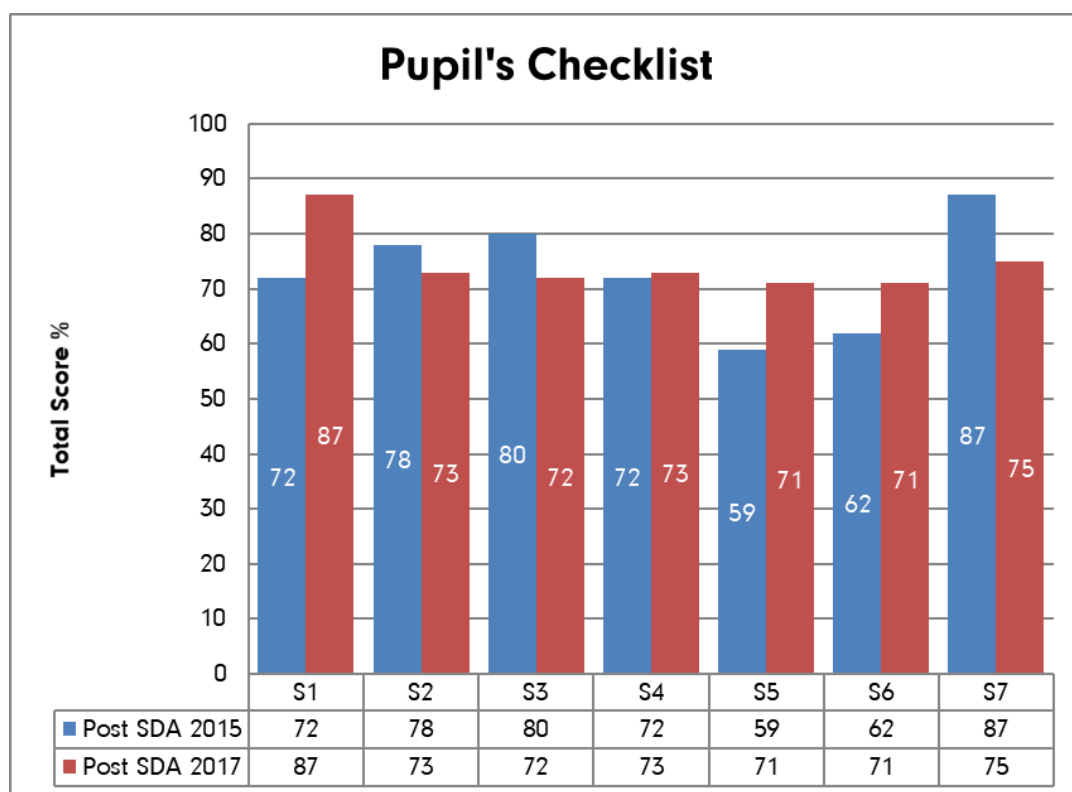
The team was able to extract data from students who joined us in 2015 and stayed until end of 2017. There were 10 students identified but only 7 students fit the age criteria of the questionnaire, which is between 7 years old to 11 years old.

Comparison of Post-SDA Scores in 2015 & 2017

The post-SDA scores were taken at the end of stated year. Qualified students were made to answer the same set of questionnaire that they did before at the end of 2015. From the bar graph, 4 out of 7 students scored better in post-SDA 2017 than in post-SDA 2015. With the questionnaire meant for 7 years old and 11 years old, we were not able to collect data from the other 3 students whose age had passed the range. This is one of the limitations that the team faced when collecting data. The other aspect that the team could consider is to conduct interview or focus group session with the selected 7 students to further determine the reasons for the increase and decrease of scores.
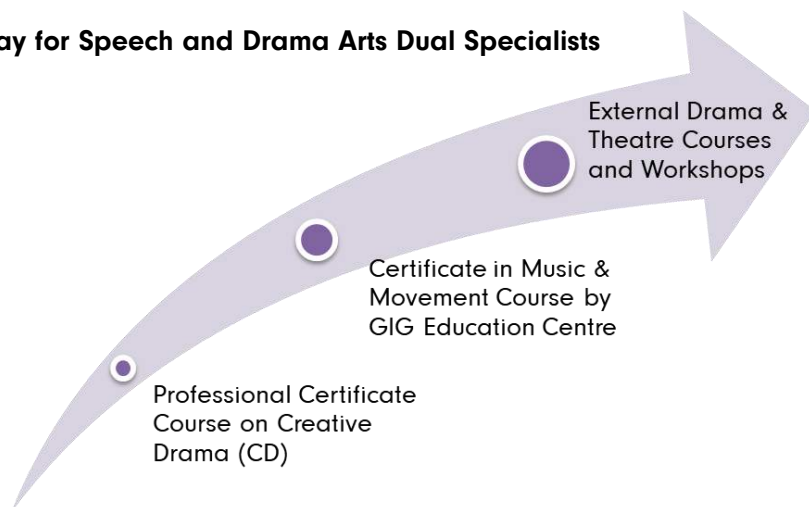
TRAINING AND PROFESSIONAL DEVELOPMENT

The training is designed for the EDTs who wish to do dual-specialisation in Speech and Drama Arts. The course provided the knowledge and skills required to teach Speech and Drama lessons. The total duration of the course is 20 hours. 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 three components stated below:

1) Teaching Practicum - 25 minutes
2) Submission of a 1-hour lesson Plan
3) 500 words Written Journal

Training Pathway for Speech and Drama Arts Dual Specialists

External Drama & Theatre Courses and Workshops

Certificate in Music & Movement Course by GIG Education Centre

Professional Certificate Course on Creative Drama (CD)

INITIATIVES: TRIAL CLASSES & SCHOOL HOLIDAY WORKSHOPS—TRIAL CLASSES

EVENTS	TERM / LC	2016	2017
SDA Trial Classes	Term 1		
	BJ8	20 Feb (CD)	-
	JPT	20 Feb (CD)	-
	TPN	-	25 Feb (DMM/CD)
	Term 2		
	BJ8	-	13 May (CD)
	QTN	-	13 May (CD)
	TPN	4 June (DMM &	20 May (CD)
	Term 4		
	TPN	5 Nov (CD)	4 Nov (CD)
	BJ8	12 Nov (CD)	4 Nov (CD)
	BJ8	12 Nov (LTD)	-
	QTN	-	11 Nov (CD)

DMM – Drama, Music and Movement
CD – Creative Drama
LTD – Literacy Through Drama

SCHOOL HOLIDAY WORKSHOPS

EVENTS	TERM / LC	2016	2017
SDA Workshops	Term 1		
	BJ8	14-16 Mar	-
	AMK	-	13-15 Mar
	Term 2		
	TPN	-	29-31 May
	AMK	30 May – 1 June	-

INITIATIVE: IN-SCHOOL SERVICES

Assumption Pathway School (APS)

In 2017, the team conducted "Speak Out: Oral Communication" workshop in APS. It was an 8-week workshop which was held on 9 January - 26 May 2017 (2 terms). The content of the workshop was crafted to meet the diverse learning needs of the Secondary One cohort (135 students).

The team received good feedback from APS teachers at the end of the workshop. Below are some comments extracted from the teacher's feedback form.

1. My students display more confidence and self esteem in oral communication and expression:
2. My students listening and speaking skills in English have improved
3. After the workshop I noticed my students demonstrated better team work in class

CHIJ St. Theresa's Convent

SDA team had the opportunity to conduct Speech and Drama Arts Programme to 12 Secondary One students. It was a 5-day workshop which was held on 30 October – 3 November 2017. The content of the workshop was designed to develop literacy, communication and presentation skills and boost the self-esteem of learners with Dyslexia.

At the end of Day 5, the teacher was given a feedback form to complete. It was a 'Yes/No' questions. She responded positively to all 6 questions pertaining to the following:

1. Students enjoyment
2. Workshop benefits to the students
3. Recommendation of the workshop to new students
4. DAS Instructors preparedness
5. Class management & engagement with the students
6. Overall satisfaction

INITIATIVE: SDA YEAR-END STUDENTS' PRODUCTION 2016

SHAKESPEARE 400

Once again, the Speech and Drama Arts (SDA) programme brightened the stage by presenting a remarkable year end student production. On 22nd November 2016, a total of 46 students from 3 various learning centres graced the stage of Genexis Theatre, Fusionopolis. The SDA team staged adaptations of three Shakespearean plays where each centre presented a play respectively.   In contrast to 2015, the SDA team staged only one play with 35 students at MDIS Auditorium. Hence this has shown how much the team has grown in their abilities.

The theme for 2016 was centred on Shakespeare's work. 2016 marked the 400th Anniversary of Shakespeare death, hence the SDA team wanted to celebrate the legacy of the greatest playwright. To help the students understand his work better, we used various performance based methods. Introduction of Shakespeare was also introduced to the children as early as in term 2 where they did various drama activities so as to understand the plays better. Exposing them at an earlier stage was indeed beneficial for the students so as to understand the story and also to learn important life lessons.

The first play, "The Merchant of Venice" was presented by Bedok Learning Centre. Draped in roman costumes, the students amazed the audience with their marvellous acting skills and articulation. This play also taught students values such as kindness and being merciful to one another.

The second play, "Lee Er" was presented by both Bishan Learning Centre and Jurong Point Learning Centre. Lee Er is an adaptation of the Shakespeare story titled "King Lear". With a localised twist, this story explored real life issues such as family, elderly care and greed.

After a short intermission, the upper primary from Bishan Learning Centre dazzled the audience with their stunning opening to their play. The play titled "Midsummer Chaotic Dreams" is an adaptation of Shakespeare's Midsummer Night's Dream.

All the students have put in a whole lot of effort in depicting the behavioural traits and stance of the various characters. Learning the vocal and physical expression required much focus and practice and our students proved that it was possible. This shows that our students have the ability to reach greater heights with effort and hard work.

INITIATIVE: SDA YEAR-END STUDENTS' PRODUCTION (2017)

JOURNEY OF THE LEGENDS

The Speech and Drama Arts (SDA) programme did it again by presenting a remarkable year end student production. On 21st November 2017, 40 SDA students graced the stage of Gateway Theatre. After staging productions in 2015 with 35 students and in 2016 with 46 students, the production in 2017 was performed by 40 students. The 40 students were from Bedok Learning Centre, Bishan Learning Centre and Queenstown Learning centre. The students ranged from 7 years old to 14 years old.

The production named "Journey of the Legends", featured three plays from Indian, Malay and Chinese literature. The three selected plays were 'Ramayana', 'Hang Tuah' and 'The Monkey King'. These 3 plays shared a common theme of incorporating the same values such as loyalty, honour and valour. The reasons for choosing this genre was to enable the students to develop an understanding of interdisciplinary education, knowledge of multiculturalism, and to have the experience of performing using a prominent piece of literature. Exposing them to the literature at an early stage was indeed beneficial to the students, as they were able to understand the story, characters and values first before delving into rehearsals.

The first play, "Ramayana" was presented by Bishan Learning Centre. It was a 30 minutes play. The second play, "Hang Tuah" was presented by both Queenstown Learning Centre and Bedok Learning Centre. After a short intermission, the lower primary students from Queenstown Learning Centre dazzled the audience with their stunning opening to their play with their narration. The play titled "Monkey King" is an adaptation of Wu Cheng-En's famous novel "Journey to the West", published in the 16th century.

The cast of "Journey of the Legends" did an exceptional job for the end of year 2017 performance. They approached the rehearsal process with positive energy and openness to learn the various cultural aspects. Their commitment and hard work that they have shown for the play are indeed commendable.

STUDENTS ENROLMENT IN SPEECH AND DRAMA ARTS PROGRAMME

We closed the year 2016 with 46 students in our SDA programme. The growth in students' enrolment mainly came from Bishan Learning Centre, with an average of 2.5 new students per term. There was a steady enrolment across the learning centres in 2017.

TOTAL ENROLMENT	TERM 1	TERM 2	TERM 3	TERM 4
2016	41	42	47	46
2017	46	50	47	47

BURSARY FOR STUDENTS

SDA programme is one of the SES programmes that is eligible for bursary. This bursary is only applicable to students who are currently on the MLP programme. The tables below show the percentage of students who were on bursary in 2016 and 2017.

% OF STUDENTS ON BURSARY	TERM 1	TERM 2	TERM 3	TERM 4
2016	34%	38%	45%	51%
2017	37%	40%	50%	51%

TESTIMONIAL FROM PARENTS

Overall, are you satisfied with the programme?

Yes, able to let children have fun and gain confidence in the process.

Yes, but have a longer session perhaps.

She has been able to read better and inject expression. Great improvement.

Yes. Improvement in speech and social skills.

Yes, it gave her the opportunity to speak up.

TESTIMONIAL FROM SDA TEACHERS

Ms 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!

Ms Amrit Kaur Gill
Senior Educational
Therapist & Drama Teacher

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.

Ms Shobana Vikiraman
Educational Therapist
& Drama Teacher

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.

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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 and Drama Instructor in DAS. She has recently completed her dissertation for Master of Arts in Special Educational Needs (MA SEN) from the University of South Wales,UK, examining the effects of using drama as a tool to develop social-emotional literacy. She has the Diploma of Educational Studies - Speech & Drama from The College of Teachers, UK. She holds the WSQ Advanced Certificate in Training and Assessment (ACTA) and is an Associate Fellow of Register of Educational Therapists Asia (RETA). Muzdalifah is a passionate and dedicated educator who believes each child has the potential to shine in any areas they pursue. She hopes to inspire her students and to develop their potentials by believing in them as unique individuals who possess boundless capabilities. Apart from teaching literacy, she is a core team member of Speech and Drama Arts (SDA) where she dual-specialises in teaching drama classes in DAS and in schools.

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.

SPEECH AND DRAMA ARTS PROGRAMME

Specialised Educational Services
UNLOCKING POTENTIAL

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

OUR AIM

The aim of the 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 that powerful tool to help students with learning differences.

OUR APPROACH

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 conducted during the lessons encourage the development of the affective domains of a child while offering multiple opportunities for meaninful communication, social interaction, discussion and feedback. Through stage performance, students also have the opportunity to understand the fundamentals of stage directions, character dialogues, music and light cues. 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.

The programme consists of three different programmes catering to the different age groups as listed below:
- Creative Drama (6-8 years old)
- Literacy through Drama (9-10 years old)
- Educational Drama (11-14 years old)

At the end of each module, parents will be invited to watch the progress of their 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 studens upon completion of each module.

RECOMMENDED FOR

Students with low self-esteem or low self-confidence, students who have difficulties expressing themselves as well as students who enjoy drama.

Class sizes are kept to a maximum of 10 students per class and are conducted once a week in a 1.5 hour session.

For more info, visit www.das.org.sg

Specialised Educational Services

UNLOCKING POTENTIAL

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.

DAS Specialised Educational Services Speech and Language Therapy

Shuet Lian Ho[1], Sharon Reutens[2], Lee Er Ker[1], Elizabeth Lim Yien Yien[2]

1.   *Senior Speech-Language Therapist*
2.   *Speech-Language Therapist*
Dyslexia Association of Singapore

BRIEF DESCRIPTION OF THE MAIN PROGRAMME

The Dyslexia Association of Singapore (DAS) recognises the importance of Speech and Language Therapy in supporting children with specific learning differences in the Singapore mainstream school population, especially with respect to the diagnosis of speech and language disorders and the provision of appropriate intervention.

The critical role that Speech-Language Therapists (SLTs) play in helping students who struggle with literacy is clearly set out in an official policy statement issued by the American Speech-Language-Hearing Association (ASHA) in 2010 which states that,

> *"(c)urrent 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."*

With this in mind, SLTs at DAS focus primarily on oral language and work on improving listening, understanding, and speaking skills, as well as social skills, all of which are critical components in the development of speech and language in children, while Educational Therapists work on improving the children's reading and writing (literacy) skills which are critical to the development of written language.

The scope of work of SLTs at DAS is based largely on the description of speech and language therapy as prescribed in the Second Schedule of the Allied Health Professions Act 2011, which states that, "Speech and Language Therapy involves the assessment, diagnosis, treatment and management of communication disorders" and that "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."

Speech and language therapy at DAS is consequently determined by the individual child's needs. Issues with speech and language are addressed by remediating core deficits and building up speech, language and communication skills, guided by best practice, in an interactive and multisensory learning environment so that children can be enabled to reach their full potential in accessing the MOE-Aided DAS Literacy Programme (MAP) at DAS, as well as the curriculum in mainstream schools.

ENTRY AND EXIT CRITERIA

Speech and language therapy at DAS can be accessed by children ranging from preschoolers to secondary school students, with or without a diagnosis of dyslexia, regardless of whether they are enrolled in any other DAS programme at the time of enrolment. The DAS SLTs are experienced in working with children diagnosed with dyslexia, various specific learning disorders, developmental language delay, global developmental delay, and autism spectrum disorder.

Children are discharged from speech and language therapy when they have achieved the goals targeted in their Individual Intervention Plans (IIP). The IIPs are decided in conjunction with parents, as well as the students themselves where applicable (i.e. for older students).

WHO THE PROGRAMME IS FOR

Speech and language therapy is suitable for children who have issues with Speech, Language and Communication Needs. These children may experience difficulties with speech (mispronunciation or distortion of sounds when speaking), language (difficulty understanding or expressing him/herself at an age-appropriate level), pragmatics (difficulty with social skills like interacting with others at an age-appropriate level), fluency (stammering/stuttering), and voice (issues with loudness and/or quality of voice used), or a combination of these.

QUALITY ASSURANCE AND TEACHER TRAINING

Student progress is monitored and tracked through the students' ability to meet targeted goals in their Individual Intervention Plans (IIPs) as therapy progresses. In addition, the SLT team engages an external SLT consultant who is an acknowledged expert in the field to provide clinical mentorship and critical feedback on the quality of therapy provided. In 2017, the team conducted a series of case studies to guide and inform future therapy, and is in the process of undertaking a small evaluative study on the effectiveness of DAS speech and language therapy for 2018.

All DAS SLTs are registered with Full Registration with the Allied Health Professions Council (AHPC) and hold current and valid practising certificates, renewable every two years. They undergo at least 50 hours of Continuing Professional Development (CPD) per year, attending in-depth training in specialised clinical-related areas and in working with the target population, engaging in case sharing on a regular basis, and participating in additional workshops for self- and professional development through teams-teaching-teams, etc.

DESCRIPTION OF INITIATIVES TAKEN THIS FINANCIAL YEAR

Speech and Language Assessments

Besides conducting therapy, the SLTs at DAS conduct speech and language assessments which assess a student's speech as well as his/her receptive and expressive language abilities. These assessments seek to identify an individual's strengths and weaknesses with respect to speech and language. Each assessment includes an interview with the child's parents to obtain case history as well as the completion of both dynamic assessments and standardised assessments such as Clinical Evaluation of Language Fundamentals® - Fifth Edition (CELF-5) by the student. CELF-5 is a comprehensive and flexible assessment used to assess a student's language and communication skills, determine the presence of a language disorder, describe the nature of the language disorder and provide directions in therapy planning.

In 2017, the DAS SLTs conducted a total of 8 speech and language assessments, with the breakdown per term as follows:

2017	TERM 1	TERM 2	TERM 3	TERM 4	TOTAL
Number of Speech-and-Language Assessments conducted	1	2	3	2	8

WORKSHOPS AND TRAINING CONDUCTED BY DAS SPEECH AND LANGUAGE THERAPISTS					
DATE(S)	TYPE	EVENT TITLE	PARTICIPANTS	SLT(S) INVOLVED	NUMBER (APPROX)
14 Feb 2017	In-house Inset	Overview of SLT - Tips on how to help students in the classroom	DAS Educational Therapists and DAS psychologists	Ho Shuet Lian and Lee EK	~12
18 Mar 2017	Preschool Seminar 2017	Keynote: Facilitating your child towards being a better social communicator	Parents and education professionals	Sharon Reutens	~200
18 Mar 2017	Preschool Seminar 2017	Workshop: Strategies to promote children's speech and language development in the early years	Parents and education professionals	Elizabeth Lim and Lee EK	~160
19 Apr 2017	In-house Inset	Case study discussions	DAS Educational Therapists (Preschool)	Elizabeth Lim and Ho Shuet Lian	~12
20 & 27 May 2017	External Training (DAS Academy)	Certificate in Understanding Speech and Language Impairment	Parents and education professionals	Ho Shuet Lian and Sharon Reutens	18
20 Jun 2017	UnITE SpLD 2017	Presentation: Evidence-based Vocabulary Instruction for Early School-Aged Children	Parents and education professionals	Ho Shuet Lian	~200

WORKSHOPS AND TRAINING CONDUCTED BY DAS SPEECH AND LANGUAGE THERAPISTS					
DATE(S)	TYPE	EVENT TITLE	PARTICIPANTS	SLT(S) INVOLVED	NUMBER (APPROX)
23 Jun 2017	SES Workshop	Oral Exam Skills for Primary 6	Students from mainstream schools	Sharon Reutens, in collaboration with the DAS English Exam Skills team	9
18 Jul 2017	External Training	Classroom Support for Learners with Speech and Language Impairment @ Northlight School	Teachers from Northlight School	Ho Shuet Lian	20
16 Aug 2017	In-house Inset	Speech and language Therapy at DAS: An Overview	DAS Educational Therapists	Elizabeth Lim	~12
23 Aug 2017	In-house Inset	Case study discussions	DAS Educational Therapists (Preschool)	Elizabeth Lim and Lee EK	~12
27 Sep 2017	External Training (DAS Academy)	Master of Arts in Special Educational Needs - Understanding Learning Difficulties and Disabilities module (Speech & Language Development & Difficulties)	Education professionals	Ho Shuet Lian	4
7 Oct & 14 Oct 2017	External Training (DAS Academy)	Certificate in Understanding Speech and Language Impairment	Parents and education professionals	Elizabeth Lim and Lee EK	13

Workshops and training

In addition to the provision of regular therapy and assessment services, SLTs were actively involved in conducting workshops and training, as well as raising public awareness. Workshops were run for students, and training was provided to both DAS staff as well as to parents, education professionals and members of the general public.

New workshop for students

The PSLE Oral Exam Skills Workshop for Primary 5 and Primary 6 students was a new workshop developed in collaboration with the English Exam Skills team in 2017. The enriching oral preparation workshop was conducted by Ms. Siti Halimah Binte Mohamed Yahaya, Ms. Emilyn See Hui Zi and Ms. Sharon Reutens on 23 June 2017, at the Chua Chu Kang Learning Centre, running for 2.5 hours in the morning. Nine participants took part in the workshop which introduced tips for Reading Aloud and Engaging in Conversations.   As the needs of each child was different, the content was adapted for the individual where necessary.

Placement for National University of Singapore (NUS) Master of Science (Speech and Language Pathology) students

In 2017, DAS SLTs Ms. Ho Shuet Lian, Mr. Lee EK and Ms. Sharon Reutens were appointed Clinical Educators to two students from the NUS Master of Science (Speech and Language Pathology) programme during their placements at DAS from 2 October to 10 November 2017. The two students were guided and mentored in conducting both formal and dynamic speech and language assessments. They gained considerable first-hand experience conducting assessments and benefitted from the knowledge and experience of the DAS SLTs involved.

Based on their experience, they gave very positive feedback that the DAS SLTs provided solid guidance which furthered the development of their clinical skills, and they found the DAS SLTs highly encouraging and supportive throughout the whole placement. The DAS SLTs involved were grateful to be part of the clinical growth of the future generation of speech-language therapists.

Research

The SLTs initiated an evaluative study on the effectiveness of DAS speech and language therapy in 2017. The study is currently ongoing and utilises a small-n quasi-experimental design with a control group without random assignment of participants to conditions (i.e., an intervention/therapy condition and a control condition). A total

of 12 participants with the intervention/therapy condition and 11 participants in the control group are in the process of being pre- and post-tested using the core subtests of the CELF®-4 standardized language assessment. All participants have been recommended to seek SLT support by psychologists, medical, allied health or education professionals. Participants in the control group were on the waitlist during the period of study and are progressively being offered SLT service after the study as SLT slots become available. Only the participants in the intervention/therapy condition undergo therapy for at least a school term between the pre- and post-test.

The assessment results of participants from both groups will then be statistically analysed and compared to see how the language skills of those who have undergone intervention/therapy have developed compared to those who have not done so.

STUDENT NUMBERS

Students who underwent speech and language therapy were between six and sixteen years old. They attended one-hour weekly individual or group speech and language therapy sessions at one of the DAS Learning Centres, namely Bishan, Jurong Point, Tampines, Parkway Parade and Woodlands. Most of the speech and language therapy students were also attending the Main Literacy Programme (MLP) at DAS.

The breakdown of student numbers, the number of therapists, the number of bursaries provided for beneficiaries per term in 2017 is as follows:

2017	TERM 1	TERM 2	TERM 3	TERM 4	TOTAL
Student enrolment	113	136	144	142	535
Number of SLTs	4				4
Bursaries provided for beneficiaries (DAS General Pool)	60	76	88	92	316

PROGRAMME EVALUATION

In 2016, 20 students who underwent speech and language therapy were randomly selected for progress evaluation. They were between seven and sixteen years old and all of them have been diagnosed with dyslexia. These students attended both Main Literacy Programme (MLP) and speech and language therapy at DAS. At the beginning of each term, an Individualised Intervention Plan (IIP) consisting of intervention goals (IIP goals) was tailored for each student based on the results obtained from a speech and language assessment and/or informal and dynamic assessments. IIP goals that were targeted for intervention included goals pertaining to speech, phonological awareness, receptive and expressive language, pragmatics as well as voice. Each student's progress was measured at the end of each term according to the percentage of IIP goals the student had achieved by 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 skills. For example, a student would be set a receptive language goal in Term 1 which was to follow simple 1-step spoken instructions. After the student had met the goal, his receptive language goal in Term 2 would be to follow complex 1-step spoken instructions. The student would then progress to follow simple and complex 2-step spoken instructions in the following two terms.

The quantitative data collected in 2016 showed that 10% of the students consistently met all the IIP goals over 4 academic terms. 60% of them achieved 90% to 99% of IIP goals at the end of Term 4. The remaining 30% achieved 80%-89% of IIP goals at the end of Term 4. This is represented in Figure 1.
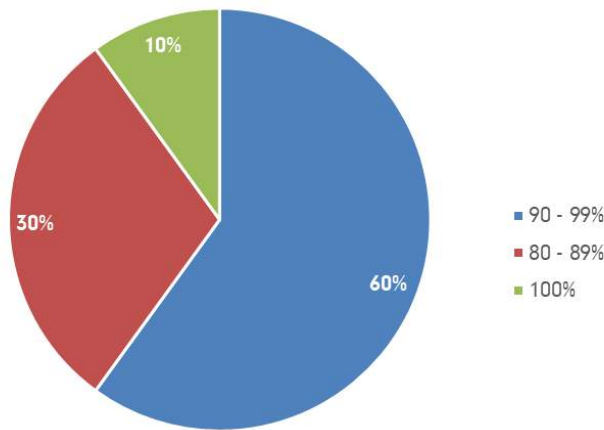

Figure 1: Percentage of students who achieved a year-to-date (YTD) percentage of IIP goals at the end of Term 4 (2016 data)

Looking at the overall results achieved by the students, one can conclude that the students have made good progress in speech and language therapy at DAS.

The quantitative data collected in 2016 also revealed that therapy targeting phonological awareness and voice achieved a 100% success rate. It was likely due to the fact that phonological awareness is 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). With regard to therapy targeting voice, goals could be achieved within a year when students were motivated to speak audibly. Therapy targeting receptive language, expressive language and pragmatics had a success rate of between 80% and 90%. Therapy targeting speech had the lowest success rate of 71%. Among the students who worked on speech goals, a few of them had speech features characteristic of verbal dyspraxia. The chart showing the typical overall percentage of IIP goals "Met" and "Not Met" at the end of a school term can be found in Figure 2..

With results of the programme evaluation for 2016 in mind, a series of case studies - with an emphasis on speech cases - were undertaken in 2017 to seek more in-depth insight into the effectiveness of speech and language therapy on students.
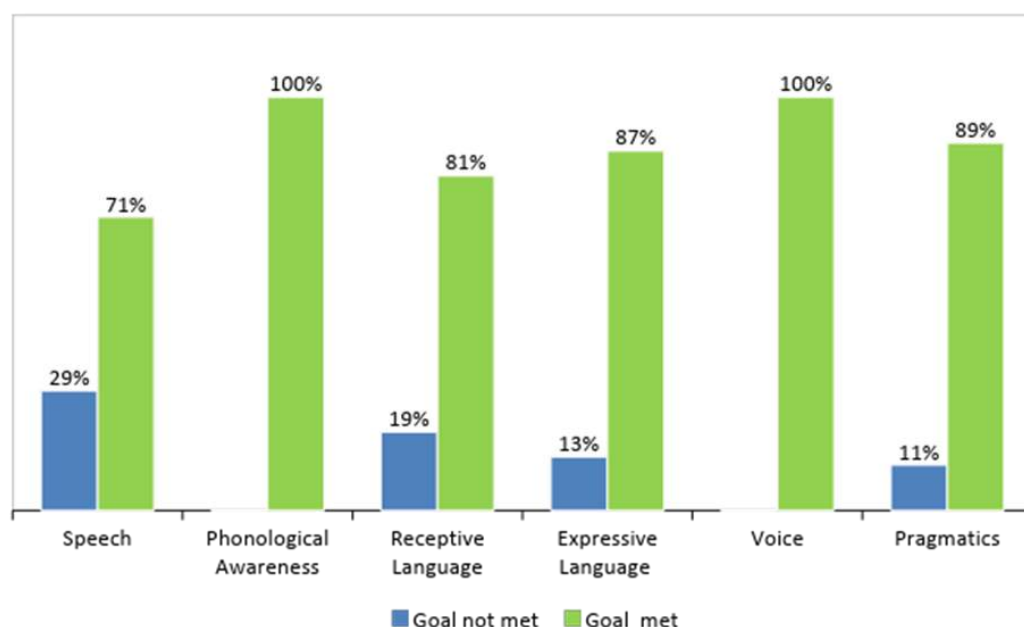
Figure 2: The typical overall percentage of IIP goals "Met" and "Not Met"
at the end of a school term (2016 data)

CASE STUDY 1

In November 2014, the MOE Associate Psychologist diagnosed C with dyslexia. In addition, C was reported to have poor language skills as well as speech difficulties. C was further diagnosed with a severe speech and language disorder by an SLT at DAS. Some of his speech features were characteristic of verbal dyspraxia and he was noted to have very poor auditory discrimination ability as well. His language disorder was also compounded by his limited exposure to English language at home. It was recommended that C consulted an Audiologist to assess his hearing abilities as well as to consult an Occupational Therapist to assess whether he was dyspraxic.

C began group literacy intervention as well as individual speech and language therapy at DAS following the assessments. He completed four terms of one hour weekly speech and language therapy from January to November with therapy breaks during the school holidays. He had an average of 3 goals per term, primarily working on improving his speech intelligibility and general communication. The principles of motor learning which include repetition, multimodal cuing and feedback were adopted in the treatment programme. Although C was cooperative and attentive in the sessions, his progress was slow.

Studies have shown that children with verbal dyspraxia benefit from frequent repetitive practice in shorter sessions. "To summarize, although there are differences in definitions of intensive remediation for children with CAS (Childhood Apraxia of Speech), there appears to be emerging consensus within the literature that therapy should be conducted at least three to five times weekly, in sessions lasting between 30 and 60 minutes each, and that the intervention should be conducted on an individual basis" (Hall et al., 2007). Home practice and support is essential.

C made slow progress in the remediation of his speech problem, likely due to the severity of his multiple learning difficulties as well as the lack of intensive remediation as C attended only an hour of remediation weekly. In addition, home practice and support were not available as his parents could only provide Mandarin speaking role models at home and they spent long hours at work. Due to cost constraints, C could not afford to attend more frequent therapy.

CASE STUDY 2

SZ was diagnosed with severe speech articulation disorder and literacy delay by an SLT from the Department of Child Development (DCD) at KK Women's and Children's Hospital (KKH) in May 2013. Since then, she underwent several packages of speech and language therapy with DCD, KKH. Despite showing improvements, she was noted to continue "to have articulation difficulty which at times makes it difficult to comprehend her conversation".

She was further diagnosed with a specific learning difficulty in literacy (dyslexia) by a DAS specialist psychologist in April 2015. Since then, she has had literacy intervention in a group setting with DAS, and was documented to have made good progress in her reading and writing skills.

SZ joined the DAS speech and language therapy programme due to logistical issues involved in sending her for therapy at KKH as both parents were working. At DAS, she was assessed and observed to display characteristics consistent with a diagnosis of verbal dyspraxia. She was found to possess good auditory discrimination ability. At the end of the case study period, she had completed four terms of one hour weekly speech and language therapy in an individual setting, averaging 10 one-hour sessions per term. Goals for therapy during this period targeted improvements in articulation and speech intelligibility.

During therapy, a motor-programming approach was adopted and therapy incorporated several key principles of motor-learning. In addition, a sensory cueing approach that involved the use of the child's senses (e.g., vision, touch), as well as gestures, was used to facilitate the production of more accurate targeted speech sounds which were problematic. Moreover, SZ's condition was explained to her using language and terms she understood, and more general techniques like reducing her speech rate and regulating her breathing patterns in conversations were also introduced.

SZ was extremely motivated during sessions, and carried out all the therapeutic activities that were planned at every session. Furthermore, home practice, which often comprised a series of short speech production exercises, was emphasized. SZ's caregiver, and occasionally her mother, sat in during sessions to observe how therapy was carried out. They then ensured that SZ followed through with regular and daily home practice between weekly speech and language therapy sessions. SZ's mother was highly supportive and encouraged her constantly to become clearer in her speech.

SZ made excellent progress at the end of intervention period. She achieved the

therapy goals that had been set. Furthermore, she was reported to be clearer in her speech by her mother and more confident overall. Her mother also shared that SZ's teachers had noticed an increase in speech intelligibility and in SZ's confidence when she spoke. SZ herself mentioned that her friends in school did not make as much fun about her speech as they once did.

Although SZ's speech disorder was severe, she was able to achieve much progress because she did not have considerable co-morbid issues that would hinder her learning. She was highly aware of her own errors in speech, for example, and would self-correct independently. Furthermore, SZ's progress can be attributed to the fact that she was highly motivated, and supported by a very positive family environment that encouraged her to practise applying what she had learnt to improve her speech daily.

CASE STUDY 3

XY, a six-year-old Kindergartner was referred to speech and language therapy by a DAS Preschool Educational Therapist. She reported that she observed XY consistently mispronouncing some words and sounds. For example, XY enunciated "god" as "dod", he produced phoneme /k/ that sounded like "er" and phoneme /z/ that sounded like "ji". XY's grandmother reported that XY called his grandfather "Ah Dong阿东" instead of "Ah Gong阿公" and his aunty "Dudu嘟嘟" instead of "Gugu姑姑".

XY commenced speech and language therapy in April 2017 (Term 2). The DAS SLT did an oro-motor assessment and XY's oro-motor skills were found to be within normal limits. A word discrimination test was administered to measure his ability in recognizing the differences in speech sounds. When a child is able to listen and recognize fine details accurately, it will be easier for him to self-monitor his own speech production and self-correct mis-articulation. The word discrimination test result revealed that XY's ability in discriminating similar sounding words was not strong. The SLT analysed XY's speech sample and noted the following speech sound errors:

- ♦ Misarticulation of phoneme /k/, phoneme /g/ and phoneme /z/
- ♦ Velar Fronting. This means phonemes /k/ and /g/ which are made in the back of the throat are substituted for phonemes /t/ and /d/ which are made in the front
- ♦ Interdental (frontal) Lisp. The tongue sticks out between the front teeth when a child produces phonemes /s/ and /z/ that sound like "th" (e.g., please -> pleath)

Fun and interactive activities which focused on correct placement as well as practice of target sounds and words were carried out during the hourly speech-language therapy session each week. In each session, 80% of the time was spent on articulation therapy and the remaining time was spent on language therapy. Target word selection was largely based on high frequency words which were part of XY's functional vocabulary as they would motivate XY to practise saying them often in different settings such as at home and in school. XY also worked on strengthening his auditory discrimination.

At the end of term 2 2017, XY had eliminated the speech sound error caused by an interdental lisp when he produced the target words in structured activities 80% of the time. He demonstrated self-awareness and good control of his articulators when he enunciated the target words. Occasionally, he required gestural prompts or verbal reminders during spontaneous speech production. XY could enunciate a few high frequency words such as "OK", "key" and "teacher Kelly". However, his enunciation was effortful and his performance was inconsistent. Although XY did not demonstrate any self-monitoring ability, he was able to self-correct his production when prompts (verbal prompt, gestural prompt and/or modelling) were given.

At the end of term 3 2017, XY could consistently enunciate high frequency words such as "please" and "yes" without an interdental lisp in spontaneous speech. No prompts and reminders were needed. Furthermore, he had eliminated the fronting error still observed at the end of the previous term in the production of the phoneme /k/ in high frequency words with the target sound in any word position as well as a few target words ending with phoneme /k/ at the phrase level. His production of the phoneme /k/ was effortless. XY also eliminated the fronting error when he enunciated "Ah Gong 阿公" and "Gu Gu 姑姑". All his family members, in particular his grandfather and his aunty, were overjoyed when they heard XY saying "Ah Gong 阿公" and "Gu Gu 姑姑". While eliciting phoneme /g/ from XY, he learned how to gargle water. He could also produce the phoneme /z/ at the isolated sound level. In addition, he demonstrated good ability in discriminating front (/d, t/) vs back (/k, g/) sounds as well as voiced (e.g. /d, g/) vs voiceless (e.g. / t, k/) sounds.

At the end of term 4 2017, XY could enunciate 1-2 syllables words with the phoneme/ z/ at word initial or word final position. Moreover, he developed the good ability to discriminate long (e.g. /z, s/) vs short (e.g. /d, k/) sounds. XY was subsequently discharged from the speech-language therapy service as he was speaking more intelligibly.

CASE STUDY 4

MQ, a seven-year-old student in Primary 1, was referred to speech-language therapy by a DAS Preschool Educational Therapist because of difficulty pronouncing /k/, /g/ and /kw/. His parents also expressed concern about his reading and spelling difficulties.

MQ commenced speech-language therapy in a group in April 2017 (Term 2). The Speech-Language Therapist (SLT) did an oro-motor assessment and MQ's oro-motor skills were found to be within normal limits. The Caroline Bowen Quick Screener was administered to assess his speech. The SLT analysed the results and noted the following speech sound errors:

- ♦ Velar Fronting of phonemes /k/, /g/ and /ng/. MQ consistently produced /k/ as /t/, /g/ as /d/ and /ng/ as /n/ in isolation and in all word positions and clusters.
- ♦ Gliding. MQ consistently produced /r/ as /w/ in isolation and in all word positions and in some clusters. He was not able to produce /br/, but he was able to produce an approximate /tr/. MQ was not able to imitate the curling of tongue tip to produce retroflex /r/ despite being able to lick his lips all-round and being able to raise his tongue tip to produce /l/.
- ♦ Devoicing. MQ produced /v/ as /f/.
- ♦ Substitution of /th/ and /s/ in different words. MQ produced word-initial /th/ as /s/, as in he produced "thumb" as "sum", but he produced word-final /s/ as /th/, as in he produced "glass" as "glath".
- ♦ Immature sound productions. MQ produced
    - an immature /z/, with stoppage of airflow, and it was not stimulable even in isolation.
    - /sh/ and /ch/ with insufficient lip rounding and insufficient tongue tip retraction. His /sh/ sounded more like an /s/, and his /ch/ sounded like /ts/.

Auditory discrimination activities were carried out, and it was found that MQ was able to discriminate between word-initial /k/ and /t/, /g/ and /d/, /r/ and /w/, /v/ and /f/, /s/ and /th/, and /s/ and /sh/.

Therapy consisted of multisensory activities which focused on correct placement as well as practice of target sounds each week.

Target sounds /ch, sh, k, t, g, p, b /

At the end of Term 2 2017, MQ had achieved a more acceptable production of isolated and syllable-initial /ch/ and /sh/ with increased lip rounding when he produced the target sounds in structured activities 80% of the time. However, he needed gestural prompts or verbal reminders to use the tactile cue of touching his lip corners, and he tended to squeeze his lips into a more rounded position. Although MQ did not demonstrate any self-monitoring ability, he was able to self-correct his production when prompts (verbal prompt, gestural prompt and/or modelling) were given.

/k/ was finally elicited through a combination of modelling, explicit teaching on placement and sound production, and the use of multisensory cues (e.g. use of mirror for visual feedback and tactile cues) combined with visualization-cum-role-play in which MQ was asked to hold his neck gently and to pretend that he was choking. Thereafter, MQ was able to produce isolated /k/ just with verbal reminders to keep his mouth wide open as he used his tactile self-cue of gently holding his neck.

More auditory discrimination activities were carried out, and it was found that MQ could not discriminate between the following word-final sounds : /k/ and /g/, /k/ and /t/, /g/ and /t/, /n/ and /ng/. He also could not discriminate between /th/ and /f/.

At the end of Term 3 2017, MQ could produce /k/ in different word positions and word-initial /g/ in words such as "care, key, take, tickets, cactus, napkin" and "goal, ghost, good" in structured activities 80% of the time with verbal prompts. MQ would self-correct by raising his own hand towards his neck when reminded. He also produced /ch/ and /sh/ in different word positions with sufficient lip rounding in structured activities 80% of the time without prompts.

In Term 4 2017, therapy targeted the production of word-medial /g/ in words such as "digger, hugger, bigger, dragon" as well as getting MQ to add a schwa behind words ending in /g/ in order to elicit a voiced word-final /g/. The SLT explicitly taught MQ to differentiate between word-final /g/ and /k/ in a tactile manner, by getting him to feel the vibrations at the throat/neck when the exaggerated /g/ followed by a schwa is produced, and the significantly greater explosion of air when /k/ is produced as compared with /g/. The SLT also realized that MQ had difficulty producing all plosives with sufficient air pressure for the explosive release of air, such as in his production of word-initial /p/ and /k/.

To address these articulation as well as MQ's auditory discrimination difficulties, the minimal pairs of word-initial and word-final /k, g/ and /k, t/, as well as word-initial /p, b/ were targeted.

At the end of Term 4 2017, MQ was able to enunciate as well as discriminate the contrasts in /k, t/, /g, t/, /k, g/ and /p, b/ in different word positions in single words in structured activities 80% of the time with occasional visual-verbal prompts (eg. looking at SLT's mouth to differentiate back vs front sounds of /k, t/, and picture of a cloud of air for voiceless plosives).

Phonological awareness, Phonemic awareness and Spelling

With MQ's improvements in articulation and auditory discrimination of these sounds, there were also improvements in his spelling of single words which contained these phonemes, such as being able to correctly spell words such as "bat, back, bag, hut, hug, frog, frock, shot, shock", which he previously could not.

CASE STUDY 5

LC was referred for Speech-language therapy in January 2015 when he was 6 years old and in Primary 1. His father shared that while trying to explain himself, he might get stuck and would get frustrated with his thoughts and words getting jumbled up. As a result, he would keep quiet and give up.

He first presented with a lateral lisp and poor receptive and expressive language. He had difficulty with concepts and following directions, poor word and sentence structure and poor vocabulary. LC's spontaneous sentences generated were generally short.

LC was a little delayed in talking; his father said he started single words at age 2 and was not really putting words together until he was age 4-5. His sentences were immature-sounding and made below-age-level grammar mistakes mis-producing past tenses of verbs. He was also having difficulty with syntax (word order). LC was also experiencing difficulty in school with reading comprehension and expression as well as writing, and spelling.

Work in speech therapy included identifying the specific grammar targets and practicing their appropriate use first in structured activities and then in conversation. Basic sentence structure were worked on. In 2017, targets included the use of connectors 'and' for joining two ideas or activities, 'because' and 'since' to show reason and causal relationships, 'but' to express differences, 'or' to indicate choice and 'before' and 'after' to indicate temporal sequence. LC was able to successfully join 2 sentences using these connectors in sessions and also used 'and', 'because', 'before' in his spontaneous speech and written compositions. Apart from the targeted connectors explicitly taught in sessions, generalization was achieved with his spontaneous accurate use of 'so' to show result, 'as...as' in comparison, 'even

though' for conditions, 'for' in expressing reason, 'also' and 'when' in speech and writing. The use of these connectors are functionally useful for LC's use in his mainstream classroom when explaining reasons, differences and sequencing in his English lessons but they are also important in understanding and expressing responses in Math and Science. They are functional connectors for everyday use in life. LC's positive learning attitude and excellent progress won him the Speech-language Therapy Good Progress Award in the 2017 SES Achievement Awards Ceremony on 25 November 2017.

CASE STUDY 6

DC was a seven-year-old enrolled in Primary One in a mainstream primary school. DC has been diagnosed with a moderate speech sound disorder (in 2016), dyslexia (in 2017) and a severe language disorder in both the receptive and expressive modalities (in 2017). He was recommended for speech and language therapy at DAS in November 2016 on the recommendation of his DAS Educational Therapist, who noted DC's difficulties with articulation and understanding spoken instructions on top of literacy concerns. Prior to this, DC had started attending the Early Intervention Programme for Infants and Children (EIPIC) with speech and language therapy support and the DAS Preschool Programme after a referral to KK Women's and Children's Hospital (KKH) about a year earlier to investigate parental concerns in these areas.

DC's mother prioritised articulation as the key area to be worked on when he began speech and language therapy at DAS in January 2017, citing continued issues with speech intelligibility and DC's growing self-consciousness of his speech deficits. After two terms of therapy, DC saw improvements in speech intelligibility due to his diligence and high motivation in completing therapy activities during sessions and at home.

Subsequently, the focus of therapy from Term 3 turned to supporting DC's language and vocabulary development, based on his poor performance and a detailed analysis of errors and observations of his responses on the Clinical Evaluation of Language Fundamentals – 4th UK Edition (CELF-4UK). CELF-4UK is a standardised clinical tool used to identify language abilities and weaknesses of school-age students.

Vocabulary intervention took up approximately 30 minutes per session, with the remainder of each one hour speech and language therapy session targeting other language areas. Appropriate target vocabulary were chosen in consultation with DC's mother such that the target words were relevant and functional in meaningful contexts for DC. Most of these words were Tier II words (Beck et al., 2002) which are

deemed likely to be useful across a variety of settings and in supporting his understanding of teacher talk in the classroom. The target word list included verbs, nouns, adjectives and adverbs (e.g. "appear", "check", "care", "chew", choose", "explain", "include", "observe", "organise", "participate", "plan", "praise", "prepare", "shout", "tease", "decision", "example", "relief", "row", "shade", "trouble", "fewer", "half", "proud", "warm", "both", "ago", "likely", "tomorrow", "yesterday", etc.).

Vocabulary intervention involved semantic therapy in which activities were focused on facilitating DC's ability to be aware of and conceptually form discrete semantic categories to help him organise and make more sense of vocabulary input (i.e. categorising words by broad, followed more detailed semantic categories; discussing their attributes; comparing similarities and differences with other words, etc.). Vocabulary intervention also involved the instruction of the meanings of target words, with explanations represented visually, supported by the written and spoken forms of the target words, and increasing the depth of the word meanings through comparisons with other words familiar to DC which are similar or opposite in meaning. Simple games were usually played at the end of vocabulary intervention to provide DC with more exposures to and opportunities to use the target words in speech. Furthermore, auditory discrimination and phonological awareness intervention activities were carried out, in which DC had to discriminate the spoken target words against similar sounding words (including nonsense words), identify the initial sound of the target words, count the number of syllables of the target word, identify the first and last syllable (where applicable), and come up with other words with the same first and last syllable as the target word. DC was always highly motivated and engaged during sessions.

Measurements taken during sessions showed that DC was able to demonstrate spoken recall of at least 94% of the target words covered during a therapy session when provided with semantic cues at the end of the same session, and at least 78% of the targeted words when tested again approximately 3 - 5 weeks after therapy. Although DC presents with a severe language disorder, he was able to achieve progress with vocabulary intervention through the combination of therapy methods described. Furthermore, DC's progress can be attributed to the fact that he was highly motivated to learn during therapy sessions. However, DC was seldom heard to generalize the use of target words in non-vocabulary related activities and games during therapy sessions, so future vocabulary intervention should seek to incorporate therapy approaches and methods to facilitate this.

PROGRAMME TESTIMONIALS

Dear Shuet Lian

I hope that you are doing well.

Unsure if you still remember my son B but you have given him 20 sessions of therapy around year 2012. In case you are unable to remember, he had sound sensitivity to birds and etc. And you were the one who introduced us to attend the seminar on sensitivity which lead us to learn and have assurance that he was not out of his mind.

I would like to share with you on the good news that B is now in Sec 4 Express studying in the Science class and he is now preparing to sit for his GCE 'O' level end of this year. Early this year, he finally removed his ear muff PERMANENTLY and goes out of the house with no fear. He has also overcome his sound sensitivity by building up his mental strength to manage his pain and fear of the sounds. On top of that, he is now beginning to participate in classroom discussions (feedbacks from school teachers).

I am most happy and thankful that he has finally overcome his sensitivity to sounds. Now we still have 2 more senses to go, that is touch and lights.

I am updating you with this good news because you have played a major and important role at the time of his life by helping him overcome his difficulty in comprehending and expressing. It was a big milestone in his life.

Best regards,
T (parent)

Hi, Teacher Eliz,

We want to thank you for your valuable lesson/skill and tips you taught Ryan over the years. His speech improved, so has his self-confidence and self-esteem. Thank you for your patience and thank you for always going the extra mile for him. - Parent of a Sec 4 student (2017)

"VT has improved a lot when it comes to speaking. He talks more now, and even tries to argue and reason with me! I can also understand him better now when I ask him about his day, or when he tries to tell me something, because the content is less all over the place." – Parent of a P5 student (2017)

"DN looks very much forward to coming to lessons, although he doesn't say it. I know because he will ask me once every two or three days, whether it is Tuesday (day of therapy)."- Parent of a P1 student (2017)

"The SLT programme have benefitted MQ in ways that now he have the courage to learn to speak those difficult words without any help or prompting." – Parent of a P2 student

"Previously, HF can't speak clearly, also no logical explanation, cannot expresses himself well, so he doesn't want to talk to others. Now he became more confident to communicate with others, becomes more cheerful." – Parent of a P4 student (2017)

"Thank you Teacher Eliz for making the lessons so interesting that I would look forward to your lessons weekly!" - Sec 4 student (2017)

"I like speech therapy because it helps me to talk more clearly. My teachers understand (me) and my friends don't laugh at me anymore." – P4 student (2017)

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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.

LEE ER KER
Senior Speech-Language Therapist

Lee is a Senior Speech and Language Therapist who has more than 9 years' working experience working with and helping children in mainstream schools with speech, language and communication needs, with or without a diagnosis of dyslexia, as well as managing speech, language, swallowing/feeding and Augmentative and Alternative Communication (AAC) issues faced by children and teenagers with special needs in both an EIPIC centre and a Special Education (SPED) school, many of whom have multiple disabilities and complex communication needs. Although the primary scope of his present work involves assessment and intervention, Lee has developed and conducted numerous training workshops for allied health professionals, special education and mainstream school teachers, parents and caregivers over the years. In addition, he has lectured and tutored at the university level for the National University of Singapore (NUS) M.Sc. (Speech and Language Pathology) programme, and is a regular External Clinical Educator for students from the same programme on clinical placement. Since joining DAS, he has co-conducted the Certificate in Understanding Speech, Language and Communication Needs course at the DAS Academy and presented at past editions of the DAS Preschool Seminar and Unite SPLD. Lee joined DAS in 2016 and is currently registered with the Allied Health Professions Council (Full Registration). Prior to being a speech and language therapist, he was a qualified Ministry of Education (MOE) mainstream school teacher.

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ELIZABETH LIM YIEN YIEN
Speech-Language Therapist

Elizabeth has been a Speech and Language Therapist in DAS since 2014. She works with students who have dyslexia and speech, language and communication needs, as well as other co-morbid challenges, such as global developmental delay, attention deficit and autism. She conducts individual and group therapy, and a variety of workshops, for preschool to post-secondary students. She also contributes to the training of new DAS educational therapists as well as other adult learners, such as parents and educators, by lecturing in DAS Academy on speech, language and communication needs. Additionally, being an SLT with a strong foundation in the early childhood profession, she conducts seminars and workshops for preschool educators. Early intervention and remediation with children and youth who have learning challenges is Elizabeth's lifelong passion and mission.

SPEECH AND LANGUAGE THERAPY PROGRAMME

**Specialised
Educational
Services**
UNLOCKING POTENTIAL

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

OUR SPEECH AND LANGUAGE THERAPY SERVICES

Speech and Language Therapy at the DAS is a skill-based intervention programme for children (pre-schoolers to secondary school students) with speech, language and communication needs. Intervention is determined by the child's needs which are addressed by remediating the core deficits and building up speech, language and communication skills using best practice in an interactive and multisensory learning environment; promoting metalinguistic awareness and developing metacognitive abilities to achieve academic success.

SIGNS OF SPEECH AND LANGUAGE DIFFICULTIES

Some indicators that your child might have speech and language difficulties:
· Delayed speech and language developmental milestones
· Mispronounces sounds in words (e.g. says 'toap' instead of 'soap')
· Shows confusion over words with similar sounds (e.g. mishears 'key' for 'tea')
· Shows difficulty in understanding and following spoken instructions
· Shows poor understanding of age-appropriate stories
· Shows difficulty remembering things that people say
· Shows difficulty in finding the right words to say
· Relates stories or events in a disorganised or incomplete manner

An assessment will be done to evaluate the child's speech, language and communication needs. It identifies individual's strengths and weaknesses. A comprehensive report will provide recommendations for intervention and learning support for your child's education.

An assessment typically takes about 2 hours or longer depending on the number of tests that are required.

For more info, visit www.das.org.sg

DAS International

EMPOWERING SUCCESSFUL LEARNING

EVALUATION OF DAS INTERNATIONAL PROGRAMMES

DAS International is a subsidiary of the

Dyslexia Association of Singapore
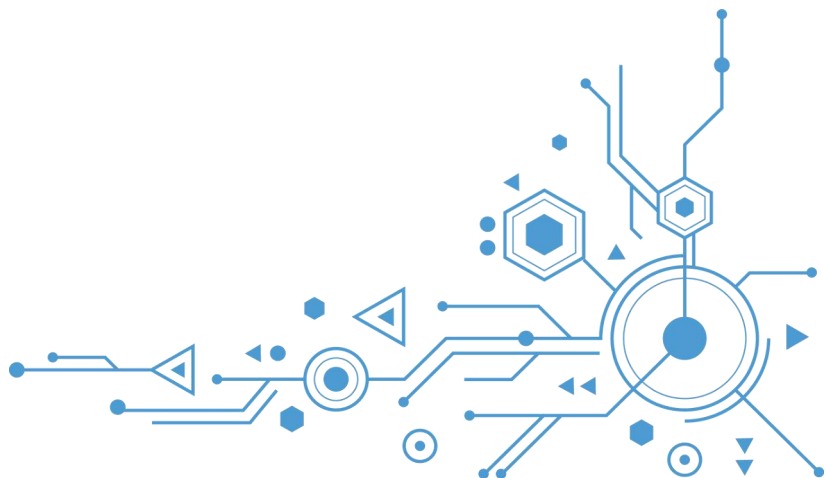
DAS International
EMPOWERING SUCCESSFUL LEARNING

SPECIALIST TUTORING

OUR APPROACH

DAS International has a team of specialist tutors who have extensive experience in supporting students with specific learning differences and other learning needs.

Specialist Tutoring is an individualised, one-on-one service that is tailored to meet the needs of students with learning differences. Tutoring is provided based on the profile of the child obtained from our multidisciplinary team of educational psychologists, speech and language therapists and in consultation with parents and educators. Specialist 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.

DAS International Services Specialist Tutoring

Anaberta Oehlers-Jaen

Head of DAS International and
Programme Director for On-site School Based Programmes
Dyslexia Association of Singapore

BRIEF DESCRIPTION OF THE MAIN PROGRAMME

DAS International, a wholly owned subsidary of the Dyslexia Association of Singapore since its inception in 2011 has been providing one to one Specialist support for students with literacy and Maths challenges through a customized one to one programme. In response to demand DAI has responded with new initiatives that aim to support students with Specific Learning Differences (SpLds) in Singapore and the ASEAN region.

Services provided by DAS International include:

- ♦ Specialist Tutoring
- ♦ Regional Awareness
- ♦ Overseas Assessments
- ♦ Training
- ♦ Consultancy

BRIEF DESCRIPTION OF THE SUB PROGRAMME

This programme is intended for students with Specific Learning Differences such as Dyslexia, Maths Learning Difficulties, who seek or require one to one Specialist Tutoring. 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.

SPECIALIST TUTORING

Specialist Tutoring offers an individualised problem-solving approach:

Preschool and Primary Level
- ♦ Literacy, Numeracy, Oracy, & Writing Skills
- ♦ Behavioural and Social support

SPECIALIST TUTORING FOR HIGHER LEARNING.

It is recommended for students who are currently studying in:
- ♦ Upper Secondary
- ♦ International Baccalaureate (IB) Programme
- ♦ GCE A-Level Examinations
  Tertiary Institutes

INTENSIVE SPECIALIST TUTORING

This programme is designed to bridge the learning gap with mainstream education.
- ♦ Intensive tutoring is aimed at supporting children who are unable to secure a place in an international school,
- ♦ Struggling in an international or mainstream curriculum.

PERSONALISED ONLINE LEARNING EXPERIENCE: ONLINE TUTORING

Specialist Tutoring Sessions are delivered through an online learning platform bringing intervention into the home
- ♦ Online lessons are flexible and customised to suit the learners needs.
- ♦ Students are located overseas
- ♦ Geographical barriers restrict student access to structured support programmes
- ♦ Continued support during school holidays

CURRICULUM BASED REMEDIATION

The highlight of this programme is that it provides a strong link between the curriculum and remediation, all the while keeping in mind the child's learning differences. The focus is on the strengths of the learner as the curriculum is explored.
- ♦ Bridging remediation and curriculum support
- ♦ Extending the strategies and effectively adapting them to curriculum Exam Skills

	SPECIALIST TUTORING	INTENSIVE PROGRAMME	CURRICULUM BASED REMEDIATION
TEACHING AND DELIVERY	♦ Regular weekly sessions ♦ Does not interfere with school hours	♦ Block sessions ♦ Ideal for vacation breaks	♦ Works closely with school to support homework and curriculum
RECOMMENDED FOR	♦ Students who have completed the intensive programme ♦ Students who require a consistent personalised tutoring session	♦ Students who require intensive tutoring to close learning gap with mainstream education	♦ Students who are lagging behind curriculum ♦ Students who require a consistent personalised tutoring session

ENTRY CRITERIA

The programme is open to Preschool students at risk of Dyslexia as well as to Primary, Secondary, and tertiary students with a valid diagnosis of a Specific Learning Difference.

WHO THE PROGRAMME IS FOR

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. Specialist Tutoring further supports the learning needs of our more challenged students who may have difficulty entering International schools in Singapore.

QUALITY ASSURANCE

Classroom observations for all DAS International Specialist teachers are conducted once every financial year to ensure that our teachers uphold the standards of quality teaching set out by the organization. All Specialist Teachers are evaluated on their Individual Education Plan (IEP), lesson planning, lesson execution, communication, and classroom management to meet the IEP objectives. A total of 8 Specialist Teachers were assessed for quality assurance in classroom teaching practices in 2017-2018. The observations were conducted by the Head of DAS International and contributing members for Specialist Tutoring who are Senior Educational Therapists. The observations were conducted either through in-class or video observations of their lessons.

TEACHER TRAINING

A total of 5 educational therapists, with at least 2 years of experience teaching literacy to students with dyslexia, were trained and they underwent the 15-hour Certificate in Individualized Education Programme (IEP) Planning for an SpLD Learner by DAS Academy, followed by a 5-week practicum with 2 informal and formal observations. In addition, they attended 2 insets conducted by the Head of DAS International. These inset sessions addressed issues such as IEP planning, parent communication, and translating what they had learnt into meeting the one to one IEP short term and long-term goals for their students.

DESCRIPTION OF INITIATIVES TAKEN THIS FINANCIAL YEAR

2017 saw DAS International guided in providing a customized and individualized one on one Specialist Tutoring to include the following programmes initiatives:

♦ Personalised Online Learning Experience: (Online tutoring) an overview of the programme based on current online students.
♦ Intensive Tutoring: Insights into Intensive Tutoring through a case study of a 17 year old overseas Thai student who received 30 hours of Specialist tutoring.
♦ UNITE SpLD 2017 International Session

In line with DAS International efforts to outreach to likeminded organization in the ASEA region we saw at the Unite SpLd 2017 conference a highly successful International sharing session that was held. We saw various organization come together such as the Madras Dyslexia Organisation, the Indonesian Dyslexia and the Sarawak organization share their experiences to captive international and local audience. The initiatives and stories shared by organisations although from different cultures all shared a common theme which was:

♦ Building Awareness for the main stake holders: Ministries, schools, teachers, parents, donors
♦ Supporting students with SpLd
♦ Teacher training

At the upcoming UNITE SpLD Conference, 2018 we are again looking forward to more insights with our neighbours at the International session, whereby we can learn from one another and provide support through the various initiatives.

STUDENT NUMBERS

TOTAL ENROLMENT FOR 2017	47
Students attending International schools	15
Student attending Ministry of Education Schools (MOE)	32
Specialist Teachers	8

PROFILE OF ST STUDENTS

PROFILE OF SPECIALIST TUTORING STUDENTS	NUMBER
Dyslexia	27
Dyslexia / Maths Learning Difficulties	12
Dyslexia / Speech and Language Impairment	2
Autism	2
Dyslexia and Autism	1
ADHD	3
Total Number of Students	47

SOURCES OF REFERRAL

SOURCES OF REFERRAL TO SPECIALIST TUTORING	NUMBER
DAS SpLD Assessments Services	12
Word of Mouth—Relatives	6
Word of Mouth—Friends	7
Word of Mouth—Teachers	10
DAS Website	12

ACKNOWLEDGEMENTS

TESTIMONIALS / SUCCESS STORIES

Names have been anonymised

> *I was only officially diagnosed with Dyslexia when I was secondary 4. This means that I take a longer time to understand and learn a concept. Plus, my carelessness and my complacency during my exams also lead to me not doing well in my studies and causing me to lose hope especially my favourite subject, science. However, when I was promoted to secondary 4 I knew I had to do better so that I will have more paths to go for my tertiary education. With the help of my teachers and my DAS teacher, Teacher Bhavani. Teacher Bhavani taught me how to annotate the questions properly which although mainly used in English comprehension, but I found it to be useful in all of my subjects. She also taught me to read the questions first then the passage so that I can look out for the answers while reading. This really helped to prevent my carelessness. I am thankful for her! Overall for me trying your best and consistently working both hard and smart, applying what you learnt for study skills helps. It is a long but rewarding journey with some failures along the way and one should not give up.*

> *Secondary 4 student X with Specialist Teacher Ms Bhavani (2017)*

Ms Bhavani's reflection on her student: X

> *X attended Specialist Tutoring for 4 months at DAS Rex house learning centre. Xl was a Secondary Four student at Admiralty Secondary School (Express Stream). She was referred to Specialist Tutoring as she had weakness in composition writing, lack of understanding in phonological decoding, passage-reading accuracy and reading comprehension*

X is a pleasant and polite student who always appears calm during my lessons. Although X was able to engage in daily conversations, she found it challenging at times to express her thoughts during oral conversations. She would constantly mention how difficult it is to get the word out and prefers to write her thoughts instead. X and I had a good chat over her verbal outbursts in school when she was stressed at school. We had good conversations on how to control one's emotions and how failures can be learning experiences.

I incorporated spelling drills, oral conversations based on selected topics, essay writing (expositive) and reading comprehension passages in the sessions. We did many reading comprehension passages and had lots of verbal conversations surrounding the topic to prepare her for the upcoming O level Oral Paper. X is a hardworking and self-disciplined student. She would read the topics ahead of the session to ensure she had relevant knowledge. X shared her interest in pursuing Zoology and was always an independent learner.

X attained a B3 for her O level English when initially she used to obtain C6. I am heartened to see that X's efforts paid off and she did very well her for O level exams. Good Job X! Ms Bhavani

To whom it may concern,

Teacher Gladys Wee-Bourne has been working with John for the past 2 years. We have seen tremendous progression in his literacy skills as she prepped him for P1 entry in 2018. He has also emerged to be more confident and outspoken. She has been very patient working with John who is prone to tantrums and has instilled in him a more methodical and disciplined approach in how he tackles each piece of work.

We truly appreciate her dedication and effort in working with John.

Yours sincerely,

Maggie, Mother of John

Hi All,

Thank you for your prompt assistance. The classes are fantastic, and my kids have enjoyed them.

Many thanks, Sue

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DAS INTERNATIONAL SERVICES—SPECIALIST TUTORING

www.dasint.org.sg

Scan me to find out more

ABOUT THE AUTHOR

ANABERTA OEHLERS-JAEN
Head of DAS International and Programme Director of School-Based

Ms Anaberta Oehlers-Jaen started her career at DAS in 2005 as an Educational Therapist and has since held various portfolios. For 4 years, she was the Preschool Manager of the DAS Preschool Service and was actively involved with children at risk of literacy delay and helped to launch the service at the DAS. She assumed the position of Head of DAS International in 2011 in order to support both the local and expatriate international community of students, who may be experiencing learning differences through Specialist tutoring and Assessments. In her role as Maths Programme Director in 2014, Anaberta has presented at International conferences delivered in Singapore, ASEAN region and the UK.

She is also actively involved in research and has published articles in the Asia Pacific Journal of Developmental Differences. She holds a Masters Degree in Special Needs from NTU, BA(English Language and Literature) from SUSS, 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 is also a qualified trainer with the Advanced Certificate in Training and Assessment (ACTA) by the Singapore Workforce Skills Qualification (WSQ). She has Fellow status at RETA, Register of Educational Therapists (Asia), and is also a Senior Educational Therapist. Delivering a professional service to the families of students with Specific Learning Differences is high on her priority and hopes to continue to serve this community both in Singapore and the region.

DAS International Services Specialist Tutoring Online

Mohamed Samunn
Specialist Tutor and Senior Educational Therapist
Dyslexia Association of Singapore

DAS International can reach students wherever the internet can reach them. Our virtual lessons incorporate an online real-time synchronised teaching technology that combines teacher-led tutoring and student-paced hands-on multi-sensory activities and assessments. These lessons are one-on-one, easy to follow, and an affordable way of receiving online educational therapy, curriculum and behaviour support from the best specialist tutors in the industry.

Currently, we have three online students from Bangladesh, Hong Kong and Sri Lanka. They attend international schools. We meet with them at least twice a week online for educational therapy, curriculum support in Math and English, and behaviour support. Samunn has over 100 hours of online intervention with these three boys during the past 16 months. These online specialist tutoring sessions empower his students to learn differently and help them understand how to learn and how to use their strengths to overcome their learning and social challenges while following a mainstream curriculum in their respective schools.

HOW DOES ST ONLINE WORKS

An overseas client flies in to Singapore for a comprehensive psychological assessment to identify his/her learning differences conducted by our assessment team of registered psychologists at the Dyslexia Association of Singapore (DAS), or a client walks in to DAS International with a comprehensive psychological assessment done elsewhere and approaches us for intervention. Based on the evaluations and recommendations of the psychological assessment, a client starts an intensive face-to-face intervention program of at least 10 hours with an Educational Therapist (EdT) in Singapore before the commencement of the online intervention. This initial face-to-face session helps establish a good work relationship between the EdT and client.

Once the client is in his/her home country the online specialist tutoring services will be offered at least once a week.

OUR PEDAGOGY FOCUS

We at DAI believe in changing the design of the learning environment rather than changing the learner. Therefore, our personalized learning plans (PLPs) are based on the Universal Design for Learning (UDL) framework where meaningful learning experiences are intentionally designed and delivered to reduce barriers so that we can see a learner in every child.

ASSISTIVE TECHNOLOGY FOCUS

We work in a BYOD (Bring Your Own Device) environment. Therefore, our technology infused lessons are carefully designed to be delivered via any platform and they are made sure to capture the interest of our students where they can have meaningful engagement with the content. Eventually, our lessons will help the kids establish real-world connections with or without technology support where learning extends outside the online classroom.

In summary, we work on the following simple formula:

TASK DEMANDS + LEARNING GOALS + DELIVERY MODEL (TECHNOLOGY) = PERSONAL LEARNING EXPERIENCE
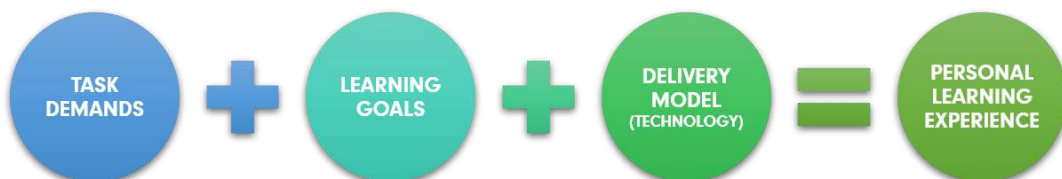
CHALLENGES

We work in an environment where we face a mix of hardware, software, curriculum and social challenges. Moreover, integrating technology in a meaningful and measurable way into lessons is also considered a challenge. As a specialist tutor, making a social presence for the SpLD students who are connected online is the great challenge. And this online social presence that we aim to maintain with the students has a direct impact on their perceptions of learning and satisfaction — an aspect to be explored in the future.

In conclusion, we are confident that our personalised learning experience delivered online to the kids will certainly make a difference to them as they have no access to specialist tutoring in their own environments. At the end of the day, we strongly believe that the instructional choices that are constructed exclusively for each student will make the difference rather than the technology that is used.

GOING FORWARD FOR ONLINE TUTORING FOR 2019:

We plan to offer the client a package based on the following 5 PLUS package model:

- ♦ Overseas client comes to Singapore for a psychological assessment
- ♦ Receives Intensive Specialist Tutoring (10 or 20 hours) in Singapore
- ♦ Concurrently Parent may also seek to attend DAS Academy Training Courses whilst child is receiving Specialist tutoring in Singapore
- ♦ Follows up with the Personalised Online Learning Experience (Online ST)
- ♦ Receives periodic Intensive Specialist Tutoring (10 or 20 hours) in Singapore

Future plans include the evaluation of progress over time, and questionnaires on parent and student satisfaction.

ABOUT THE AUTHOR

MOHAMED SAMUNN
Specialist Tutor and Senior Educational Therapist

Samunn is a Senior Educational Therapist and a Dual Specialist (Maths) at Tampines Learning Centre. He holds a Master's degree in Specific Learning Differences (MA SpLD) from London Metropolitan University, UK. He delivers intervention and/or remediation lessons in literacy, numeracy, English language, and math to children with dyslexia and other SpLDs. Additionally, he conducts holiday workshops in summary writing for secondary school kids and real world math workshops for primary kids. He has 33 years of experience in teaching English as a Second Language (ESL). Before joining the DAS in 2008, he was attached to the MOE Maldives for 11 years as a ESL teacher (secondary) preparing students for the Cambridge O Levels and IGCSE Examinations. His research interests include supporting adult learners with SpLD in higher education and offering assistive technology and e-learning solutions to children with SpLD.

DAS International Services
Higher Education Specialist Tutoring

Nicole Chua
Specialist Teacher and Senior Educational Therapist
Dyslexia Association of Singapore

DAS International also support students who are in Higher Education or at Tertiary level. The aim of the case study is to show the development of a 17-year Thai student T who attended specialist tutoring through an intensive 30 hour one to one Literacy programme which was spread over 4 weeks. The following case study documented the progress made during the 30 hours reflected T's potential in significantly improving his English Literacy.

CASE STUDY

A Case Study of how an Adolescent with Dyslexia uses Meta-Cognitive Strategies to Significantly Increase his Reading Abilities in a 30-hour Reading Intervention

PROFILE

T is a 17-year boy diagnosed with dyslexia when he was 12. T. was an interesting subject as he possesses high meta-cognitive functions and a positive outlook towards learning which are less typical of a learner with dyslexia of his extent. His parents are aware of and are knowledgeable about his condition and actively support his academic journey through maintaining close ties with his schools and seeking bi-weekly literacy intervention for T.

T displayed typical characteristics of an adolescent with dyslexia whose reading and spelling abilities are exceptionally delayed. His psychological report shows him to have an IQ of 126 which is within the Superior range. Initial assessment found that T possesses little word attacking skills and decoding ability, making reading difficult and effortful.

He is almost unable to decode without teacher's guidance and guesses wildly at words based on their initial and final sounds or base of what the words 'look' like. He was also unable to read the first 100 high frequency words successfully. The gap in his reading abilities transgresses into his spelling and writing as well. Initial writing assessment revealed T's lack of knowledge in sentence construction and grammatical conventions even though the quality of ideas that he tries to put across are indeed those of an above average learner. It can be observed that T is a high performing learner, clearly hindered by his ability to read and write at the level that is expected of a high school student. It has been suggested through the reading assessment that at the time that T entered this intensive intervention, that he was reading below the age of 8 years old.

INTRODUCTION

As part of DAS International service, we provide intensive tutoring for learners who require a specific intervention during a limited time frame. Many times, we get students from overseas seeking remediation that is otherwise not available in their home country. T is a 17-year-old learner who is graduating to Grade 11 in a bilingual school that teaches in Thai but encourages students in their school to speak English to one another. Teachers in the school also speak English widely to students. T's father is of Thai-British descendant and spent some of his childhood years in United Kingdom, therefore, speaks English fluently. T is exposed to English daily as he lives with his British grandmother and his parents since birth. T is effectively bilingual and the intervention he seeks at DAS International is conducted in English. T's father was concerned that T was not receiving the help he needs to help him read and write in English, so he approached the DAS International for a 30-hour reading intervention for his son. Before the intervention commenced, a reading comprehension and fluency test was conducted using PM Benchmark Reading Assessment. It was assessed that T's reading age was below the age of 8-year-old. It was decided that it was best that T's remediation focused on his immediate need, reading.

WHAT IS META-COGNITION?

Meta-Cognition can be defined as taking control of and directing one's own thinking processes and being aware of one's own cognitive strengths and limitations. It is the ability to understand, monitor and self-regulate cognition and is inseparable from intellectual functioning and learning. An important aspect of metacognition is the ability to show reflective awareness about the self, and knowledge in tandem with conscious monitoring during learning (Goldfus, 2012).

THE IMPORTANCE OF META-COGNITION DURING INTERVENTION

During the intervention plan, the greatest challenge was seeking the best approach to teach him. Most available materials were either too child-like or too complex for him. Therefore, all strategies and materials used during this intervention were customised by the teacher herself according to his interest and reading level. As Thai language was his first language and one that he is most comfortable expressing himself in, it is significant to note that his tutor is also bilingual in English and Thai. This is a key contributing factor as meta-cognition involves thinking about thinking and having a common language has also allowed his tutor to gain insight to the problem he faces and understand his thought processes, therefore, facilitating effective self-questioning, self-monitoring and self-reflection that took place through these sessions.

A study by Goldfus (2012) suggested that the development of meta-cognitive awareness is an important tool in intervention for dyslexic and/or learning-disabled students. Therefore, she stresses the importance of meta-cognitive intervention to take place before or together with any form of literacy intervention. The same finding was found in a similar study on dyslexic teenagers on spelling.

Chua (2015) found that the use of morphological instruction that uses meta-cognitive strategies, using Structured Word Inquiry (Bowers 2006), has empowered her students to be able to think about how and why a word is spelled in a certain way. Each time the learner experiences success in helping themselves make sense of a word, they became more motivated to do more which increases their academic self-concept. This cycle continue and meta-cognition continues to develop.

However, with T, he possessed meta-cognitive strategies that were his own and probably developed through the years that he found himself to be different from his peers but was not sure how. He went through primary school not knowing why he was different and had to stay back a year as his teacher found him to be "slow" and was not able to read and spell like the rest.

Despite his rough start, he moved into another primary school where it was more conducive for his learning and more "understanding" to his learning differences. At 12, he visited a child psychiatrist and was then diagnosed with Dyslexia From then on, his academic journey has been memorable, and his current school has a strong learning support system that accommodates his learning needs using assistive technologies.

THE INTERVENTION

When T commenced his first lesson, he sat for a reading assessment. When given the reading material, he flipped it front and back and observed the pictures on them. He was required to read silently on his own and answered some questions then after. These questions were arranged according to their complexity i.e. literal, inferential, applied knowledge. After his silent reading, he answered all the questions correctly. Some of his questions were not found in the text and he was reminded to seek answers only from the text. After which he managed to provide answers that were close to the suggested answers. Next, he was required to read the text out loud to measure his reading fluency. It caught his tutor by surprise that he found the text to be difficult and he seemed to be struggling. Puzzled, his tutor asked if he understood what he just read. He said no and when questioned how he managed to answer all the questions. He explained that he tried to make sense of the pictures in the text (it showed a girl holding a cup in front of a basin) and using his prior knowledge together with what he felt the questions wanted from him, he made up his own answers.

After calculating the result, it was found that he was reading below the age of 8. That was highly surprising as T was well-versed in the English language and express himself well. At 17, it was amazing that T was able to cope and do well for his English subjects, though he has been failing Thai language all through school. He found the Thai language complex and had no interest to be better at it. He explained that he does not see the need of doing well in Thai language as he will be pursuing his learning through the English route. He has planned for further studies in Canada or America.

Over the few sessions, the tutor closely observed the way he learnt and got to know T on a personal level. The tutor felt it was crucial to understand how he managed to develop such sophisticated coping strategies to compensate for his literacy deficits, therefore being able tap on what he already knows or on how he processes information to maximize the intervention efforts. His tutor who coincidentally also spoke some Thai and is partial Thai parentage, has helped in building the rapport as she could help him expressed some of his thought processes otherwise a challenge for him to convey in English. Many times, when he does not understand certain words or concepts, she was able to clarify in Thai (which is his first language) and checked for understanding by getting him to retaliate back in Thai. Even though less than 10% of the time Thai is being used, it worthy to note that a common ground has helped T open up faster and helped put him at ease in his learning environment. This can be clearly seen in a classroom recording session where he had to read a set of lifestyle quotes that he could not read the first time round. Through the session it shows how well the teacher knew T and how she was able to

pin-point exactly what he knew and encouraged him to recall what he knew but still could not apply automatically. Being able to provide him that assurance, promotes confidence in the learner to challenge himself, knowing that it is something that was within his knowledge. Through prompting and guided reflection, he was able to attempt many words on his own. The modeled thinking that the teacher provides together with his own meta-cognitive strategies can translate such interaction to a very effective way to retain learning and raising self-esteem.

An Example of Self Questioning

T: /f/.../a/.../rrr...What is this word?
Teacher: Far
T: No...it can't be far, it does not look like it!
Teacher: Why not?
T: I mean this word makes me think of something long and it is way too short to be 'far'

An Example of Self-Monitoring

T talking aloud to himself: The kite fell on to the waiter. Why would a waiter be in the sea? (laughs) Does not make any sense! (tried to decode.) water! Of course, it is water. Jesus Christ!

An Example of Self Reflection

When asked why he reads the word "caught" as "control"
"When I read this word silently, I could read the word 'caught' but when I read it out loud it came out wrong. I don't realised that (until you told me).

RECOMMENDATIONS

Because of his atypical profile, finding the best way to support him in the way that it maximises his potential would be a challenge for any adult supporting him. Within the next two years before he graduates high school, it is important to increase his reading capabilities to prepare him for college education. It is recommended that he continues to attend similar intensive remediations to escalate his reading age and reinforce previous skills learned in past sessions. At present although the reading assessment shows a gain in reading age of at least a year, it is based on the increased number of words that he is now able to read and recognise, compared to the beginning of the intervention, as well as his overall text comprehension.

However, he does pause on certain words and may even take a while to read the word. There is still a need for deliberate practice reading sessions to sustain his progress. It is crucial that the adult supporting him initiates reading opportunities that are of high interest, pegged to his reading level and his topics of interest. These are some incidental type reading materials that may suit him:

Text-based tales Apps - these short stories are being narrate in the form of text messages. It is a conversational style story telling where words are short and simple.

Life Quotes - these quotes can often be found shared on Facebook and Instagram. These words often contain quite a number of affixes and have underlying meanings which promote discussions.

Newspaper Headlines - bite-sized wordings that give a big picture of the story. Brochures - avoid travel/tourist brochures, focus more on event brochures and flyers where language used are friendlier.

It might be good for the adult that is supporting him to consider word study i.e. <equal> expands to various possible spelling of this word such as <equality>, <equalized>, <inequality>, discuss various scenarios in which the word <equal> is used and providing him real sentences where the selected words are being used. This is an excellent way to get him to remember a word as it involves using his strength in analysis and making sense out of things.

In planning for an intervention plan that suits his profile, meta-cognitive strategies such as self-questioning, self-monitoring and self-evaluation need to be embedded in teaching to allow the learner to independently make sense of what he is learning and make learning meaningful to him, thus, easier to remember. With such planning, the learner will then be able to experience success through automatic application of the skills taught and transfer them to the various aspects of his academic journey.

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ABOUT THE AUTHOR

NICOLE CHUA
Senior Educational Therapist and Specialist Teacher

Nicole Chua holds a Masters degree in Specific Learning Differences (SpLD) with London Metropolitan University, UK and has been teaching children with specific learning differences for over 9 years. Since joining DAS in March 2009, she has been trained in the Orton-Gillingham Approach and Project Read by Learning Circles. She is experienced in conducting intervention for dyslexic learners from all age groups and also learners with other learning needs that require literacy-based intervention.

As a Senior Educational Therapist at DAS, she was part of the Main Literacy Programme Curriculum Development team and oversees the development of the recently launched Advanced Writing Pack. She conducts training for new and existing teachers on how to teach writing to higher ability learners. Her passion and love for writing have led to the start of the DAS Creative Writing Workshop series which she infuses Orton-Gillingham teaching approaches into all learning activities to give children with learning differences an edge in learning. Nicole has conducted a string of very well-received workshops since the series launched in 2013.

Nicole, also a keen researcher, has presented at The Fifth Asian Conference on Education 2013 (ACE2013) in Osaka, Japan. RehabTech Asia Conference 2013 in Singapore, International Conference "ICT for Language Learning 2012" in Florence, Italy and Success with Technology, Singapore's first conference in Assistive Technology in 2011.

My students are my strongest motivator that keeps me going, they teach me new things every other day. What can be more rewarding than a job that doesn't have a dull day.

DAS ACADEMY PROGRAMMES

Professional Development by DAS Academy

June Siew
Head of DAS Academy

Formerly the training arm of the Dyslexia Association of Singapore (DAS), DAS Academy is now a Private Education Institution (PEI) registered with the Council for Private Education (CPE) since 2010. As Singapore began to respond to the vision of an inclusive society in 2004, the desire to create an inclusive learning environment in schools grew, and the demand for special needs training subsequently followed. We responded by increasing the repertoire and depth of special needs courses we offered. This move necessitated our registration with the CPE. DAS Academy currently specialises in training for teachers and professionals and empowers them to support children with specific learning differences (SpLD). The DAS Academy's courses provide a multi-disciplinary perspective of SpLDs, tapping into the perspectives and experiences of educational therapists, psychologists and speech therapists at the DAS. DAS Academy also draws on DAS' 25 years of rich heritage of providing specialist dyslexia assessments and intervention to provide adult learners with an applied learning experience.

DAS Academy operates in this niche market. DAS Academy is a key training provider for SpLD training in mainstream, international and special schools. Currently, the DAS Academy offers a wide range of courses. Practical workshops and certificates provide quick strategies, specialist diplomas provide a comprehensive blend of theory and practice and academic postgraduate masters aim to transform seasoned practitioners into domain experts. For 12 years, the DAS Academy has been tasked by the Ministry of Education to deliver the Diploma in Special Education (Dyslexia) to their Allied Educators.

> "DAS Academy operates in this niche but captive market. DAS Academy is a key training provider for SpLD training in mainstream, international and special schools."

The Masters of Arts in Special Educational Needs (MA SEN), offered by DAS Academy, in collaboration with the University of South Wales is a platform for seasoned educators to develop themselves as domain experts in this sector. Individual Programmes

MASTER OF ARTS IN SPECIAL EDUCATIONAL NEEDS/ ADDITIONAL LEARNING NEEDS (MA SEN/ALN)

The Master of Arts in Special Educational Needs/ Additional Learning Needs (MA SEN/ALN) takes on a block delivery format and has been designed to provide for the continuous professional, academic and personal development of participants who are drawn from a range of backgrounds which are related to the field of Education. Course participants include teachers and leaders in schools, allied educators and parents and caregivers who work with children with a range of special educational needs (SEN).

Having its foundation in the professional and established SEN framework from the University of South Wales, the MA SEN/ALN programme in Singapore is further supplemented with local perspectives and practices to ensure its relevance for the local context. This is a programme that brings together high quality evidence-based SEN practices from the East and the West.

The programme provides access to a coherent framework of professional development in the area of SEN and encourages the effective synthesis of theoretical and practical knowledge. The intellectually rigorous context allows practitioners to progress to the next level of professional development by developing their skills of communication, analysis and research in the field of SEN at Master's level.

SPECIALIST DIPLOMA IN SPECIFIC LEARNING DIFFERENCES

The Specialist Diploma in Specific Learning Differences (SpLD) is a part-time course designed by the DAS Academy to meet the increasing demands for higher education in the field of specific learning differences. Offering a platform that promotes interactive and collaborative learning, this Specialist Diploma will engage students in the learning process as they explore, reflect and share knowledge and experiences as an individual and as a group. For the award of the Specialist Diploma in SpLD, students have to successfully complete six modules which includes a 10-hour Teaching Practicum with a struggling learner whom they have chosen to support. The Specialist Diploma in Specific Learning Differences programme is a part-time course and will take up to three years to complete.

DAS Academy
ENABLING EXCELLENCE

University of
South Wales
Prifysgol
De Cymru

Master of Arts in Special Educational Needs/ Additional Learning Needs

The programme is enhanced by local perspectives and practices to ensure its relevance for the Singapore context, resulting in a hybrid of evidence-based Special Educational Needs (SEN) knowledge and practices from the East and the West.

A Masters at DAS Academy Delivers Value

The MA SEN/ALN is registered as a full-time course with the Committee for Private Education. It takes on a block delivery format and is suitable for working adults.

Designed to provide for the continuous professional, academic and personal development of participants who are drawn from a range of backgrounds which are related to the field of Education.

A flexible 180-credit programme that allows students to choose their study pathway.

Valued by teachers, allied educators, parents and caregivers who work with children with a range of SEN.

Accrediited and Jointly Delievered by University of South Wales, UK

Established SEN framework from the University of South Wales. The programme provides access to a coherent framework of professional development in the area of SEN and encourages the effective synthesis of theoretical and practical knowledge.

PROFESSIONAL DEVELOPMENT

The programme enables professional development in the area of SEN and encourages the effective synthesis of theoretical and practical knowledge. The intellectually rigorous context allows practitioners to develop their skills of communication critical thinking and research.

PATHWAYS

4 Modules **+** 1 Dissertation Module (60 Credits) OR
5 Modules **+** 1 Dissertation Module (30 Credits)

www.dasacademy.edu.sg

CPE Registration No.: 201A003689Z. Validity Period: 30 December 2017 - 29 December 2021

SPECIALIST DIPLOMA IN EDUCATIONAL THERAPY

The Specialist Diploma in Educational Therapy is designed as a part-time specialist qualification to empower educational therapists at the DAS to effectively support students receiving intervention at the DAS learning centres. Its aim is to quip DAS educational therapists with the theoretical knowledge and practical skills to build the literacy skills needed by dyslexic students as they journey from primary to secondary school. This part-time specialised training is conducted over three modules. Modules are designed to run consecutively and will complete in 9 months.

DIPLOMA IN SPECIAL EDUCATION (DYSLEXIA STUDIES)

The Diploma in Special Education (Dyslexia Studies) is designed as a part-time specialist qualification to allow Allied Educators in the Singapore Ministry of Education schools to gather theoretical knowledge on dyslexia (and other common types of learning differences likely to be presented with it) as well as practical skills to support learners in this field. The specialist diploma aims to empower allied educators to exhibit professional responses and take practical steps to ensure that mainstream students with learning difficulties enjoy equal access to the broader curriculum, just like their typically developing peers. Allied educators undertaking this programme will have to complete three modules for the Diploma in Special Education (Dyslexia Studies) award. Modules are designed to run consecutively and will complete in 9 months.

CERTIFICATES

DAS Academy currently offers 12 certificates on various topics. They are suitable for parents and educators who wish to deepen their SEN knowledge and broaden their practical teaching skills.

WORKSHOPS

DAS Academy currently offers 13 workshops on various topics. They are suitable for parents and educators who would like to equip themselves with basic Special Educational Needs (SEN) knowledge and practical teaching tips.

SPECIALIST DIPLOMA IN SPECIFIC LEARNING DIFFERENCES

Fees (Inclusive of GST)
Course Fee: $5029.00
Application Fee: $32.10
Accreditation of Prior Learning Fee: $53.50

Discover an exciting learning journey to make a difference in the lives of people with specific learning differences.

This Specialist Diploma is designed by the DAS Academy and is registered with the Committee for Private Education (CPE), part of SkillsFuture Singapore (SSG). It is also recognised by the Register of Educational Therapist (ASIA) [RETA].

The Specialist Diploma in SpLD is a full-time/part-time programme and can be completed in a minimum of 12 months and a maximum of 36 months. For the award of the Specialist Diploma in Specific Learning Differences. Participants have to successfully complete six modules.

Complusary Modules
- Understanding Dyslexia
- Dyslexia and Literacy Teaching

Elective A Modules (Choose 2)
- Educational Psychology
- Understanding Speech, Language and Communication Needs
- Dyscalculia and Numeracy Teaching
- Dyslexia and Chinese Language Support
- IEP Planning for SpLD Learners
- Supporting SpLD Learners in English Language Exam Skills
- Supporting SpLD Learners in FEHE
- Teaching Morphology to SpLD Learners

Elective B Modules (Choose 1)
- Supporting SpLD Learners in Advanced English Literacy Skills
- Supporting SpLD Learners in Advanced Chinese Literacy Skills
- Supporting At-risk Preschoolers in Literacy

Practicum Modules
- Specific Differences in Practice
  - 10-hours intervention
  - 5 consultation hours with supervisor

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DAS Academy

FUNDING

Through support from funding bodies, DAS Academy strives to make our courses more accessible to community partners and stakeholders who will benefit from SpLD training. With course objectives and outcomes aligned to the core competency roadmap outlined by Social Services Institute (SSI), six of our certificate courses have received support for funding. The remaining six certificate courses are eligible for Skillsfuture Credit use. Voluntary Welfare Organisations (VWOs) can benefit from our training by tapping on the VWO-Charities Capability Fund (VCF). This will enhance partnership between VWOs and create a collaborative approach towards caregiving. Additionally, the Caregivers Training Grant (CTG) administered by the Agency of Integrated Care (AIC) has made our parent workshops more attainable for caregivers who need to build capabilities to better support their children with SpLD at home.

QUALITY ASSURANCE

The programmes at the DAS Academy are registered with the CPE and come under the purview of four panellists in the Academic and Examination Board. The Academic Board and Examination Board convene three times a year to ensure adherence to high quality training services. Issues pertaining to these are raised during the meetings:

♦ Approval of new modules introduced
♦ Confirmation of provisional grades of existing modules
♦ Evaluation of existing modules
♦ Teaching and learning practices

In addition, as a partner institution of the USW, the DAS Academy follows the delivery systems and processes at USW, with reference to Chapter B10 of the UK Quality Code: Managing Higher Education Provision with Others. USW's systems and processes to protect academic integrity are in line with the QAA UK Quality Code for Higher Education, http://www.qaa.ac.uk/assuring-standards-and-quality/the-quality-code/quality-code-part-b

The University is also subject to periodic review by the Quality Assurance Agency, the most recent review being in 2015, which the DAS Academy has participated in. The outcome of the review is that the panel is fully satisfied with the quality of partnership.

Every postgraduate course DAS Academy offers is subject to Annual Monitoring, the purpose of which is to: evaluate and improve course quality; ensure the best

possible student experience with the resource available; identify and disseminate good practice; build up information needed for the course review process and for external reviews and audits; encourage reflective practice among module and course tutors; ensure appropriate action is taken to remedy any shortcomings and enhance provision. Clear mention has to be made in course monitoring reports of any partner institution where the course is also delivered.

The Quality Assurance Committee in USW receives reports on the outcomes of the external examining system and of annual course monitoring.

DISCLOSURE OF OUTCOMES

PROGRAMMES	ATTENDANCE
MA SEN level modules	29
Diploma level modules	156
Certificate level modules	151
Workshops	244
Customised training	221
Total	**801**

In FY 2017/18, attendance for modules of the various programmes was registered as 801. It is important to note that, however, this does not necessarily translate into matching student headcounts because one student could have taken more than one module.

DAS ACADEMY

wwww.dasacademy.edu.sg

Scan me to find out more!

DAS ACADEMY KEY STAFF

JUNE SIEW-
Head of DAS Academy

June Siew has more than a decade of practical experience in the field of Specific Learning Differences. She is a Fellow with the Register of Educational Therapists (Asia) and is a qualified trainer with a WSQ Advanced Certificate in Training and Assessment (ACTA). Her previous experiences as an educational therapist augments her current role as a lecturer. She has written a paper on "Educational Therapy in Singapore: Towards Professionalisation and Professionalism" which has been published in the Asia Pacific Journal of Developmental Differences.

Her postgraduate academic achievements include a Master of Arts in Specific Learning Differences and a Post Graduate Certificate in Learning and Teaching in Higher Education, London Metropolitan University, UK. She is currently pursuing a Doctor of Education programme at the National Institute of Education (NIE), Singapore and the University College London, Institute of Education (IoE) with a special interest in cool and hot executive function in children with reading difficulties.

Highest Qualification:
Master of Arts (Specific Learning Differences),
London Metropolitan University, UK

Teaching / Training Qualification:
PGCert in Learning & Teaching in Higher Education,
London Metropolitan University, UK
Advanced Certificate in Training and Assessment (ACTA)

PRISCILLIA SHEN
Assistant Head of DAS Academy

Priscillia Shen began her special education journey as an Educational Therapist at DAS and has more than 10 years of experience in the field of special educational needs, especially in dyslexia. Her previous experience working closely with SpLD learners has allowed her to take on a constructive and practical pedagogical approach. She believes in keeping up with current developments in the field to continually refine teaching practices and maintain professional passion. She is also a qualified trainer with the Advanced Certificate in Training and Assessment (ACTA) by the Singapore Workforce Skills Qualification (WSQ). While lecturing at the DAS Academy, she is currently pursuing Doctorate in Education (EdD) at the National Institute of Education (NIE) in Singapore and the Institute of Education (IOE) in UK, London.

Her research interests are in dyslexia, Chinese language and Mathematics. She has been co-presenting papers on learning difficulties in Chinese language and Mathematics in relation to dyslexia at conferences since 2012.

Highest Qualification:
Master of Arts (Specific Learning Differences),
London Metropolitan University, UK

Teaching / Training Qualification:
PGCert in Learning & Teaching in Higher Education,
London Metropolitan University, UK
Advanced Certificate in Training and Assessment (ACTA).

DAS ACADEMY KEY STAFF

SYLVIA FOO
Senior Lecturer

Sylvia Foo has two decades of experience as a dyslexia, literacy and English Language specialist in both private and public educational institutes including the Dyslexia Association of Singapore. She was a Senior Lecturer in the early years of the training arm of the DAS. Sylvia holds a Masters of Arts (English Language) and a Diploma in Education (NIE). She is also trained in the Orton-Gillingham and Hornsby approaches to dyslexia remediation, and is a qualified trainer with a WSQ Advanced Certificate in Training and Assessment. Besides her track record as an educational therapist, Sylvia has successfully led and restructured a literacy intervention centre for learning needs students. Since 2009, she has also trained and mentored teachers in the early childhood industry to support their professional skills development. Sylvia is very interested in designing and delivering training programmes that enhance best practices in educational therapy.

Highest Qualification:
Masters of Arts (English Language), National University of Singapore, Singapore

Teaching/Training Qualification:
Diploma in Education, National Institute of Education, Singapore
Advanced Certificate in Training and Assessment (ACTA)

Embrace a Different Kind of Mind

DRAMATIC
DYNAMIC
RESILIENT
INTELLIGENT
ENTREPRENEURIAL
EXCEPTIONAL
INVENTIVE
CREATIVE

Deborah Hewes

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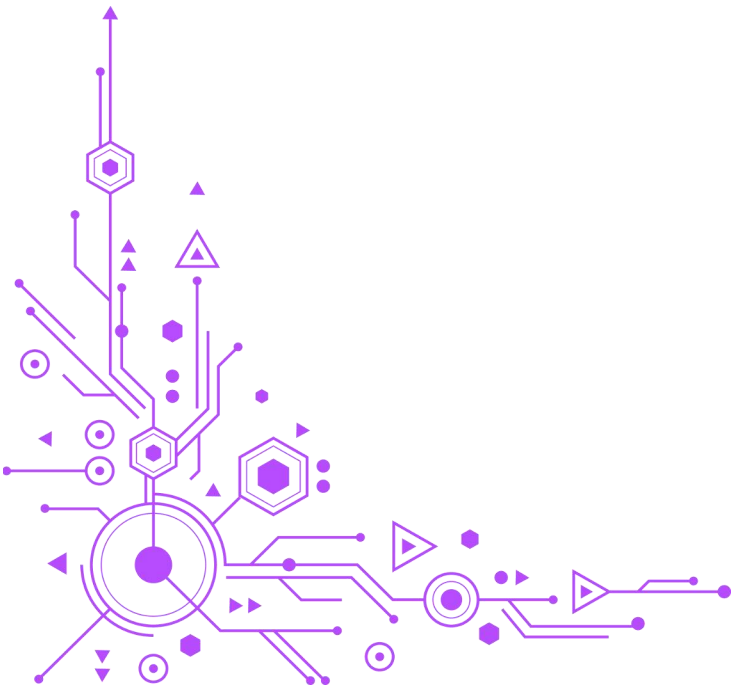
EMBRACE DYSLEXIA

Embrace Dyslexia Commitment

Embrace Dyslexia intends to raise awareness of dyslexia in the Singaporean community with an aim to have as many people understand both the strengths and challenges that individuals with dyslexia face everyday.

Raise awareness for Embrace Dyslexia by:
- Sharing information about dyslexia in your workplace
- Inviting DAS to conduct Awareness Talks
- Including information about dyslexia in the staff handbook

Explore opportunities to work with DAS
- Workplace Giving or Volunteering Initiatives
- Mentoring DAS Alumni for internships or work experience

Champion dyslexic individuals
- Recognising their strengths and understand their weaknesses
- Providing appropriate support and encouragement

Donate to DAS Programmes
- Support low-income families by giving to the Bursary Fund

Advocate for Embrace Dyslexia

Embrace Dyslexia with us. Sign your commitment today.

www.das.org.sg/embrace-dyslexia

DYSLEXIA ASSOCIATION OF SINGAPORE
HELPING DYSLEXIC PEOPLE ACHIEVE

The Dyslexia Association of Singapore (DAS) is a vibrant organisation serving the specialised educational needs of over 2,900 students with learning differences. DAS has over 240 professional staff offering a wide array of services and operates 13 learning centres across Singapore.

T 6444 5700 | **www.das.org.sg**

Developing Success: To Succeed You Must First Fail

Dr Neil Alexander-Passe

We are programmed from an early age to avoid failure and that any failure should be kept secret, as it is shameful. We see 'failure' as an emotionally charged word and one that we are taught will make us feel sad and deficient (it's a taboo subject in the Middle East, and leads some in Japan to commit suicide).

This faulty model sees success and failure as two opposite ends of a long path, with us being in the middle looking to choose either turning left or right. If we choose the wrong direction, we will end in failure, but if we choose carefully we will walk down the path to success. Failure is seen as something to avoid at all costs, rather than part of the journey towards success. New theories suggest to get to success you first need to walk through failure and learn from it, embrace it, to then reach success. When you have failed enough times, you are closer to success. Some have even said 'failure is life's biggest teacher'!

Very few stories of failure are told in the media, but success is commonly celebrated. One could argue that failure should be celebrated too, as it moves people closer to success.

> "We are programmed from an early age to avoid failure and that any failure should be kept secret, as it is shameful. We see 'failure' as an emotionally charged word and one that we are taught will make us feel sad and deficient."

Thomas Edison, the inventor of the light bulb, which reportedly took 1,000 attempts to get it right before he came up with a successful prototype. When asked 'how does it feel to fail 1,000 time?' by a reporter, he replied 'I didn't fail 1,000 times. The light bulb was an invention with 1,000 steps'.

It is once said that an executive at IBM once made a mistake that cost the company 5 million dollars, he went into see the CEO expected to be fired. However, when asked why he wasn't being fired, the CEO responded 'you have just gone through a 5 million-dollar training program, learn from it'. It's all about perspective.

Interestingly, there are business groups that meets around the world that specialises in entrepreneurship ventures that have failed and how to learn from them (www.thefailcon.com). Their website notes their 'conferences are for start-up founders to learn from and prepare for failure, for fast growth'. Their by-line is 'Embrace Your Mistakes. Build Your Success. Stop being afraid of failure and start embracing it'. This healthy attitude to success epitomises this book.

It could be argued that as we are programmed to avoid failure, we are so focused on this that we do not allow ourselves to see all possibilities, so maybe we do not allow ourselves to succeed, as that is not our aim? It is said if you try really hard to not be like your parents, you probably will end up just like them, as you will make many of the same safe choices.

It is said that young children are far more creative than adults, but have we asked why? Where does all this creative skill go, when we start school? One could argue that as soon as we learn the term 'failure', and try to avoid it at all costs, we make safer choices in life, and avoid risk, and repeat the same safe choices over and over again. Creativity relies upon the ability to take risks and fail, to try different combinations.

UNDERSTANDING SUCCESS

It is important to look at developing success in the non-dyslexic world, to understand if successful dyslexics are any different to successful non-dyslexics. This would also answer the question 'can dyslexics bring unique skills to the job market?

A good place to start is the research by Professor Angela Lee Duckworth (2016), who researched why some adults are successful and others not. She argues that the skills for career and post-school success 'infrequently' correlate with school-success, as there are many in school who are very bright, but their less academic peer's out-do them in career stakes. She argues that these brighter students lack 'grit', defined as the completion of challenging goals in the face of setbacks and obstacles. They

have always done well at school and find it really hard to lose or fail, are inexperienced in coping with failure, and aim to avoid failure at all costs (in the workplace). As adults, they take safe choices and their path to success is much slower, being a safer version of who they really want to be.

Duckworth argues that learning to cope with failure is a key to success. Wimbledon High School, a private school in South London has a 'failure week' each year to help its high-achieving students become less fearful of making mistakes. A model that other schools could follow.

Duckworth believes that **'GRIT'** also stands for:

- **G**ut – trusting your gut, listening to it and follow it as it's made up of a multitude of life experiences.

- **R**esilience – the ability to bounce back from failure to succeed in tasks

- **I**nventiveness (invent and reinvent) – the ability to reinvent oneself to the changing world, and to be creative to find new solutions to problems.

- **T**enacity – the ability to persevere, to not give up even if tasks are hard or seemingly impossible.

A second researcher, Professor Carol Dweck (2012), popularised the term 'growth mind-set' as a means to understand the need to challenge the 'I can't do this' and change it to 'I can do this', to develop resilience and persistence in adults, so they can handle failure or the fear of failure. It is the fear of failure that makes people believe they 'can't do a task', and the lack of persistence means they will give up more easily in tasks perceived to be hard.

Lastly, Professor Martin Seligman (1991, 2006) argues that learning and personal growth comes from being 'optimistic' about life, to see possible creative or divergent possibilities in business, and when developing new ideas. To take risks in life and then new possibilities can open up to you. He suggests the language parents, and teachers use is important to develop divergent thinking and solutions, and to develop resilience one needs to teach that any setbacks are specific to a task

"Professor Carol Dweck (2012), popularised the term 'growth mind-set' as a means to understand the need to challenge the 'I can't do this' and change it to 'I can do this', to develop resilience and persistence in adults, so they can handle failure or the fear of failure."

rather than being global, e.g. changing 'I'm no good at maths', to 'I find algebra hard'. It one can pin-point areas to develop, it is much easier to work on them, rather than feeling helpless about such a big barrier.

Professors Duckworth, Dweck and Seligman all agree that trying to avoid failure, can actually lead to failure, as only by embracing and learning from failure can real growth, and new opportunities occur.

Another key seems to be 'self-control', as the ability to stay focussed on tasks for the long-term rather than gaining immediate pleasure. This is demonstrated in the marshmallow test (Mischel, 2015). If a young child can resist eating a marshmallow in front of them for 5 minutes, they will be rewarded with three marshmallows, however, many lack the self-control and will eat the prize immediately. It is argued that those with a low self-control will lack the determination to aim for the long-term riskier goals of entrepreneurship success and will choose to stay in secure but low paying jobs.

Having 'Grit and Self-control' is argued by Duckworth to be like living life as a 'marathon rather than a sprint'. Playing the long-game will bring the ultimate success one seeks, but will require sustained effort over a long time (stamina), working long into the nights for many years 'grit' (hard-work). She argues that in most cases 'grit' not 'intelligence or academic achievement' is a better predictor of career success. Research suggests that most entrepreneurial ventures (70%) fail and that the road to success is often long and lonely, with brutal hours, massive amounts of stress, and a huge amount of personal sacrifice. However, using Dweck's 'growth-mindset', such individuals understand that any failure is temporary and that in the long-term, there will be success, thus resilience and perseverance/persistence pays off.

PROMOTING 'GRIT' IN CHILDREN

Ducksworth suggests that to promote the development of 'grit' in children, parents should:

Put a challenge in from of them – by understanding that real growth and learning comes from overcoming barriers and difficult challenges; parents should give their children multiple challenges or problems to overcome, and to support them in overcoming them.

Promoting perseverance – support your child to understand that it's a myth that some people naturally get things, and others do not. Support them not to give up in achieving their goals (e.g. learning to play an instrument), as even those who are naturally gifted must work hard and long, persevering to attain their goals (e.g.

learning a new piece of music).

Nudge your children – let your children know you are going to be pushing them to achieve in life, this tells them you are supportive and will help them plan their time and to remind them when they need to practice.

Support their frustration – let your child know that you understand its frustrating gaining new skills or fine turning a current skill. But also letting them know that they need to persevere, and you won't do it for them. This means they will gain a sense of achievement when they have accomplished hard tasks.

Let them fail – it's a hard thing to do, but children need to bounce back from failure and to gain their own mastery. Resilience comes from brushing themselves off and trying again. Trying again and again is hard but only through this process will they learn the true meaning of 'grit'. Parents need to let their children fail and then for them to reflect upon the experience, to then 'bounce' back and try again.

TALENT OR HARD WORK?

Professor Duckworth suggests that hard work trumps talent, and achieving requires 80% hard-work and 20% talent. Duckworth's research suggests that the ability to work hard over a long-period of time can bring attainment of degrees, the ability to take the rough and the smooth at West Point military academy, and entrepreneurship success. As in each case 'playing the long game' brought success.

SO WHY ARE MANY DYSLEXICS SUCCESSFUL?

It could be argued that dyslexics have learnt very early at school that 'it's okay to fail', and that whilst they hate failing and looking stupid or foolish in front of their peers, they learnt a very important life lesson. They understood that mastery takes time, and they must play the 'long-game', maybe not by choice.

At school, they developed 'self-control' by not joining in with the low intelligent and delinquent groups, as they morally believed that you go to school to learn, and that you need to work hard to achieve in life, this could be classed as 'grit'. They also recognised they worked much harder than their peers to gain similar results, and whilst this was unfair, they had no choice on the matter.

If 'grit' is not learnt as a child, the ability to be resilient and to bounce back from continued failure, then it is a much harder lesson to learn as an adult. This is why mental health is on the rise and is predicted to be this decade's number-one health concern, as to get things wrong is understood negatively, and we are programmed

to get sad if we fail at things, e.g. school, dating, degree, work, marriage, etc.

This book argues that dyslexics worked harder than their peers at school, and carried on working harder as adults, however, as adults they were less restricted by their difficulties and were able to shine.

Returning to Duckworth's definition of 'Grit', dyslexics:

♦ Gut – listen to their gut and use it to guide them through life.

♦ Resilience – demonstrate the ability to bounce back from multiple failures starting from school and into adulthood.

♦ Inventiveness (invent and reinvent) – are divergent thinkers as the say 'it's normal to fail at things,', and they tend to not be confined by traditional solutions to problems.

♦ Tenacity – at school understand the need to play the 'long-game' and that to learn and achieve they need to put in long-hours and stay focussed on tasks even when others tell them they should give up.

This does not discount the many thousands of successful non-dyslexics, however if they didn't learn to fail at school, did they learn it the hard way as adults?
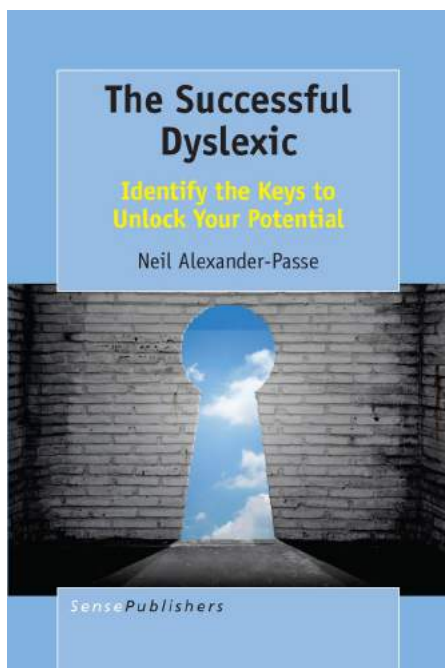
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The Successful Dyslexic—Identiry the Keys to Unlock
your Potential by Dr Neil Alexander-Passe

This book is available through Amazon and Barnes &
Noble.

ABOUT THE AUTHOR

DR NEIL ALEXANDER-PASSE

Neil Alexander-Passe is dyslexic himself, has just completed a 'PhD by Published Work' at the University of Sunderland, and since September 2017 has been the Head of Additional Educational Needs (managing a large team supporting students with SEND, English as an additional language, more able, and disadvantaged) at a large mainstream secondary school in North London.

In 1990 he gained a BA Hons in Graphic Design (University of South Wales) leading to a 20 year successful career as a graphic designer in the travel industry. In 2005 gained an MPhil researching how dyslexic teenagers cope using measures of self-esteem, coping and depression (The Open University), and a spell as a postgraduate researcher (London South Bank University). In 2010 he published his first book 'Dyslexia and Depression: The Hidden Sorrow'.

His passion is to understand the trauma that many dyslexics experience at school, and any emotional ramifications that follow impacting on mental health. In 2010 he retrained as a teacher and has worked in special needs in both primary and secondary education. He is an advocate of early assessment in schools (gaining his CPT3A in 2014), and this has led him to present to MPs and peers in parliament on educational policy.

His current focus is with a 'bi-ability' theoretical model for dyslexia (compared to the 'social' model of disability) and the use of a 'post-traumatic growth' concept to understand how many dyslexic individuals can be successful 'despite or because' they experienced traumatic schooling as children.

His academic books include two edited volumes investigating 'Dyslexia and Creativity' (2010) and 'Dyslexia and Mental Health' (2012) and a book investigating 'Dyslexia, Dating, Marriage and Parenthood' (2012).

Ten peer-review papers have been published to date and his 2015 book 'Dyslexia and Mental Health: Helping people identify destructive behaviours and find positive ways to cope' was widely acclaimed with reviews by Professors Angela Fawcett, Maggie Snowling, and Neil Humphrey.

His 10th book entitled 'The Successful Dyslexic-Identify the keys to unlock your potential' has was published in 2017 with acclaimed reviews from Professors Angela Fawcett and Steve Chin, along with Gavin Reid and Thomas West.

In September 2017 he changed from being Head of SEND at a primary school to a large secondary school, so can reflect on the needs of a broad range of student needs.

David Fawcett: A Successful Dyslexic!

David Fawcett

It's not easy being expected to write about being a successful dyslexic. My working life wasn't a total disaster, despite all sorts of difficulties, I did enjoy a degree of success.

My dyslexia was not diagnosed until I was around 50 years old and I retired at 58. So throughout school, college and most of my working life I was not seen as being dyslexic or having any kind of learning difficulty but, I was:

- ♦ Just a bit slow
- ♦ Somewhat disorganised
- ♦ Perhaps a little anxious

I was actually diagnosed by Angela's colleague Rod Nicolson, who provided me with one of his extremely comprehensive reports, and he took the trouble to point out that in parts of the IQ test I was in the superior range.

Wow! I would love to have known this years ago.

At school, some dyslexic children become angry, or even aggressive, because they know they are not being treated properly and not having their needs met. Now I wasn't angry, because I felt it was my fault that I couldn't do stuff and got things wrong, so that made me sad, yes, I was sad rather than angry. I always seemed to be lost, I didn't know where I was supposed to be, so that also made me anxious. Everyone else seemed just to know the correct room and the right time to be there. So, I soon learned to latch on to others who were smarter than 'slow old

> "At school, some dyslexic children become angry, or even aggressive, because they know they are not being treated properly and not having their needs met."

me', the rather miserable six or seven-year old. To me now looking back, I do see dyslexia as a miserable condition and I want people, especially teachers to understand this. It's the wanting to please, the striving to do well, followed by constant failure in almost everything that the school demands. If there are no successes to build on, the result is misery. I can't start writing about this today without first making this point, it's a miserable condition that can be made even worse by teachers or carers who just don't understand it.

There is no cure for dyslexia. I'm just as dyslexic as when I was at school.

But I have learned coping strategies that enable me to function 'normally' AND even be successful in a very demanding job.

Some 'experts' say dyslexia is just a reading problem, others say it is much more than that and I would agree with them. It is a travesty that teachers and even some educational psychologists insist on bombarding dyslexic children and adults with more rote learning! Rod calls it creating a 'mental abscess', where you simply can't face failing yet again. Do we want these unfortunate children to feel miserable and frustrated? I can't believe we do, so why persist in this type of remedial action? Wouldn't it be better to play word games, perhaps look at the derivation of the word, at similar words and their meanings and spelling? Provide number squares so the child has instant access to what six sevens are. Some good teachers and specialists already do this.

I believe that dyslexic people need help with the environment in which they find themselves and with what is expected of them. They are keen to please and to learn but they need it explicitly spelling out, if just left in the dark they will fail. I'm sure that teachers aren't hoping for kids to fail just to watch them squirm, but I can assure you that is how it feels! Yes, what I'm saying is give them the methods and the point of the lesson at the start. These are often smart kids who will then romp through the lesson gaining the knowledge they are supposed to learn.

Ideally a child will have a champion, someone who believes in them. Often a parent will fill this role because they believe in their child. But a more powerful champion might be the teacher who can "see" some hidden talent in there and instill the confidence to bring it out. Most successful dyslexics can instance a time when someone they respected said:-

"Well done, that was excellent, I knew you could it"

"Some 'experts' say dyslexia is just a reading problem, others say it is much more than that and I would agree with them."

A word of warning here! This only works when the child has actually done something outstanding, false praise is patronizing, and worse than useless to a smart dyslexic person!

Or they might say - "Some people are high flyers, they will really succeed in life and in my opinion you are a high flyer"

How often do we see great talent or even genius and not point it out?

The main problem is lack of confidence caused by constant failure.

So, strategies are the key and this is where good teachers can really help. Rather than keep presenting the same rote learning, kids need to be interested and stimulated if they are to learn. In just the same way as we would present to adults.

I was miserable at school I was happy at home and during the holidays, my parents were great, extremely supportive, they seemed to understand my problems and they helped me a lot during the primary school years. They believed in me and spent hours trying to help me master the times tables and simple spellings that the school demanded... but I still struggle decades later...

Despite all their help I failed my 11 plus exam, in those days (and it must have been at the start of the 20th century) you either passed to go to a grammar school leading to a successful career or you failed and went to a secondary modern leading to some sort of poorly paid manual or vocational job if you were lucky.

As I say, my parents were brilliant, they weren't wealthy but they found the money to send me to a private school, from 12 to 13. And it was at this point that I began to succeed and even enjoy some aspects of school. Firstly, the lunches were actually edible, the classes were smaller and the teachers were, well, inspirational. After two years, I sat the entrance examination for the Central Technical School, it was quite a prestigious state school and an important one at that time as Sheffield was a major industrial manufacturing and steel producing city. Only one in twenty of the thirteen-year old boys who took the exam gained entry - and I passed!

Whilst private school had prepared me well to get through the entrance exam, it hadn't prepared me for the rigors of this traditional school We could gain merit points for good work or behaviour. It was also possible to get demerits for poor work or bad behaviour and I'm afraid, to my horror, I contributed more demerits because I was sometimes late and I didn't always get top marks on homework and tests - even though I tried my hardest. But demerits weren't the worst thing, we were also caned for lateness and for things like getting less than 18 out of 20 in a French

vocabulary test, which I frequently did. There were other degradations for struggling students like me, imagine being told, "Fawcett - stand in the waste bin, you're rubbish," and this happened to me several times. Or "Wait until you get those shovels in your hands". This puzzled me but as my classmate Johnson explained "He thinks we are only fit for manual work and we won't get a decent job".
I did struggle through the three-year engineering course but I could succeed in most of the subjects, we did thirteen in all, academic as well as technical. You had to pass in all subjects to gain the diploma. I got a second-class diploma, equivalent to five O levels, which was enough to get me into further education technical college age just sixteen without having to do a foundation course.

But still a poor start in life with no chance of university and little chance of a successful or rewarding job. But I was happy to leave school at 16 and find work, I have to say it was easier in 1961 when jobs were plentiful.

The technical school was an excellent source of apprentices with a good grounding in technical subjects as well as the normal school subjects. Local steel works would request batches of boys each summer. Mr Westnidge was our careers master, he interviewed me towards the end of my last term at school, he explained he needed to learn my personal preferences to help me find a suitable job. Because I didn't want to be an Engineering Apprentice, and I certainly didn't see myself in a blue boiler suit, I explained that I preferred interacting with people rather than machines, I liked art and music. "Perfect! boy" he said, "engineering apprentice", adding me to his list of 25.

I didn't take that job but I did join the steel works. My Dad was a development engineer, and he got me an interview for a job in one of the labs. Wow, a job in a laboratory, wearing a white smock rather like a doctor, this was the job for me. I was very eager to please at the interview and got the job.

You can imagine my disappointment on my first day when I was issued with a brown smock to wear and then at the end of the first day being given a brush and told to sweep the floor. It wasn't only humility I learned in those early years.

I was given one day per week 'day release' to go to technical college and asked to attend two nights at night school. I learned Instrument Maintenance to advanced level, it was only vocational and it is the highest qualification I ever got.

> "I began to realise that anything was possible with a combination of hard work and family, friends and colleagues who believe in you. This is the secret of my success!"

I did a silly thing at that time, I did a number of silly things which I won't go into now, but this was relevant to my dyslexia because my handwriting was so bad. It was just about legible, I could just about keep up when copying from the board at night school but it looked so untidy like that of a five-year old - I was embarrassed by it. So, I bought my first Self Improvement book "Teach Yourself Handwriting". I was so excited by it and set to work practicing and forming beautiful letters. It took forever to produce just one word because it was teaching me to do copper plate calligraphy and not neat writing which was my goal. But I had lived a life of trying to do the impossible with futile attempts at learning tables, spellings and maths, so I kept at it. I had gained some resilience despite my failures mainly through encouragement from my parents and those I respected. Why was the handwriting exercise silly?

I found after hours of intensive practice on each letter of the alphabet, and getting some beautiful letter forms that I could be proud of, I had done something awful to my writing hand! I had lost the fluency with which I produced my untidy writing and I was never going to be fast in calligraphy, so this is a cautionary tale for anyone tempted to give advice to a student with poor writing!

I finished up with a sort of untidy calligraphy making me use two strokes to form every "e" and there are lots of e's! But I can do beautiful writing for a birthday card given that there are 10 or 15 minutes to spare.

After 4 years maintaining automatic process control instrumentation, I was particularly impressed with the Honeywell ones. I could see the advance in electronics in the world and wanted to learn more so I went to Sheffield University. Not to do a degree, remember I had very limited qualifications, I joined the university as a technician in the electronics workshop. Here I did get to wear a white coat! I didn't learn how to design circuits, beyond the very rudimentary ones but I did learn the terminology and what they did. Now this was not a very well paid job and by this time I had just got married to this rather special woman, she was earning a lot more than me but I didn't know what else I might do. Then there was a job advertised by Honeywell, the organisation I so much admired when I worked in the steel works. They wanted an Inside Sales Engineer - selling just the sort of control systems I was familiar with. But I couldn't possibly apply, they wouldn't want me, they were a major global organisation and I was so poor at writing, spelling and had very little confidence in myself, especially in a selling role. It was here that Angela stepped in, "you can do it, they'll really like you, you must apply". So, I sent for the application form and completed it in my copper plate writing, with Angela working as my spellcheck. This had to impress them and it did because they granted me an interview. I wasn't going to fool them at the interview, I wasn't very

good at anything, why would they want to employ me? Angela said just be yourself and they'll love you, I really did want that job.

Well I did get it and I needn't have worried, they had a great training program and I had an amazing mentor, who like Angela could see a lot more potential in me than I could see. He sent me off on a 6-week training course saying anyone from Sheffield has to come out top of the class. He advised me to revise each day's work during the evenings to be ready for a test at the beginning of each day. I did the revision and for the first time in my life came out top of the whole bunch. The person most impressed was me! I began to realise that anything was possible with a combination of hard work and family, friends and colleagues who believe in you. This is the secret of my success.

I had an amazing career at Honeywell, my inside selling job entailed answering the phone. Each phone call presented a different challenge and I enjoyed it until there was a recession and I had the option of redundancy or to move. Neither option appealed to me so I was lucky that one of the managers of the domestic controls side of the business saw some sales potential in me and offered me an outside sales post. Now this meant I was given a new car, well we couldn't afford a car at the time so this was quite an incentive. But it had been my technical expertise that saw me through the job so far. I was now to be selling much simpler devices like thermostats to heating merchants, plumbers and local authorities. This demanded totally new skills, not just sales and interpersonal skills but navigation and timekeeping, both of which are difficult for dyslexic people. I developed route charts for each customer as it was no good relying on my memory and tried hard to keep appointments to the minute as customers set aside a time to see you and it's rude to be early or late. You know it's 14 years since I retired from work and I still have nightmares where I'm late and, try as I might, I can't find my way into the building for an important meeting.

Here my success started to take off and I was promoted to regional sales manager with 6 sales engineers reporting to me. I enjoyed that side of things and interestingly, found out later that many dyslexics succeed in management and in sales, I did both but didn't find it easy. You see all this time I still had no diagnosis of dyslexia, so as well as finding strategies to help me do the job, I was still in the business of covering my tracks, I'd start early in the morning and plan my day, I would know where I needed to be, who I needed to see and at what time for 6 or 7 appointments in a day. They were written down in my diary, there was no way I could remember the names so I would quickly check as I walked confidently into reception.

I needed to work late to ensure my reports were in on time - they do take a lot

longer when you are dyslexic! I found a dictaphone invaluable and later used my mobile phone to record the results of my sales calls. I covered most of the north of England so there was plenty of time in the car to put my thoughts down whilst they were fresh and this made report writing easier.

I found note taking invaluable during telephone calls, I had to call the guy to make the appointment and when I did I wrote down what he said, things he wanted to discuss and any personal information he gave me. So, when I got to see him I was able to refer to my notes and ask how his children were or congratulate him on his promotion etc.

I even asked if they minded if I made notes during the visit so I had a record of any actions I promised to make and I was able to write down any feedback or competitive information he volunteered.

I also made notes at meetings, it meant I had a brief record of decisions reached as a useful reminder for me at the next meeting. Just brief notes not only compensated for my memory problems but would give me an advantage over my colleagues who were not dyslexic.

I became pretty successful and enjoyed my interactions with these many relatively small customers. Now we also had larger customers, major accounts, that were handled by older, more experienced sales engineers than me. There were just a handful of major accounts and each was worth around £10m, more than my whole region would make in a year.

I could not believe it when I was asked to take over the Ideal Standard account, it was the biggest account we had in Europe. I challenged my boss and mentor, Derek, about this as I was only in my mid 20s and these accounts were normally handled by really high flyers, I said. Well you are a high flyer said Derek, and this was one of the most amazing things anyone has ever said to me. I was so pleased I didn't even mind that I didn't get a pay-rise for taking on all that extra responsibility!

I held that account for 20 years, and that's £200m over the time that could have easily been lost to competition. It was so important that my name was considered for sales awards, we had something called the Presidents Club, Honeywell was an American company having a president as CEO. Each year a few salesmen would be selected from across the world and just to be nominated was a great honour. My third nomination was successful, I was invited to join the presidents club. This was a lifelong change in status, it was even printed on my business card. To receive the award Angela and I were whisked off to Puerto Rico for a two weeks all-expenses-paid " business meeting " and we actually had breakfast with the President. I

continued to be successful and was even nominated again for Presidents Club - this didn't happen very often and it was unlikely that I would be even considered again. Well I got it for a second time, I was what the Americans called a two- timer! And we got to go to Puerto Rico for a second time.

That was not the pinnacle of my career. After 20 years handling the Stelrad account I had to pass it on to a younger salesman. On my last visit the CEO organised a leaving presentation for me. They brought together around 20 of my contacts from across the company to wish me a farewell and give me a leaving present. It was a pocket electronic organiser, - it seems I hadn't totally hidden my organisational difficulties from them - but meeting that group at a unique sort of leaving party was one of the best things that have ever happened to me.

One of our other major accounts had decided to go to competition, it was going to be a disaster for our bottom line. To cut a long story short, I managed to turn their decision around and hold the business for many years. My secret was to build trust, to make sure that we always followed through on our promises and to ensure that quality and delivery promises were kept. This wasn't easy because my company was not perfect and it needed a great deal of input from me to make sure we met the customer's expectations. I asked for an office at the customer with a desk, filing cabinet and phone and within two years we had not just kept the business but Honeywell was granted the Baxi supplier of the year award.

As I say I retired 14 years ago, now for the first time in my life I don't have that awful feeling each night and morning, knowing I had to face school and later work, you know that feeling when you have an exam or interview that you are not totally prepared for. I am fully enjoying my life now supporting Angela and I'm extremely proud of the work that she does and my part in supporting that work. In fact, most recently in India, Angela was ill and I stood in for her, giving her talk on Theories of dyslexia to over 250 people, and I have now started to be invited to give talks myself. I'd like also to thank Angela for the support that she has given me over the years and for being one of those people who believed in me and who played such a big part in all of the successes I achieved in life.

So, my take home message is that you can succeed with dyslexia, even without support, but you need people who believe in you to give you the confidence to keep trying!

ABOUT THE AUTHOR

DAVID FAWCETT

David struggled with literacy in primary school, but with support from his parents gained a place at technical college. Despite all his efforts, he was the boy who scored 'only fair' for his academic work. On leaving school his careers master dispatched him to the steelworks, although he really wanted to work with people. Building on his hard -earned technical skills, David became a technician at the University of Sheffield. With the encouragement of his wife Angela, he was appointed to a technical sales position at Honeywell controls. Combining his technical and people skills to excellent effect, he rose to Regional sales manager, and received many awards for his work. The stress of coping in this demanding environment as a recently diagnosed dyslexic led him to seek early retirement at the age of 58. Acting as carer for Angela's mother in her final years proved to be the most demanding job he had ever faced! Retirement gave him the opportunity to develop his skills as an artist to good effect, as well as travelling internationally to conferences on dyslexia. In 2012 David presented his first talk on his dyslexia journey, and he has since contributed at international conferences in the UK, New Zealand, Asia and Brussels. His personal insights into the strengths and challenges of dyslexia have been very well received internationally.

EMBRACE DYSLEXIA

One in 10 people will have some form of learning difference.
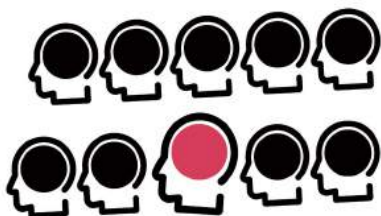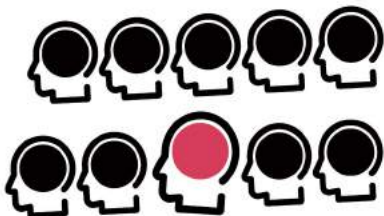
Dyslexics use the right brain more than the left when learning.

Many dyslexics can see unique solutions to problems.

Around 40% of people with dyslexia also have ADHD.

Dyslexia runs in families. Children have 50% chance of having dyslexia if one parent has it.

They can see things from different angles and have strong visualisation skills.

Many dyslexics are talented and creative and they can be "big picture" thinkers.

Research has found that around 35% of entrepreneurs in the United States are dyslexic.

Dyslexics do not "see" words in reverse. The "b" & "d" letter reversal occurs when they are unable to name the letter.

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Vickar Adam – Photographic Genius

Angela Fawcett
Research Consultant
Dyslexia Association of Singapore

I recently met Vickar Adam at a conference in Bandung for the Dyslexia Association of Indonesia. Vickar had been invited to inspire the audience with his talent and brilliance as a photographer.

An elegant, charismatic but vulnerable man, Vickar has only been diagnosed as dyslexic in the last 2 years, and he is still struggling to understand the concept fully. He has always been aware that he was different from many of his peers and struggled to achieve his degree in Economics, taking 4.5 years rather the expected 3 years to complete.

In his younger days, art, in particular painting was Vickar's salvation, but since becoming a self-supporting adult, he has realised that paintings take too long to complete to be a viable source of funds for life. Instead, he has developed a new passion for photography, setting up his own company, Vickar Adam Photography, in 2010.

He has already been extraordinarily successful, working first in Rotterdam, and more recently at the Paris fashion show and has been asked to take photos to advertise Rolex watches. His ambition is now to move to Europe, where he can express his interests more freely, choosing Amsterdam, and learning Dutch because its similarity to Bahasa makes it more feasible to achieve for a dyslexic adult. I was extremely impressed with Vickar and how well he has dealt with his dyslexia, despite receiving little support throughout school and beyond. I shall allow his studies to speak for themselves, and thank Vickar for the opportunity to share some of these memorable images with you.

> "An elegant, charismatic but vulnerable man, Vickar has only been diagnosed as dyslexic in the last 2 years, and he is still struggling to understand the concept fully."

Photos have been published with permission from Vickar Adam.

This page:

Fashion photoshoot fore international model wearing Indonesian clothing brand.

Next page:

Photos taken at the Rinaldi Yunardi Fashion show. Rinaldi Yunardi is a famous fashion designer from Indonesia who works with many Hollywood celebrities

Photos have been published with permission from Vickar Adam.

This page:

Makeup Photoshoot for Ivan Gunawan Indonesia campaign.
Make up: @ivan_gunawan
Hair by: @titidj.wig
Models: @devitaravani
               @nadjash
               @elsabrilliant

Next page:

Photos taken at the Elie Saab Fashion Show at Paris Fashion Week 2016

Photos have been published with permission from Vickar Adam.

Facing page:

Cover photo for Memento Magazine, October 2017, Indonesia

This page:

Street fashion photo taken in Rotterdam, Netherlands. Published for Vickar's solo exhibition in January 2017.

And Vicar below in action taking this photo!

Photos have been published with permission from Vickar Adam.

This page:

Photo campaign for Rolex Pro Hunter by Bruno Rubinski Paris

Model: @simon.adde
Fashion Director: @signorfandi

Below: Vickar Adam

ABOUT VICKAR ADAM

Vicar was born in West Sumatra but grew up in Banda Aceh - Nanggroe Aceh Darussalam, the small city in the very north of Sumatra, as his parent moved there for work, His parent did not know about dyslexia and nor did he, until around 2 years ago. He remembers that his life was not easy and he had to face it by himself. He used to help himself to solve his own problems and decided not to let anyone know what happened in school, where he got bullied and preferred spending his time alone with his drawing book. He started photography in 2010 after he finished his contract on his project with humanitarians in nias after disaster recovery. He learned in Bali with the photography community and found that this is his passion. He has now travelled to several countries for work.

To view more of Vickars work see Instagram @vickar.adam

ABOUT THE AUTHOR

EMERITUS PROFESSOR ANGELA FAWCETT
Swansea University

Professor Angela Fawcett is a leading international researcher into dyslexia and other development disabilities, encompassing a range of theoretical and applied contributions to this field. Her approach is broad and interdisciplinary ranging from child and cognitive development to educational screening and intervention, as well as development cognitive neuroscience. She is the Vice President of the British Dyslexia Association and also the Former Chair and Director of the Centre for Child Research at the Swansea University, UK.

Is Dyslexia a Desirable Difficulty?

Deborah Hewes
Head of Publicity and Publications
Dyslexia Association of Singapore

The concept of 'desirable difficulty' was first conceived and researched by two UCLA psychologists, Robert Bjork and Elizabeth Bjork. They describe a desirable difficulty as a learning task which requires more effort with conditions that make learning more challenging and therefore creates an environment for better learning which can 'trigger encoding and retrieval processes that support learning, comprehension and remembering.' (Bjork and Bjork, 2009). It is not so much of a stretch of the definition that the concept of 'desirable difficulties' is connected to dyslexia as Malcolm Gladwell (2014) does in his book "David and Goliath". Gladwell writes that dyslexia, 'forces you to develop skills that might otherwise have lain dormant'.

Gladwell (2014) proposes that a difficulty can work as an asset for an individual. Dyslexics must work harder, use individual signature strengths, and develop their own coping strategies to compensate for their learning challenges. In making his case for desirable difficulty in dyslexia, Gladwell presents three successful individuals with dyslexia; David Boies, Ingvar Kamprad and Gary Cohn. For these very successful individuals he identifies their 'signature' strengths as an asset in relation to their success. In the case of Boies, a world-famous trial lawyer, his success is due to his 'listening skills and formidable memory', Kamprad, the founder of Swedish furniture retailer IKEA, for his 'innovative thinking and disagreeableness' and in Cohn's case, a Wall Street banker and CEO of Goldman Sachs, his success was due to his 'capacity to deal with failure and his risk-taking ability'. Gladwell builds a case for a desirable disability where some people in the face of adversity strive harder, work smarter and use their strengths to succeed in the world. Gladwell goes on to question, is it their innate strengths that have ensured success

> "Dyslexics must work harder, use individual signature strengths, and develop their own coping strategies to compensate for their learning challenges."

despite their disability or has the disability itself ensured that they have needed to harness those strengths more effectively?

Gladwell's case for desirable difficulties of dyslexia features two concepts, 'capitalisation learning' and 'compensation learning'. Capitalisation learning, as he terms it, is "easy", this is where we use our talents to help us to learn. If we have a talent, for example a good memory, then using this talent to help further our learning seems clear and logical. However, he states that compensatory learning is much more challenging, this is the type of learning that comes out of necessity, and he indicates those with a 'serious disability', which he implies dyslexia is, who can still learn in spite of their disability make for an excellent story, something worth talking about, something worth investigating and understanding. This is where Gladwell writes about the unique adaptation to the learning environment, learning things in their own special way, and finding the strategies needed to learn, that compensatory learning and capitalisation learning has been compared to a 'desirable difficulty'.

In the 'desirable differences' theory developed by Bjork and Bjork (2009), they identify a number of factors or challenges that can be introduced into learning that will support coding and retrieval of information, they describe the factors as 'desirable difficulties'. The concept is that if learning is too easy then deeper processing is not achieved and therefore, doesn't encourage long-term memory retention. They talk about how the learner needs to take an active process in the interpretation of information, therefore, making memory durable and flexible. Acts of 'traditional study', like reading and rereading information in the hope it will stick in memory is treating the brain and memory like a 'tape recorder' and this doesn't mean that when this information is needed, like in an exam, that all you have to do is try to rewind the tape and expect the facts to reveal themselves. Therefore, Bjork and Bjork claim that when learning and studying, doing things differently or in a challenging way will make a difference in retrieval of information when needed. Factors such as spacing out or massing study, interleaving topics and different types of study events can be introduced into learning to make learning challenging and difficult. They also state that individuals need to take an active role in managing their own learning activities and learning how to learn is the 'ultimate survival tool' (Bjork and Bjork, 2009, p. 63). Desirable difficulties are said to be desirable because they challenge learners to encode and then retrieve information better. However, they also state that if learners are not able to respond to challenges then these strategies are not desirable, if students are not equipped to succeed in these situations then this becomes an 'undesirable difficulty'.

So, can we say that having dyslexia is a 'desirable difficulty'? Ask any parent with a young child diagnosed with dyslexia about the concept of dyslexia being a

'desirable difficulty' and there may be a less positive response to this concept. Many parents would not think that dyslexia is something they would wish for their child when they see the hardships and failure they have in learning. The experience of many children with dyslexia shows the negative effects it has on their self-esteem and self-concept. (Burden, 2005; Humphrey and Mullins, 2002; Ingesson, 2007; Scott, 2004; McNulty, 2003). Many parents of dyslexic children would probably think that Gladwell glorifies the signature strengths of famous individuals with dyslexia and does not address or even consider the real struggles and failures that their children face in their educational journey. In fact, the concept of 'desirable difficulty' is only related to a select few adults in Gladwell's book, are these individuals the exception rather than the rule, (a concept to be explored later in this article, and even these adults when asked by Gladwell, "would they wish dyslexia on their own children? Every one of them said no" (Gladwell, 2014, p. 161). Even though these adults were successful, some declaring they were successful because of their dyslexia – all did not want their children to experience what they had gone through when they were at school. Boies said that watching his boys, who were diagnosed with dyslexia, read "nearly broke his heart" (Gladwell, 2014, p. 161).

So, what is it about dyslexia that presents this paradox of views? The positive and inspiring vision of dyslexic adults who have used their signature strengths and coping strategies to succeed in life, who have supposedly overcome their difficulty, compared to the struggle and failure that dyslexic children have in school when learning to read, write and spell. Looking at research we find such diverse views in our understanding of what dyslexia is and even when defining dyslexia consensus is still not achieved. Alexander-Passe (2015a) even suggests that dyslexia is going through an identity crisis, and that the term dyslexia is not universally used when talking about reading and learning difficulties. Much effort has gone into understanding what dyslexia is, its origins, and a number of theories have been established. Having a clear theoretical understanding of dyslexia allows for effective remediation strategies (Rose, 2009; Alexander-Passe, 2015a; Elliott and Grigorenko, 2014), and with the correct support for dyslexics the better their educational journey and life success will be. Reviewing what dyslexia is, what it means to have dyslexia and only then we can determine what is needed for dyslexia to be a desirable difficulty.

Most definitions of dyslexia agree that it is neurologically based, (Lyon, Shaywitz and Shaywitz, 2003) which means the brain is structured differently and functions differently for dyslexics. This has been confirmed in a number of studies using functional magnetic resonance imaging (fMRI) to show the difference in brain activity between dyslexic and non-dyslexic controls. (Shaywitz, 2003). Over the many years of research, a number of theories have been established as to the causal reasons behind dyslexia. The cognitive theories of dyslexia indicate a number of areas

within the brain that are affected; phonological deficit, (Hulme and Snowling, 2013); rapid naming and double deficit, (Wolf and Bowers, 1999); short-term and long-term working memory, (Nicolson and Fawcett, 2007); low-level sensory processing including auditory, visual and magnocellular processing (Livingstone et al., 1991); attentional factors, (Shaywitz, 2003); and psycho-motor function focusing on the cerebellum, (Nicolson and Fawcett, 2010). All theories have their supporters and detractors not everyone is in agreement. (Gori and Facoetti, 2014) nevertheless if, all theories were combined they create a powerful picture of dyslexia is and its impact on learning.

In Elliott and Grigorenko's (2014) controversial book, 'The Dyslexia Debate', these theories are reviewed, and the authors summarise that with all the research and studies that have occurred over so many years there is little agreement on the cause of dyslexia of indeed a definition. And apart from the phonological processing theory, which to date is one of the strongest causal theories behind dyslexia, (Snowling, 2003), there is little impact on the methods to be employed in the classroom to address learning disabilities. Numerous definitions of dyslexia have been created based on the many theories. Again, there is no clear consensus on defining dyslexia. The Dyslexia Association of Singapore (DAS) draws upon three significant reports in its definition of dyslexia, the Rose Report from the UK (Rose 2009) and two from USA (USDEA, 2006; NICHD, 2000). These reports are used within both countries to drive policy making decisions and to direct funding and support to individuals with learning difficulties. DAS defines dyslexia as follows:

Dyslexia is a type of specific learning difficulty identifiable as a developmental difficulty of language learning and cognition (USDEA, 2006). It is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling. Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and processing speed. Co-occurring difficulties may be seen in aspects of language, motor co-ordination, mental calculation, concentration and personal organisation, but these are not, by themselves, markers of dyslexia (Rose, 2011). An appropriate literacy programme should include the following components: phonemic awareness, phonics, fluency, vocabulary and comprehension (NICHD, 2000). The literacy programme provided by DAS meets these guidelines. The definition although not specifically mention that it is neurological in nature, defines the observable behaviours and highlights the challenges faced by those with dyslexia. It also includes the recommended literacy programme needed to support dyslexics in learning.

It is interesting, however, to look at definitions of dyslexia created by dyslexics themselves. Ben Foss (Foss, 2013), a dyslexic and the author of "The Dyslexia Empowerment Plan", has a unique definition of dyslexia which is something that

other dyslexics would probably endorse. This definition also enhances the idea of what is needed for dyslexia to be 'desirable difficulty'. Foss's definition of dyslexia is as follows:

"Dyslexia is a genetic, brain-based characteristic that results in difficulty connecting the sounds of spoken language to written words. It can result in errors in reading or spelling as well as in a number of areas not considered major life activities, such as determining right and left. Individuals who are dyslexic can be highly independent and intelligent. Dyslexia is also characterised by a set of strengths that typically come with this profile in one or more of the following areas: verbal, social narrative, spatial, kinaesthetic, visual, mathematical or musical skills. Overall it is characterised by an increased ability to perceive broad patterns and a reduced ability to perceive fine detail in systems." (Foss, 2013, p. 4)

This definition not only describes the challenges but also addresses the many strengths and positive features of dyslexia. Indeed, these strengths and weaknesses are reflected in the psycho-educational assessments completed by Educational Psychologists and specialists in the field in trying to diagnose specific learning difficulties including dyslexia. It is through the assessment and diagnosis of dyslexia that strengths and weaknesses are identified and recommendations for support and other accommodations are made. (Reid and Wearmouth, 2009).

Psycho-educational assessment is necessary for diagnosis of dyslexia and is a requirement by many governments and school boards for appropriate funding and provision of support for dyslexic students. (Rose, 2009; USDEA, 2006; Everatt, Weeks and Brooks, 2007). Identification and assessment of dyslexia empowers educators on how to support students with learning disabilities and what intervention strategies would be of benefit. Reid and Wearmouth (2009), see the assessment process as an opportunity to problem-solve and identify the characteristics of an individual learner and how they relate to the curriculum and learning environment. They also state that dyslexia should not only be identified through the use of tests alone. The whole picture of a learner is important by understanding the biological, environmental and cognitive factors involved in the individual's life. (Frith, 1999) When studying the assessment reports for profiles of strengths and weaknesses in dyslexia, Everatt et al. (2008), in their research, identified that students with dyslexia scored high on tests in non-verbal reasoning, creativity and spatial span/visuo-spatial short term memory which is

"Identification and assessment of dyslexia empowers educators on how to support students with learning disabilities and what intervention strategies would be of benefit."

typically considered as a strength in those with dyslexia. It is these strengths that Gladwell identified that dyslexics use to 'capitalise' when learning. Weaknesses in literacy, phonological measures and processing speed were also identified, again a typical observation in assessment for dyslexia and where compensatory strategies will need to be developed to support learning. Such highs and lows in assessment are referred to as "spiky profiles" and are well recognised in talented students who have dyslexia. (Rose, 2009; Eide and Eide, 2011). In fact, it is the highs in the assessment profile that can give dyslexics and their parents some hope in the knowledge that they are good at something. The diagnosis also gives them the security that professional help will be given to them in their education, or at least they should be able to access it. For example, in Singapore, when a student is diagnosed with dyslexia they are eligible for funding from the Ministry of Education (MOE) for remediation under the MOE-aided DAS Literacy Programme (MAP)* (Quek, 2016) (*now known as the DAS Main Literacy Programme, MLP). Understanding the diagnosis and what it means will also alleviate the worry for the child who might have been thinking that because of their failure to learn to read that they were stupid or not smart enough (Ingesson, 2007; Rack 1997).

Understanding the learning problem leads to remediation methods appropriate for students with dyslexia. A remediation programme includes "effective classroom instruction... and powerful intervention support ... from a classroom teacher [who] is engaging, systematic and explicit [in their] instruction in all the critical components of literacy development (i.e. phonemic awareness and phonics, fluency, comprehension, vocabulary, spelling and writing), and they will also need extra support ... in small group instruction [that] is differentiated based on student needs." (Torgesson, Forman and Wagner, 2014, p. 124-125). The right intervention leads to a student's success, however, not all students with dyslexia have access to the 'right' intervention method (Shaywitz, Morris and Shaywitz, 2008). Don McCabe (2002), a dyslexic, in his book "How to teach a dyslexic", claims that dyslexia is also a result of bad teaching techniques and materials and a curriculum that doesn't support the dyslexic learner. Foss (2013) advocates that teachers need to 'teach' and not just present information to students. Teachers should not assume that the student has learned. Linda Austin (2016), in her article on 'Dyslexia Friendly Teaching', reveals that in the UK 52% of teachers did not receive training on dyslexia and 74% were not satisfied with the teacher training given to them to support dyslexic students. All teachers will have a student with dyslexia in their classroom, so these statistics are very worrying. This is a subject that was explored by Gwernan-Jones and Burden (2009) in their study on teacher attitudes towards learning difficulties which found that teachers remained unclear on how to teach them. It implies that we are not equipping our educators with the necessary tools to be able to support dyslexic learners. When reading the stories of many adult dyslexics, like Don McCabe (McCabe, 2002), Ben Foss (Foss, 2013), Thomas West (West, 2005) and

Neil Alexander-Passe (Alexander-Passe, 2010) and the collection of stories in the book "Embrace a Different Kind of Mind" (Hewes, 2015), this theme is mentioned over and over again.

What is the reality for a dyslexic student in today's learning environment? Is their dyslexia a desirable difficulty as described by Gladwell (2014), and will it force them to develop skills that otherwise would have lain dormant? A student with dyslexia learns differently from others (Austin, 2016; Snowling, 2013; Shaywitz, Morris and Shaywitz, 2008) and some students respond to remediation better and quicker than others but what is it true of all of dyslexic learning is that the students must work much harder than their non-dyslexic peers (Cogan and Flecker, 2004). Research from Nicolson and Fawcett (2010) on their cerebellum theory sheds some light on the amount of practice it takes for a dyslexic to automatise learning. The 'square root rule' defines the amount of time it takes for dyslexics to become automatic at learning. What their research found is that "if a skill takes a normal child 'X' repetitions to master, it would take a dyslexic child X1.5 repetitions." Simply explained, if a normal child takes 25 repetitions to master a task then the dyslexic child will take 125 times to master the same task or 5 times longer. (Nicolson and Fawcett, 2010, p. 87). The implication of this finding is that it takes a dyslexic child a lot longer to master tasks and the harder the task is to master the exponentially harder it is to learn.

This extra practice puts the dyslexic at a significant disadvantage in learning and can mean that there may never be enough time to learn all that is required in the time allocated in lessons. Dyslexics may never catch up with their peers resulting in them falling behind. The learning journey for dyslexics can be fraught with difficulty if they are not provided with the correct support, some students never catch up to their peers and it is true that some dyslexics never read unless they have to (Nicolson and Fawcett, 2010). Stanovich (2009) said that the consequence of this is the 'Matthew Effect', where the rich get richer and the poor get poorer.   Because students with dyslexia do not read as well or as much as their non-dyslexic peers they fall behind, so does their vocabulary and indeed the number of words that they are exposed to. The more they don't read the less they progress and the further they fall behind. Nicolson and Fawcett (2010) discuss this concept and note that the issue is actually worse than this; the more you fall behind in school the less you learn, the more you fail and therefore the more you fall behind, it is a vicious cycle. Research has shown many serious negative life effects of dyslexia, and as Alexander-Passe states, "dyslexia on the whole is a negative disorder" (Alexander-Passe, 2011, p. 3). Indeed, Gladwell (2014) talks about the many dyslexics who don't compensate for their dyslexia and as a result are in prison. This fact is mentioned in the Rose Report (2009), at a specific request of the British Dyslexia Association in the hope that the review would improve the situation for dyslexic

prisoners. Undeniably, the Rose Report was commissioned to ensure the best support for students with dyslexia is provided in the UK, its aim is to address the negative outcomes of dyslexia and to ensure the best quality of intervention is provided to support students with dyslexia. The Matthew Effect is an example of an 'undesirable difficulty'.

Sally Shaywitz in her book, "Overcoming Dyslexia" (Shaywitz, 2003) discusses at length the supporting accommodations for dyslexic learners she calls them, "building a bridge to success". Shaywitz shares the many ways that educators can support dyslexic students and indeed empower dyslexics to take control of their own educational pursuits. One of the most important recommendations is the need for extra time. Shaywitz, claims that dyslexia 'robs a person of time' (p. 314). So, providing extra time on assignments and exams because of their slow reading and processing speed will enable them to be on the 'same playing field' with their peers. Teaching programmes for dyslexic learners should also understand the amount of practice and reconsolidation of learning that is necessary for dyslexic learners. Repetition and unique learning methods such as mnemonics, colour coding text, mind maps, and the use of assistive technology are all key features of any good practice learning programme. A multisensory approach also uses Visual-Auditory-Kinaesthetic-Tactile (VAKT) methods in most of its instruction and is used with young learners especially when learning letter sound relationships. (Elliott and Grigorenko, 2014; Wong, 2014). But it is the concept of time that is important to note with dyslexic learners. They may not catch up in the same amount of time, but over time, they eventually will. Many dyslexics are 'late bloomers' when it comes to education and if they have persevered with their learning, they will eventually achieve their goals (Shaywitz. 2003; Foss, 2013; West, 2009; Davis 1997). West (2005) observes that easy things in primary school can be quite hard but for some dyslexics the hard things in university and high-level work can be surprisingly easy because of the distinctive talents and capabilities that are often not evident until late teens and adulthood. So, it is understandable that when we review the success of dyslexics we look toward adult dyslexics. Adults have had the time to find their specialty, their niche, and have had the chance to succeed. This is something we must tell parents of young dyslexics, there is a light at the end of the tunnel.

This is where individual coping strategies and learning styles are important for the dyslexic learner. It is because of the poor automaticity that dyslexics have in learning that makes them approach learning with a 'greater mindfulness' as Eide and Eide (2011) explain. It is because of the extra effort they need to put into learning that 'forces' individuals with dyslexia to 'innovate and experiment' with the learning process to find better ways of learning and doing things. It is interesting that the word 'force' is used by the Eide's similar to Gladwell's statement 'forces you to develop skills that otherwise may have lain dormant'. (Gladwell, 2014, p. 124).

These skills are compensatory learning strategies that a dyslexic will use in conjunction with their natural talents to succeed. Ask any educational therapist at DAS who works with dyslexic students and they will say that the type of skills that a dyslexic student needs to succeed is resilience and will-power. In a study by Firth, Greaves and Frydenberg (2010) from Australia, they identified that adolescent dyslexics abilities in sport played an important role in compensating for the difficulties they experienced in academic work. In a follow-up study on pre-teen subjects by Firth et al. (2013) on an inclusive school-based resilience programme it was noted that dyslexics reported to develop good coping strategies in learning and were equal to their non-dyslexic peers. Tough, (2013) in his book, "How Children Succeed" identifies, among many positive learning traits, that 'grit' is a quality that many successful students have. Grit is that unswerving dedication to succeed, people with grit take setbacks in their stride and are single-mindedly focused on their goals. In a lot of ways, the most successful dyslexics we see in the adult world, display a lot of 'grit'. Foss (2013), declares that attitude also matters! Attitude towards learning will ensure that dyslexic students apply their strengths at school and beyond. The ability to master emotional coping skills provides the best outcomes in learning. Foss has developed an instrument to measure and analyse these coping strategies and attributes. The core areas measured are resilience, self-awareness, proactivity, emotional stability, goal setting, social support and possibility thinking. All good qualities that all students should have but work especially well for dyslexic students where they need to work much harder than their normal peers.

Returning to the special talents of dyslexics the research is abundant. The majority of it is delivered in case studies of individuals from all walks of life who have succeeded despite, or in some cases, because of their dyslexia. (Hewes, 2015; Nicolson, 2015; Gladwell, 2014; Foss, 2013; Alexander-Passe, 2011; Eide and Eide, 2011; West, 2009; Loncraine, 2004; McNulty, 2003; McCabe, 2002; Davis, 1997). Claims are made that individuals with dyslexia are more creative and gravitate to more creative pursuits, although Wolff (2011) suspects that dyslexics with superior creative ability are just a subgroup of the dyslexic population. This sub-group theory is similar to the current doctoral research by Kannangara (2015), where she has identified two groups of dyslexics. "Thriving Dyslexics" who focus on signature strengths such as grit, hope and a growth mind-set and "Languishing Dyslexics" who are failing and not meeting the challenges of learning. Von Karolyi et al. (2003), linked dyslexia to talent and found that dyslexics have an enhanced

"Grit is that unswerving dedication to succeed, people with grit take setbacks in their stride and are single-mindedly focused on their goals."

visual-spatial talent. Wolff and Lundberg (2002) and Wolff (2011) found that the incidence of dyslexia was very high among art students at university. Colgin (2011), a dyslexic, in his paper discusses the many famous artists who are dyslexic. West (2005, 2009) noted that the visual digital technology industry is full of dyslexics with superior spatial abilities. Schneps, Rose and Fischer (2007) identified visuospatial talents in dyslexics. Logan (2009) found that there was a significantly higher incidence of dyslexia in entrepreneurs and that the strategies they used to overcome their dyslexia was to effectively delegate, having excellent communication skills, building and developing employees in their organisation and using others to compensate for their individual weaknesses, for example, employing people to write for them. Loncraine (2004), a dyslexic and a writer with a PhD in English Literature, identified that many dyslexics study at university although she recognised they needed more recognition and support. Everatt, Steffert and Smythe (1999) identified that dyslexic adults have a more innovative style of thinking and that dyslexics need to develop creative skills because the learning environment emphasises the need for literacy skills, in other words education forces dyslexics to develop creative and innovative solutions in learning. Actually, successful dyslexics can be found in all fields, as Nicolson (2015) details in his book "Positive Dyslexia" where he shares "The Dyslexia Hall of Fame". Nicolson also identified that there is a significantly greater number of skills in dyslexic students compared to their normal peers and that they keep developing their strengths well into adulthood.

In the book, 'Dyslexic Advantage' by Eide and Eide (2011), they discuss the unique strengths that dyslexics have. Using evidence from fMRI studies of the brain and that the brain functions differently for individuals with dyslexia this reveals strengths or 'core features' that dyslexics have. They call these core features of dyslexics MIND strengths and are, (M) material reasoning, (I) interconnected reasoning, (N) narrative reasoning and (D) dynamic reasoning. These MIND-strengths give dyslexics advantages in big picture thinking, conceptualising, analytical thinking and excellent episodic memory. Eide and Eide encourage dyslexics to use these MIND strengths to enhance their compensatory strategies when learning. Ron Davis (1997), a dyslexic, and author of "The Gift of Dyslexia", explains about how dyslexics can master many skills faster than the average person and that when a dyslexic has the opportunity to learn experientially they can master things better. Davis points out that this is a skill that grows over time, and that it may not fully develop till the dyslexic is out of school. As a consequence, we see success in adults. Finally, Nicolson (2015) discusses the recent theory of Delayed Neural Commitment (DNC) and suggests that failing to be automatic in learning gives the dyslexic an opportunity to be novel and creative in their thinking, and this provides a mechanism for success. Although there are exceptionally talented dyslexics, acknowledges Nicolson, he claims that DNC is a more general trait in dyslexia and gives dyslexics an advantage in learning, that is however, if the dyslexic has not faced too many

negative situations in learning. The DNC theory comes very close to being the 'desirable difficulty' that Gladwell (2014) refers to.

For dyslexia to be a desirable difficulty, early identification and early intervention is critical to the success of dyslexics. We need to ensure that young students are told early in their educational journey that they can achieve their goals and that they can be successful. They need to know that good things are achieved out of hard work. They need to know that failure is a part of learning, each failure is an opportunity to understand something again. They need to identify their own learning style as well as accept support from those who know how to teach them the way they need to learn. They need to know their weaknesses so they can work on them and create effective strategies to get around them and they need to use their talents and strengths to give them an edge in learning. Education systems need to be able to step back and look at the assessment of students and find better ways in ensuring students are being identified, taught and measured effectively. Not all measurement should need to be completed by pen and paper testing. Every teacher needs to be trained in how to teach a student with learning difficulties. Every teacher needs to teach, not 'show'. Every teacher needs to understand the different students and their needs in the classroom. Ultimately, the success of an individual with dyslexia comes down to their own attitude to learning and succeeding. So, is dyslexia a desirable difficulty? It definitely can be, with the right support, dyslexics can harness their talent and develop learning strategies to see ultimate success in learning.

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She has been with DAS since May 2011. Deborah has dyslexia and passionate about raising awareness about learning differences. All three of her children have learning differences and as a result, she has spent most of the last 20 years supporting her children's academic careers as well as helping other families with children who have learning differences. Deborah has lived in Singapore since 2001 and she has devoted the first 10 years working in an International School as a Learning Support Assistant and parent volunteer supporting students who learn differently with math, reading and literacy. She has also worked as a shadow assistant for students with behavioural issues, ADHD and Asperger's Syndrome.

Deborah completed her Psychology honours degree at Singapore University of Social Sciences and her thesis was titled "Adolescents with learning disabilities: an investigation of academic self-concept, self-esteem and depression in International school students. "Deborah is currently completing her Masters in Special Education Needs with the University of South Wales and is conducting research for her dissertation into "Singaporean Entrepreneurs and Dyslexia."

Deborah is the Managing Editor of the Asia Pacific Journal of Developmental Difference and the annual DAS Handbook, editor of the DAS quarterly magazine FACETS and the biannual RETA Chronicles magazine. In 2015, she edited the first book of its kind in Singapore, "Embrace a Different Kind of Mind—Personal Stories of Dyslexia" and in 2017 designed and published the 25th anniversary book for DAS, "Clearly Different-Dyscovering the Differences"

EMBRACE DYSLEXIA

Raising awareness about dyslexia and to highlight the strengths and challenges that individuals with dyslexia face everyday.

Students with dyslexia are struggling in the education system each and every day. We believe that each student is unique in their own way and have the strengths that will see them through their education and into a successful career.

One way to provide hope is to raise awareness about dyslexia and to have role models for them to aspire to. Another is to have companies advocate for dyslexics in Singapore and to actively support DAS and its students.

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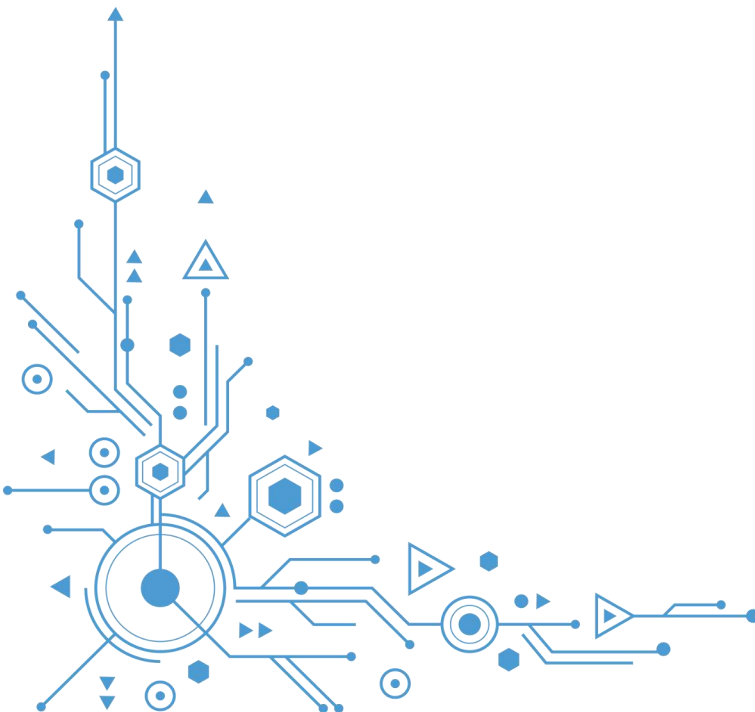
Stress, Anxiety, Mental Health and the Need for Positive Psychology in Dyslexia

Emeritus Professor Angela Fawcett

Swansea University

Are you anxious before you take a test? Many competitive people are very stressed before taking exams -the adrenaline can be useful, but it can lead to panic and errors.

Undiagnosed hyperglycemia in my second year Psychology degree exams led to complete disaster for me! If you have dyslexia, you are likely to be more anxious and this will affect your processing, not just during exams but when trying to process at speed.

Signs of test anxiety include visible signs of nervousness such as sweaty palms, shaky hands. "butterflies" in the stomach and nausea immediately before a test. You may read through the test and feel that you do not know any of the answers, and so panic before and during a test. Your mind goes blank during a test, and you only remember the correct answer once you get out of the testing situation. You make mistakes on easy questions or put answers in the wrong places, may have difficulty choosing answers, or even forget to turn the page.

All these happened to me in my second year Psychology BA exams at Sheffield University. I thought this was a panic attack, but it turned out to be hyperglycemia. We had been encouraged to drink coca cola and eat mints to help maintain our attention, and this had caused my undiagnosed diabetic blood sugar to soar sky high, so that I felt drunk and confused.

"Many competitive people are very stressed before taking exams -the adrenaline can be useful, but it can lead to panic and errors."

If you are dyslexic you are likely to have higher scores not just in exam conditions, but throughout life! A review of anxiety in dyslexia by Kannagura (2015) notes the following comments from dyslexic adults.

"... nearing the end of fourth decade in my life. Still my childhood experiences can bring me to tears."

"I seemed to stand out as a sore thumb, the misfit, an ugly (read 'dumb') duckling among elegant (read 'intelligent') swans."

".. ..now Head of the Department (in a well known university, Economics department) no one would ever doubt my scholastic abilities.. .."

"I suffered silently hiding my secret, nursing my wound all alone."

"I am known today to be a perfectionist, keen on documentation, stickler to the rules of language, be it grammar or spellings."

" .. .and yet I was the same child benumbed by fear, standing up in class, trying to maintain any shred of dignity through the humiliating experience of being laughed at my attempt to read aloud. I had mispronounced the word 'native' and my well-kept secret was out in Grade 3."

Kannagura, 2015

But Malcom Gladwell, the eminent philosopher claims that dyslexia is a desirable disorder...So how can this be? In this chapter I shall try to explain how this happens and how positive dyslexia can help to overcome this.

In my research with Rod Nicolson, (for further information see Nicolson and Fawcett, 2007, 2008) we looked at Dyslexia as a Learning Disability. The 'correct' description of dyslexia is 'Specific Learning Difficulties' or 'Specific Learning Disability'. So, we argued that Dyslexia is some general deficit in learning, and for some reason it is difficult for dyslexic children to become 'expert' in a task, whether it is a cognitive task or a motor task.

This led to our Automatisation Deficit Hypothesis, that Dyslexic children have problems making skills automatic, and need therefore to 'consciously compensate' even for simple skills. This has an impact not just at school but throughout life!

There are 3 Stages in Learning skills.

- ♦ The Cognitive (declarative) stage, in which a description of the procedure is learned. This is domain independent.
- ♦ The Associative (procedural) stage, where a method for performing the skill is worked out. This is domain dependent and relates only to the specific skill learned.
- ♦ Finally, the Autonomous (automated) stage, where the skill becomes more and more rapid and automatic, speed and accuracy improve and verbal mediation is often lost.

In earlier research, we set out to examine Learning and the Ogive, with a study of Procedural learning. When you start learning a new task your performance is initially very slow and effortful. It's a bit like trying to climb a mountain, but as your performance improves then the learning curve flattens out and you have achieved automaticity. In the study, we examined the blending of primitive skills, in this case a simple reaction time to either a flash or a tone. This was the only task in which we had found our dyslexic children were not impaired. To make it more fun we asked the children to blend together the two skills using both their hands and their feet. Of course, once this task becomes a choice reaction task everyone's performance deteriorates. In this case, our control children became faster at the dual task than they had originally been with just a single task, over the course of 2500 trials. By contrast the dyslexic children struggled and their performance remained slow. They had problems with the initial blending, made more errors, had slower final performance, and slower learning

So where do their difficulties lie? If we look at the Stages and Timescales of Learning, the Immediate stage takes seconds, Practice minutes to hours, Consolidation happens overnight and Automaticity takes days. In a study of Motor Sequence learning we showed that the dyslexic adults learned slower initially, remained slower at end of session 1, and were slower at start of next day. This showed that they lacked some of the basic processes involved in learning, in particular here the ability to benefit from consolidating their memory overnight. This applied even to high achieving dyslexic students, who have largely compensated for their difficulties. For further information on our research see Nicolson and Fawcett, 2007, 2008.

These difficulties in learning are exacerbated for children with co-morbidity with another condition. There is a high overlap ('comorbidity') between symptoms of different developmental disorders, so that when Kaplan and colleagues (2001) studied a population-based sample of 179 children receiving special support in Calgary, they found the following overlaps:

- ♦ If they met dyslexia criteria -> 51.6% chance of having another disorder
- ♦ If they met ADHD criteria -> 80.4% chance of having another disorder
  "in developmental disorders comorbidity is the rule not the exception".

So why do these overlaps occur? If we consider the impact of comorbidities on development in childhood, we see that problems at birth in the procedural learning system for motor skills leads directly into the motor skill issues that manifest by the age of five as dyspraxia. Similarly, problems in the language based procedural learning system will manifest as specific language impairment and will include problems in phonology. However, articulation which is key in language apartment development involves many thousands of muscles and therefore it can be said to be both a language and motor skill.

Typically, dyslexia will not be diagnosed until the age of eight, by which stage several years of failure will impact on the self-esteem and achievement of these children. By contrast children with problems in the declarative learning system will manifest as a more generalised learning difficulty, although a spiky profile in these children may also indicate elements of dyslexia.

We need to embrace dyslexia - identify and support all dyslexic schoolchildren so that they have every chance of flying rather than sinking! A key aspect here is executive function, which includes a range of functions: Attentional control, Cognitive flexibility, Goal setting, Information processing, Utilizing feedback and Dealing with novelty. These skills are typically demonstrated in tasks such as sequencing (known to be impaired in dyslexia...). This is now seen as key in developing resilience and dealing with stress and lowered self-esteem, particularly for dyslexics.

Adele Diamond has written at length about the importance of improving Executive Functions and how malleable these can be.

> *"Executive functions (EFs; e. g., reasoning, working memory, self-control) can be improved. Good news indeed, since EFs are critical for school and job success and for mental and physical health.*
>
> *EFs need to be progressively challenged as children improve and that repeated practice is key.*
>
> *Children devote time and effort to activities they love; therefore, EF interventions might use children's motivation to advantage.*
>
> *addressing children's emotional, social, and character development works (as do martial arts, yoga, and curricula shown to improve EFs).*

Children with poorer EFs benefit more from training; hence, training might provide them an opportunity to "catch up" with their peers and not be left behind."

Diamond (2012) p335

Self-esteem indicates the degree to which one sees oneself as worthy and capable. Low self-esteem leads to feeling unworthy and inadequate. Self-concepts are our own understanding about ourselves, and can be positive or negative. Attributions is how we deal with success or failure – do we see this is down to our own efforts or luck? Is this within our own control? Locus of control is our understanding that we can influence our own destiny. It is contrasted with learned helplessness, linked with depression, where it seems that nothing you can do has any impact on outcomes. Attribution theory is also linked with this, so if you do well, do you think this is down to your own efforts or to luck? If you do badly, do you think this is your own fault, or bad luck? Are you stable or variable in how you attribute success or failure? Dyslexic children and adults can be passive victims, who have difficulty in recognising their own role in success, and so our task is to help them reframe themselves to see positive aspects in their dyslexia by working to their strengths.

The impact of stress on learning is profound, given that our brains work by a combination of the two major systems, sometimes working together, sometimes in competition. The Declarative system – facts, language-based, available to consciousness, thinking - mind-based learning and the Procedural system – doing, habits, 'automatic' processes - brain-based learning. The response to stress includes the release of Noradrenaline, leading to Adrenaline rush effects and preparation for fight or flight. This manifests as an increase in blood pressure, increased blood sugar, increased fatty acids and cholesterol in the blood for energy production and increased metabolism. Stress shifts processing to the brain-based action-based procedural system – fight or flight – and indeed reduces blood supply to the declarative circuitry. So even relatively mild stress causes all of us to 'batten down the hatches' and blights any ongoing declarative learning processes. This could lead to particularly adverse consequences for dyslexic people because it shifts them from their stronger to their weaker learning system. But actually, it's a major issue for everyone – stress is the assassin of cognitive function!

In a study of situation-specific stress and dyslexia in University Students in 2015, my colleague Rod Nicolson asked Sheffield students to undertake 5 tests of reading, speed, procedural and declarative memory, first under physiological stress (with a hand in icy water) and then unstressed. The tests comprised Reading, Rapid Automatised Naming, Jigsaw, Motor Sequence Learning and Declarative Memory. As expected, under the no stress conditions the dyslexic students showed clear weakness in the reading, speed, and the two procedural conditions. As predicted

[only] under the procedural / declarative framework, the dyslexic students performed significantly better than the controls on declarative memory. However, under stress conditions, the declarative advantage was lost, and the dyslexic students had no advantages. This has clear implications for impaired performance under exam stress in dyslexia.

The effects of chronic stress can be even more deleterious, leading to General Adaptation Syndrome. The alarm reaction leads to a stress response, then the resistance phase, where the body adapts to stressors it is exposed to, and tries to reduce cortisol-induced changes. This is quickly followed by the exhaustion stage, where the immune system suffers, mental and physical resources are used up, leading to collapse or burnout.

Seligman has described the condition of Learned Helplessness based on the shuttle box avoidance task, where dogs were subjected to an electric shock following a warning tone. It was possible to escape the shock by jumping to the next compartment, and most dogs learnt to jump after the tone starts but before the shock, changing from escape to avoidance. But some dogs just lay down and didn't try to escape. It turned out they'd been inescapably shocked and had just 'learned to be helpless', which is probably associated with a 'freezing' response to threat.

Recent research indicates that these effects are mediated by gene methylation effects with long-term consequences, which maybe even inherited, so that whole families may produce a maladaptive response to stress.

In terms of dyslexia, traumatic stress and learned toxicity follow aversive experiences (which are common for dyslexics), including shame and guilt, which can lead to Post-Traumatic Stress Disorder and Phobias. For many dyslexic children, this will create an aversion to learning, leading to Learned Helplessness, Toxicity, and even the creation of a mental abscess. This occurs when repeated failure sensitises the child to their difficulties and the impossibility of dealing with them successfully. The trigger stimulus here is mental freezing creating a 'Mental Abscess' where the very thoughts of exposure, for example being asked to read aloud in class, can lead to avoidance and despair.

There is a terrible danger that this learned helplessness will not only persist as a 'mental abscess', inhibiting learning, but will also 'fester', generalising to other aspects of the school environment, so that the very thought of school will trigger feelings of learned helplessness and/or helpless rage, for which the only solution is either 'freezing' or actions such as disruption or truancy. The danger is that a dyslexic child is 'brain-washed' such that the printed word triggers a feeling of learned helplessness or rage, from which there is no escape.

SUMMARY: STRESS AND DYSLEXIA

The Stress Response is an ancient evolutionary adaptation to optimise response to threat, resulting in initiation of a 'fight, flight or freeze' response that provides a short (unsustainable) burst of rapid physical activity, together with increased safety-salient environmental monitoring. For most animals, the stress response only occurs for physically present threats or physically present predictors of threat. For humans, our declarative system allows us to imagine threats, thereby priming the stress system – and of course not having any stress release mechanism. Even mild situational stress impairs learning, causing a 'procedural shift' that biases processing away from the declarative system to the procedural, habit-based system. This might have particularly adverse consequences for dyslexic people because it eliminates their preferred processing mode – declarative - and forces them onto their weaker mode. Chronic stress has very serious consequences, leading to the 'general adaptation syndrome' and impairing learning and affect. In the case of dyslexia, We suggest that the school-specific chronic stress can lead to 'mental abscesses' that result in maladaptive 'fight, flight or freeze' responses which even excellent teaching cannot overcome.

DYSLEXIA, ANXIETY AND PSYCHIATRIC SYMPTOMS

It is hardly surprising given the stress associated with dyslexia, that a variety of psychiatric symptoms have been identified in association with dyslexia. A recent article recognising psychiatric symptoms in dyslexia (Hendren et al, 2018), identified overlaps with a range of different conditions but queried whether these conditions might themselves be a consequence rather than the cause of the reading difficulties. This study also highlighted the shared genetic etiology of these conditions, in particular ADHD, Autism and SLI, with associated anxiety and depression linked to negative experiences and family risk.

Young dyslexics are particularly vulnerable at stages of transition between schools and into adulthood. The factors involved may include the following: Loss of the concessions they had at school, access to immediate parental support no longer available, trying to hide their difficulties in a new environment, setting up new personal relationships, dealing with new timetables and subjects – don't forget that subject related vocabulary is simply a nonsense word when first encountered. Moreover, simply knowing where they should be, organising living accommodation, food and life skills can in itself be overwhelming. It would be hardly surprising if this all became too much!

Given all these difficulties stacked against them, how is it possible for children with dyslexia to succeed? Have you heard parents say 'my other children are bright' Is this fair? Research suggests that resilience and success in dyslexia are critically

dependent on having someone who believes in you. This is usually parents but could be a teacher or tutor. Greater understanding of the profile of skills, strengths and weaknesses in dyslexia can transform the dyslexic child and adult.

'Adults with dyslexia report that being stereotyped as stupid, mentally incapacitated, cheating, and lazy places a greater emotional burden on their lives than their language-based difficulties'

Nalavany and Carawan 2012, p70

Figure 1. Overlaps between reading difficulties and psychiatric disorders.

Our responsibilities to help dyslexic children and adults are to understand the strengths and opportunities of dyslexia, to deal effectively with the weaknesses and threats, to understand that it is not a weakness to seek help, to help them recognise that they may need help throughout their lives to achieve.   The secret of success is to find their 'niche', to capitalise on their strengths and to overcome or avoid their weaknesses. But we need to try to do more than this – our ultimate aim is to help dyslexic children and adults to feel better about themselves. This is the secret of success!

In 1988, Seligman identified the need for Authentic Happiness and initiated the positive psychology movement. He notes the following:

> "[Progress in relieving disorders] has come at a high cost. … people want to do more with their lives than just to correct their weaknesses. They want lives imbued with meaning … to know how to go from plus 2 to plus 7 in your life, not just how to go from minus 5 to minus 3. If you are such a person, you have probably found the field of Psychology to be a puzzling disappointment. The time has finally arrived for a science that seeks to understand positive emotion, build strength and virtue, and provide guideposts for what Aristotle called the "good life".
>
> Martin Seligman, Authentic Happiness, Preface

The focus for psychology has been on human pathology, or what is wrong with or lacking in people based on the inherent idea that humans are fragile and flawed. This created a "deficit bias" and a set of theories and practices that describes and explains remedies for human problems. Positive psychology is designed not to replace the existing field but to supplement it, and focuses on strengths and building the best in life! Positive experiences, individual traits and institutions. We therefore propose that rather than simply hoping that dyslexic people can overcome their difficulties, they are encouraged to engage with tasks to enhance positive experiences. Four suggestions were investigated:

1. Write gratitude letters to people who have been especially kind to you, BUT have never heard you express your gratitude. The habitually grateful among us are happier than those who are not.
2. Think of 3 good things that have happened today, and ask yourself why. This is effective long term for reducing depression but doesn't induce happiness...
3. Concentrate on thinking about yourself at your best.
4. Identify your character strengths; for dyslexia creativity, visual skills, social skills, (West, 2008), resilience determination and seeing the Big Picture (Nicolson, 2015) This has proved to be effective long term for both lower depression and greater happiness...

We need to adopt a balanced approach to strengths and weakness, to identify and empower dyslexics to work to their Signature Character Strengths, working for one's own development rather than to someone else's tune, and identify and guide toward careers involving Signature Work Strengths, building up better career advice, better diagnostic information, to acknowledge and accommodate Signature Weaknesses, and adjust the environment, and provide support for literacy in order to succeed with dyslexia (Nicolson, 2015).

Our ultimate aim, to move our dyslexic adults from languishing to thriving in the words of Kannangara (2015) a dyslexic PhD student working towards a new model of dyslexia.
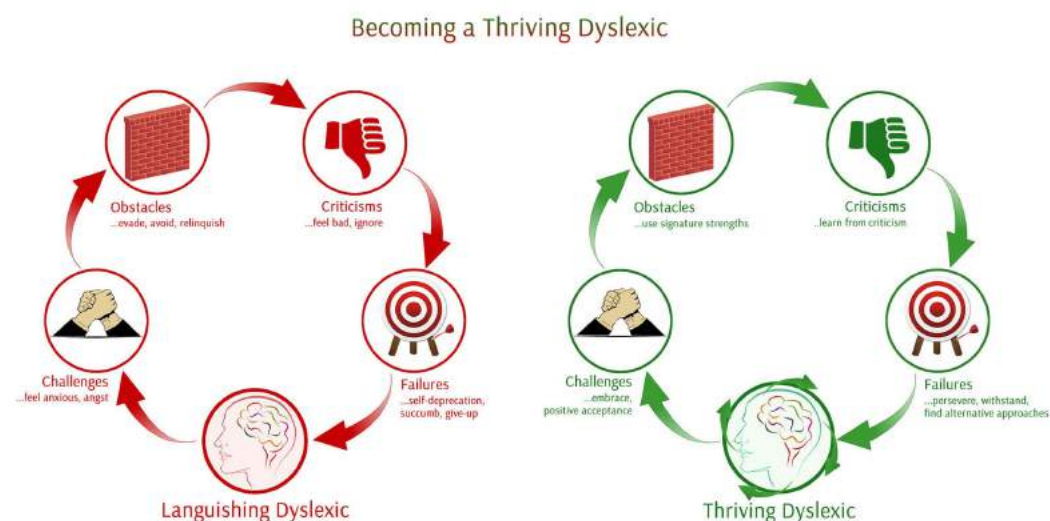
Figure 2 From languishing to thriving as a dyslexic (Kannangara, 2015)

SUCCEEDING WITH DYSLEXIA

The overarching goal for success in dyslexia is to develop significantly improved support for dyslexic infants, children and adults in an effective but cost-effective fashion. The strategic plan focuses on learning abilities as well as disabilities, working to strengths, using positive psychology as a yardstick for evaluating the cost-effectiveness of interventions. We need to blend the best of positive psychology with the best of traditional support to help people succeed with dyslexia. In the process, we can effectively break into the cycle of failure and anxiety that for too many years has characterised dyslexia, and allow dyslexics of all ages to focus on their strengths.

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Indonesian Computer-based Dyslexia Early Identification System

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This study evaluates a computer-based dyslexia early identification system for Indonesia that can be applied to a child as early as 5 to 7 years old, generating a report that is in line with Indonesian language. The screening method is based on completing a questionnaire – which consists of 21 questions for a   6-7 -year old child and 17 questions for children under 6 – by the parents or caregiver of the child, working with a trained counsellor, rather than an expert in the field. The expert system has been designed to bridge the bottleneck in screening and identification created by the geography of the region and restrictions on local expertise.   It can be downloaded online from certain websites using a personal computer or smart phone. The result would be "Risk" or "No Risk" of dyslexia. The skills examined in the tool are as follows: children and parents' backgrounds, academic ability (oral and written language), and non-academic abilities (sequence and direction, working memory, and organization ability). The following processes are reported here; designing the instruments and the scoring methods, determining the objective of the instrument, arranging parameters, writing the questionnaires, identifying the scoring technique, determining scoring guidelines, piloting the instrument, and evaluating the final product. 105 children were evaluated following a pilot study with 52 children to check on the usefulness of the approach. The system identified dyslexia with good accuracy and specificity, comparing children with known dyslexia in special school with those identified by the expert system. The Dyslexia early identification system (DEIS) is a good and reliable tool which is valid, and can easily be accessed anywhere, as long as there is an internet connection, which is able to identify whether children have a risk of dyslexia or not in accordance with expert opinion

Keywords: dyslexia, early screening tool, Indonesia, computer based.

1.   INTRODUCTION

Dyslexia is a specific learning difficulty mainly evident in language areas such as the language used for oral, written and social communication. Dyslexia causes difficulties in reading, writing, spelling, and executive function. Consequently, failure in these key skills will affect not only academic   success, but also self-esteem and social-emotional development. Dyslexia cannot be cured, but the impact can be significantly reduced if identified and well intervened as early as possible (International dyslexia association, 2013). Research evidence from the USA has shown that children who do not receive the support they need in the early years may need 67.5 hours of one-to-one support in order to catch up with their year group in junior school (Torgesen, 2001). Ideally dyslexia would be diagnosed by experts, who could provide a programme of support that will allow young children to begin to reach their potential.

This has been the goal in Western countries such as the UK and the USA where a system has developed to identify and support these children, including early screening, support and response to intervention prior to formal diagnosis. However, this type of system is not yet in place in many countries in South East Asia, where considerable further work is needed to ensure that dyslexic children are not condemned to failure. Indonesia is an archipelago that consists of a scattered thousand islands, with a ratio between experts and dyslexic children that is extremely small, and consequently the provision of an expert system, based on an easily accessible computer based tool should prove both cost effective and efficient to cover the areas that the expert cannot easily reach.

Children in Indonesia start school at age 6, and undertake 6 years of compulsory schooling, before moving on to junior school. Indonesian is a transparent language, with an emphasis on the syllable, (Winskel and Widjaja, 2007), written in the same format as the English alphabet, but with a high degree of orthographic transparency. For many young children, their difficulties with literacy are compounded by the overlay of over 700 other languages or dialects. In the 1st 3 years in school, children will be taught in these native dialects, but after that, teaching will be in Bahasa Indonesian. This means that children must switch to more formal language after the age of 9 and this is particularly problematic for children with dyslexia. This in itself may contribute to the poor educational outcomes identified in Indonesia. This also means that constructing standardized tests for younger children becomes more difficult, because of the wealth of dialects spoken that would need to be accommodated. These issues are compounded by the geographical layout of Indonesia itself, which is comprised of many thousands of islands, 6000 of which are inhabited.

Expertise is largely confined to the larger cities, such as Bandung, where the Dyslexia association of Indonesia is located, and Jakarta. The authors of this paper, Dewi and Solek, pediatricians, founded the Dyslexia association of Indonesia 8 years ago, and have been instrumental in spreading awareness throughout the region, based on their extensive case histories and the founding of the Indigrow school for children with special needs. Their approach is based on observation of the child in a clinical setting, coupled with completion of a series of questionnaires and checklists, which typically take a whole day to administer.

Education in Indonesia continues to struggle with the needs of children with learning disabilities of all kinds. Recent Pisa reports (2016) showed that Indonesia fell into 62nd place, although some countries, such as Vietnam which has a similar economic profile, managed to achieve 8th position. In 2014, only 31% of children with special needs were accommodated in mainstream school, in data reported from Innovasi (2014) an ongoing project to generate local solutions in education. Research into dyslexia in Indonesia has been sparse, there are few publications in English and these were largely conducted by international researchers. In order to effect lasting change, it is important for future progress to involve local experts in the field. A study in 2012, (Wiguna et al, 2012) indicated that 24.6% of 423 elementary students in Jakarta had learning disabilities, with problems in working memory, a figure higher than that identified in most Western countries A major factor in diagnosis is that most of the standardized tests used elsewhere have not been translated into Bahasa Indonesian, although the 3rd author of this article with colleagues has been instrumental in validating the SYSTEMS-R cognitive assessment of neurological and communication impairments in children aged 4-15 in Indonesia (Harsano et al, 2016).

At the time this research was undertaken, no screening tests of this type were available for dyslexia for Indonesia, although the authors had considered how their Lexipal intervention program could be used in this context (Dewi and Solek, 2015). The need for a test of this type has been further highlighted by the recent publication of a screening battery for dyslexia in Indonesia (Jap et al, July 2017) that focuses on reading and reading related skills in line with the definition of the International dyslexia association. This test comprises 9 subtests for ages 6 and 7, including fluency of word reading and nonsense word reading, arithmetic, rapid naming, phoneme deletion, forward and backward digit span, verbal fluency, orthographic choice (spelling) and writing, in conjunction with teachers' reports. Unlike the present study, this study used a mixed sample of children, including 22 children at risk for dyslexia, a ratio of around 17% incidence, with the testing undertaken by the researchers themselves, who were international in origin. The authors note that the children used in their study may not be representative of children generally in Indonesia, in that they attended a private school and were taught in Bahasa Indonesian at this early stage rather than in local dialect.

Consequently, this screening is not yet ready to use with children attending local schools who only use local dialect in the first 3 years of schooling. Nevertheless, the publication by Jap and colleagues fills an important gap in the literature in further establishing the need for screening and support in Indonesia.

There is considerable government interest in the use of technology to improve outcomes in Indonesia, although in 2015, out of 208,000 schools in Indonesia, 118,000 had been connected to internet, whereas 17,000 still experienced a lack of electricity. The current study evaluated a computer-based dyslexia early identification system for Indonesian which is intended for use as early as ages 5 to 7 years old, even pre-school, which generates a report in Indonesian. The perspective adopted is that of the authors, pediatricians who identify dyslexia in Indonesia, based on an interest in the whole child, not just the potential school attainment of the children. Their questionnaire, therefore covers many of the pre-reading skills as well as other aspects of learning that may be impaired in these children. Included here are some aspects of dyslexia that the authors have highlighted themselves from their extensive case histories, in their contribution to the literature from this region.

In recognition of the need for a formal evaluation, the outcomes for 2 groups of children are compared: children drawn from a state school, in comparison with a group of children diagnosed previously by the experts, and re-evaluated on the expert system. It is interesting to note that a short checklist approach has been used successfully elsewhere in Asia, for example in Malaysia, with the 2011 Senarai Semak Disleksia' for teachers and parents to examine concerns and progress in literacy for Standard 1. Similarly, in India, the DALI checklists (Singh, 2015) contain 15 questions for 6-7 year olds, and 21 questions for 8-10 year olds, in Hindi, Marathi, Kannada and English, with around 75% sensitivity and specificity. Typically, checklists are used in school, but a recent study by Dewi (2018) one of the authors of the current study, has identified very low levels of understanding of dyslexia in a large-scale questionnaire survey of 1450 respondents in Indonesia, mainly female teachers aged 30-39. In this survey, 76% identified a variety of 'magic cures' for dyslexia, including swimming with dolphins, but only 24% understood the need for remediation. Moreover, around half of the respondents thought that dyslexia was associated with low IQ. Considerable further awareness is needed in Indonesia to improve provision for children with dyslexia.

In this study, the input to the dyslexia identification system is the answers to the questionnaire and the dyslexia screening results. The output of the dyslexia identification system is the identification result and screening report. The dependent variables here are the accuracy of the identification and the usefulness of the sentences generated for the questionnaire, and the independent variable is the validity of the instrument, the experts' criteria, and the dyslexia screening report.

The accuracy of identification is influenced by both the validity of the instrument and the expert criteria. The processes that have to be undertaken by the expert to diagnose dyslexia are as follows, and involve many hours of observation by highly trained personnel, typically taking a full day:

1.   Collect information about the child's background, family background, and the academic and non-academic experiences at school and home.
2.   Give the child's parents a recommendation to examine the child's IQ, visual, and hearing ability.
3.   Observe the child's condition by assessing the child's academic and non - academic ability.
4.   Analyze the observation results, to decide on the severity of the case.

Interest and awareness of dyslexia are increasing rapidly in Indonesia, based on the work of the Dyslexia association of Indonesia in their awareness programme. However, this lengthy process of diagnosis forms a bottleneck in identifying children who would benefit from early support, given the scarcity of experts and the far-flung nature of Indonesia itself.

1.1   ASSUMPTIONS

This study assumes that the inputs to the proposed system are as follows:

1.   The age of children who are examined is 5 - 7 years old (preschool age).
2.   Main screening inputs are questionnaire answers filled by parents based on their children's condition and the answers are assumed to be valid answers.
3.   The skills examined in the main screening are as follows: background, academic and non-academic abilities. The academic abilities consist of language in oral and written communication. The non-academic abilities consist of sequences and direction, working memory, and organization.

1.2   SCOPE AND DELIMITATION

This research formulated the scope and delimitation are as follows:
1.   The system is dedicated for Indonesian where there is a lack of instruments of this type.
2.   The output of the main screening process is the main screening report in the Indonesian language. The main screening report consists of scoring, a brief description about the screening result (dyslexia risk or not), and recommendations for further examination.
3.   The main screening report will be read by parents and experts.

2   REVIEW OF LITERATURE AND STUDIES

Historically, the study of dyslexia in the UK and the USA originated with the medical profession, notably Orton (1925) in the USA, and Critchley (1970) in the UK, with clinics within hospital environments. These practitioners and researchers focused on the whole child, rather than simply the educational manifestations of dyslexia. Over time, research moved into the field of psychology (Miles, 1983) and education, focusing primarily there on literacy and phonology (Snowling, 1987), with more recently a return to the role of neurologists (for example, Shaywitz and Shaywitz, 2005) in highlighting the role of the brain in developmental differences. This pattern has been adopted in Indonesia, where the authors have led awareness and diagnosis through founding the Dyslexia association of Indonesia, which is now celebrating 8 years of research, intervention and seminars.

Most practitioners and researchers in the field of dyslexia agree that a diagnosis can be established when the children is age of 7 years / 1st grade, because under the age of 7 years, children's problems in learning are still considered normal (Dewi and Solek, 2013). Early screening was first proposed by Badian (1982) in the USA, administering a screening battery including tests such as language, pre-academic and visuo-motor skills in kindergarten and following up these predictions 4 years later in school.

Dyslexia is primarily diagnosed through an academic field test, such as reading skill, and the common symptoms of dyslexia. Dyslexia cannot be determined based on one or two signs, but it requires a comprehensive battery of signs so that the child can be categorized as a child at risk from dyslexia. Prior to formal diagnosis, a number of screening tests are in use internationally (Fawcett and Nicolson, 1996, 2004) that can identify problems by comparing children with their peers, in order to put in place support for those children not making the expected progress.

Based on the Diagnostic and Statistical Manual of Mental Disorder (DSM-5), there are several criteria to diagnosing Specific Learning Disorder, including Dyslexia (APA, 2013). Difficulties in learning and using academic skills, as indicated by the presence of at least one of the following symptoms that have persisted for at least 6 months.
1.   Difficulty in reading.
2.   Difficulty in understanding the meaning of what is read.
3.   Difficulty in spelling.
4.   Difficulty in written expression.
5.   Difficulty in mastering number sense, number facts, or calculation.
6.   Difficulty in mathematical reasoning. The skills are under the level expected in relation to their age and intelligence.
7.   Difficulty in learning, starting in the early school years.

In addition, there are early signs or symptoms of dyslexia that can be identified as follows:

1. A history of family members (especially siblings, father, and mother) who are late to talk, and have difficulty in learning, reading, writing in kindergarten-elementary school, but they are recognized as bright in another field.
2. Starting to talk later than 3 years old
3. Unclear articulation of many vocabulary items.
4. Difficulty in learning and recognizing rhythm.
5. Difficulty in finding an appropriate term for communicating.
6. Difficulty in recognizing the letters from the shape or the sound.
7. Stuttering or elongating words in speaking not coherent / systematic.
8. Difficulty in pronouncing particularly difficult words like "proklamasi" (proclamation).
9. Difficulty in labeling objects and colors.
10. Difficulty in recognizing numbers, especially writing the shape, often not following the general rule. For example, writing the number one from the lower to upper, writing the number eight with an unusual line, etc.
11. Difficulty in discriminating similar letters, such as:
    b', 'd'
    'p', 'q'
    'u', 'n'
    'm', 'w'
    '6', '9'
    '5', 's', 'z'.
12. Difficulty in determining right and left.
13. Difficulty in remembering something.
14. Difficult in memorizing the name of friends, teachers, or the people in their environment.
15. IQ is in the normal range or above average.

SCREENING FOR DYSLEXIA

The existence of this range of early indicators of dyslexia has led researchers internationally to propose that the most effective way of supporting children at risk of dyslexia is to provide support before children fail. There is a considerable literature internationally on this approach, with methodologies ranging from a computerized check-list (e.g. Weedon and Reid, 2012) to a full-length screening battery that can provide objective data on the performance of the children in standardized tests normed for the age group (e.g DEST 2, Nicolson and Fawcett, 2004, DST-J, Fawcett

and Nicolson, 2004). In a series of studies, for example, Nicolson and colleagues, (1999, Fawcett et al, 2001) demonstrated that 5-7 year- old children at risk for dyslexia could be identified with a screening test and their performance accelerated in reading and spelling following a 10-week intervention for 1 hour weekly. These screening tests have proved useful to address the shortage of qualified practitioners able to formally diagnose dyslexia across the world, and the cost of these assessments, as well as avoiding the dangers of waiting for children to fail.

Unfortunately, standard approaches to formal diagnosis at around age 8 and above have meant that children must fail for some years before they receive support, and this inevitably impacts on their self-esteem and motivation. This situation has been addressed in the USA with a series of studies of response to intervention, (Fuchs and Fuchs, 2006) based on screening children and providing support in the early years of school, so that they have the best opportunity to catch up with their peers.

The problems above are compounded for a country such as Indonesia, where there is an even greater shortage of skilled personnel to conduct expert assessment. The above considerations led to the design of the system devised for Indonesia. This is based on a computerized system, devised by the experts in conjunction with IT consultants, with the concept to encapsulate all the skills of the expert within a system that can be easily addressed without the need for the experts' attendance, thus eliminating the bottleneck in identifying children with problems.

 The approach here follows many of the recommendations of Nicolson and Fawcett, (1997) who proposed an expert system for use in universities in the UK to deal with the range of students coming forward for assessment, to reduce the need for expert judgement. This followed on from their earlier study on the feasibility of a computerized system (Nicolson, Fawcett and Miles, 1993). The difference here is that a checklist approach is adopted, rather than more formal screening, because of an ongoing scarcity of trained experts in the field.

The proposed system works with the introduction of a new category in dyslexia assessment, the certified councillor, trained by the experts to recognise the signs and symptoms of dyslexia, in much the same way that qualified teachers are now used in the UK to share the load with psychologists in undertaking assessments. Moreover, the information on the child is provided by parents, who are currently those most likely to identify their child as potentially at risk in Indonesia, based on a lack of awareness in schools, outlined above.

3   RESEARCH METHODOLOGY

In this study, we are comparing the effectiveness and efficiency of 2 systems of diagnosis, firstly expert pediatricians, and secondly an expert system incorporating knowledge derived from these experts. In table 1 below, a comparative analysis is presented.

Table 1: The differences between expert assessment and assessment using the proposed computer based system

ASPECT	EXPERT ASSESSMENT	ASSESSMENT USING PROPOSED SYSTEM
Duration	More than 1 day	Shortly after completing the questionnaire
Time	The experts' office hours	Every time as long as there is an internet connection
Place	At the experts' office	Everywhere as long as there is an internet connection
Procedure for identifying children at risk for dyslexia	The parents and child come to the expert for consultation about the child's condition	The parents fill in the questionnaire about the child background, family background, academic, and non-academic experiences at school and home.
	The experts collect information about the child's background, family background, academic and non- academic experiences at school and home.	The system will identify whether the child has a risk of dyslexia.
	The experts identify whether the child has a risk of dyslexia.	
	The experts tell the identification result to the parents.	

Table 1b: The differences between expert assessment and assessment using the proposed system with certified counsellors

ASPECT	MANUAL ASSESSMENT	ASSESSMENT USING PROPOSED SYSTEM
Procedure for identifying the severity level of dyslexia	The parents and child come to the expert for assessing the severity level of dyslexia.	The parents and child come to the certified counsellor for assessing the severity level of dyslexia
	The experts observe the child's academic and non-academic ability.	The certified counsellor observed the child's academic and non-academic ability.
	The experts administrate the results manually.	The system administrates the result automatically.
	The experts identify the child's severity level of dyslexia.	The system identifies the child's severity level of dyslexia.
	The experts write the report on the severity level of dyslexia.	The system writes the report on severity level of dyslexia.

Based on Table 1, the difference between expert examination and proposed system were the duration, the time, the place, and the number of steps involved.

Furthermore, the concept of the proposed method was divided into two stages,
1)   the preliminary design and
2)   the system design and implementation.

The preliminary design was aimed for the experts (in this case the authors Dewi and Solek, pediatricians specializing in dyslexia) to develop the model of assessment for identifying dyslexia. The system design and implementation described the method that was proposed and the rationale behind its choice. Finally the experiment scenario described the objective, the procedure and the variables which will be used in the experiment.
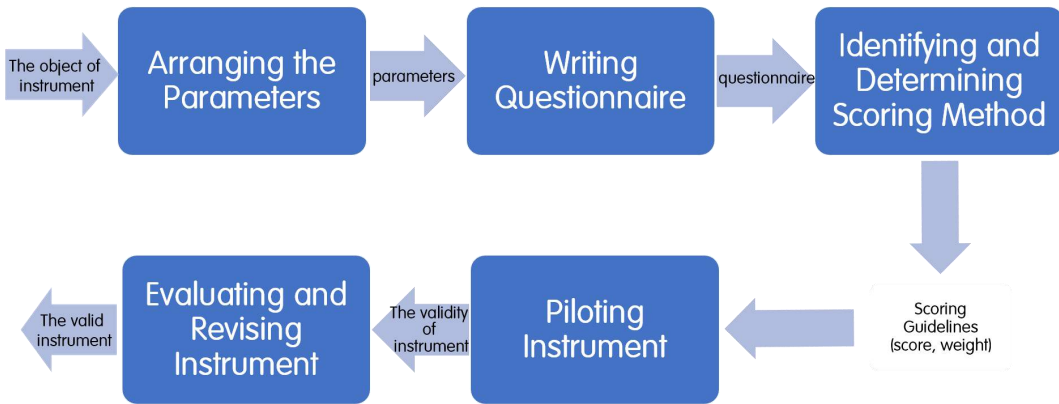
Figure 1: Designing the Instrument and Scoring Method

Based on Figure 1, there were seven processes that had to be undertaken for designing the instruments and the scoring methods. The processes were determining the objective of the instrument, arranging the parameters, writing the questionnaire, identifying the scoring technique, determining the scoring guidelines, piloting the instrument, and evaluating the usefulness of the system.

In table 2 below, some of the symptoms of dyslexia that have been identified internationally in the UK and USA are listed, with notes of their incidence within the Indonesian dyslexic population, as well as a recent publication from the UK, by Reid (2017). The pattern of difficulties commonly associated with dyslexia in school age children was first outlined by Miles, 1983, with the publication of the first screening test, the Bangor dyslexia test (Miles, 1982) which examined 10 areas of difficulty including left right, repetition, subtraction, tables, b-d confusion, and moths of the year, as well as family history in a checklist for children aged 8 and above.

However, the main criteria for diagnosis of dyslexia has typically been poor reading, based on accuracy in single word reading, and attributed to difficulties in phonological skills, that impact on segmentation and blending, as well as delays in becoming automatic in identifying graphemes and translating these to phonemes, all of which impact on both reading and spelling. A further strand of difficulty relates to speed of processing, evident in both reading fluency and in speed of naming in a series of rapid naming tasks, including everyday objects as well as letters and numbers (Wolf and Bowers, 1999).

Moreover, difficulties have been identified in rhythm and rhyme in children with dyslexia and support with these skills impacts on the development of reading (Bradley and Bryant, 1983). Another strand of difficulty relates to memory and organization, originally identified by Baddeley (1986) and more recently in issues with executive function (Diamond, 2000). Recent research has also identified problems in motor skills, attributable to the cerebellum, and evident in difficulties with speed of articulation (Fawcett and Nicolson, 2003) and speech production (Catts, 1989). There is also strong evidence for co-morbidity, with many children with dyslexia showing problems with speech and language, motor skills, and attention, as well as dyscalculia (Kaplan et al, 2001). Of course, many of these symptoms have been widely identified over the years, (see Miles, 1983) but others are based on the clinical expertise of the authors, supported by the theoretical data base on dyslexia more widely, and screening tests developed in other languages (Nicolson and Fawcett, 2004; Fawcett and Nicolson, 2004). Adopting this approach, it should be possible to compile a questionnaire that will cover a broad range of skills that have been implicated in early learning in dyslexia.

Table 2: Signs/symptoms of Dyslexia based on literature and observations

NO	SIGN OF DYSLEXIA	CITATION
1	Difficulty in writing and counting.	Dewi and Solek, 2013; Reid 2017; Miles, 1983
2	History of family members (especially siblings, father, and mother) who are late to talk, and have difficulty in learning, reading, writing in kindergarten- elementary school, but were recognized as a bright child in another field.	Dewi and Solek, 2013; Dewi, 2010; APA, 2013; IDA, 2013; Gilger et al, 1991; Miles, 1983.
3	Starting talking at the age of more than 3 years old	Dewi and Solek, 2013; Reid, 2017; Badian, 1982.
4	Articulation of vocabulary is often unclear.	[Dewi and Solek, 2013][APA,2013] [Reid, 2017]Miles, 1983
5	Difficulty in learning and recognizing rhythms / beats.	Dewi and Solek, 2013; Reid, 2017; Bradley and Bryant, 1983; Nicolson and Fawcett, 1996, 2004.
6	Difficulty in finding the right word or term in communicating such states as thick for deep, or long for tall.	Dewi and Solek, 2013; Reid, 2017; Miles, 1983; Catts, 1989; Snowling, 1987.

Table 2: Signs/symptoms of Dyslexia based on literature and observations (Cont.)

NO	SIGN OF DYSLEXIA	CITATION
7	Difficulty in knowing the shape of the letter.	Dewi and Solek, 2013; APA, 2013; Miles, 1983; Snowling, 1987; Nicolson and Fawcett, 1996, 2004.
8	Difficulty in knowing the sound of the letter.	Dewi and Solek, 2013; APA, 2013; Snowling, 1987, Nicolson and Fawcett, 1996, 2004
9	Stuttering or elongating sounds in speaking, not coherent/ systematic.	Dewi and Solek, 2013; APA, 2013; IDA 2013; Reid, 2017; Miles, 1983.
10	Difficulty in naming the object.	Dewi and Solek, 2013; IDA 2013; Reid, 2017; Wolf and Bowers, 1989; Nicolson and Fawcett, 1996, 2004.
11	Difficulty in recognizing numbers, especially writing the shape often not following the general rule. For example, writing the numbers one from the lower to upper, writing the number eight with an unusual line, etc.	Dewi and Solek, 2013; APA, 2013; Miles, 1983; Nicolson and Fawcett, 1996, 2004.
12	Difficulty in reading letters like: b, d; p, q; u, n; m, w; 6, 9; 5, s, z.	Dewi and Solek, 2013; Dewi, 2010; Miles, 1983; Reid, 2017.
13	Difficulty in determining right and left.	Dewi and Solek, 2013, Dewi, 2010; IDA 2013; Miles, 1983.
14	Forgets easily	Dewi and Solek, 2013; Dewi, 2010; Baddeley, 1986; Miles, 1983.
15	Difficulty in memorizing the name of a friend or teacher's name, or the name of the people in their environment.	Dewi and Solek, 2013; Reid, 2017; Miles, 1983.
16	IQ is in the normal range or above average.	Dewi and Solek, 2013; Miles, 1983.

Table 2: Signs/symptoms of Dyslexia based on literature and observations

NO	SIGNS OF DYSLEXIA	CITATION
17	Difficulty in following instructions	[IDA 2013; Miles, 1983
18	Appearing clumsy, and unskilled in activities that rely on motor coordination.	Dewi and Solek, 2013; IDA, 2013; Miles, 1983; Nicolson and Fawcett, 1996, 2004.
19	Difficulty in arranging days of the week or the alphabet and numbers sequentially.	IDA,2013; Miles, 1983
20	Difficulty in determining direction (left/right)	Dewi, 2010; Miles, 1983
21	Difficulty in reading or sounding unfamiliar words	Dewi, 2010; Miles, 1983; Snowling, 1987; Fawcett and Nicolson, 1996, 2004.
22	Difficulty in pronouncing similar words (misalnya: dia-ada, sama-masa, lagu-gula, batu-buta, tanam-taman, dapat-padat, mana-nama)	Dewi, 2010; Reid, 2017; Miles, 1983.
23	Poor handwriting	Dewi, 2010; Miles, 1983; Fawcett and Nicolson, 1996, 2004.
24	Short attention, when listening	IDA, 2013; Kaplan, et al, 2001.
25	Difficulty in remembering words	Dewi, 2010; Miles, 1983.
26	Difficulty in understanding the concept of time	Dewi, 2010; IDA,2013; Miles, 1983.
27	Difficulty in distinguishing vowels and consonants	Dewi, 2010]; Snowling, 1987.
28	Difficulty in determining alphabet and symbols	Dewi, 2010; Reid, 2017; Snowling, 1987.
29	Difficulty in remembering routine daily activities	Dewi, 2010; Miles, 1983.
30	Difficulty in recognizing symbols in arithmetical operations	Dewi, 2010; Miles, 1983.
31	Difficulty in defining words / terms that often appear in maths. (such as greater than, less than, equal to)	Dewi, 2010; Miles, 1983

Table 2: Signs/symptoms of Dyslexia based on literature and observations (Cont.)

NO	SIGNS OF DYSLEXIA	CITATION
32	Difficulty in recalling the day of the week	Dewi, 2010; APA, 2013; Miles, 1983.
33	Difficulty in telling the time	Dewi, 2010; Miles, 1983
34	Less interest in playing games with language sounds (eg., repetition, Rhyming)	Dewi and Solek, 2013; Miles, 1983.
35	Difficulty in learning rhyme	Dewi and Solek, 2013; IDA, 2013; Miles, 1983; Reid, 2017; Bradley and Bryant, 1983.
36	Running slowly	IDA, 2013.
37	Ambidexterity, or delays settling on one dominant hand	IDA, 2013; Miles, 1983.
38	Difficulty remembering and following directions	Reid, 2017.
39	Easily frustrated	Reid, 2017.
40	Difficulty in dressing, buttoning clothes and putting shoes on the right feet	Reid, 2017, Miles, 1983.
41	Frequently tripping, bumping into things and falling	Reid, 2017; Miles, 1983
42	Difficulty in catching, kicking or throwing a ball, and jumping rope	Reid, 2017; Miles, 1983.
43	Easy to understand a story based on the pictures thatare not related to the text book	IDA, 2013; Reid, 2017.

Based on Table 2 above, this study summarized dyslexia characteristics from several different literature bases internationally. These overall characteristics became the basis for designing the parameters to identify dyslexia.

The main screening parameters are the aspects that influence symptoms of the children at risk for dyslexia. The parameters of the main screening were the children's and the parents' background, academic ability, and non-academic ability. Academic ability was divided into four parameters: oral language, written language,

social language, and mathematics ability. Non-academic ability was divided into four parameters: organizational ability, sequence identification ability, direction identification ability, and working memory capacity.

There were two types of main screening questionnaires based on child's age, which were for children of 5 – 5.11 years old and 6 - 7 years old. Written language parameters were observed for children of 6 - 7 years old, but not for children of less than 6 years old. Therefore, for 6 - 7 years old children, there were 21 questions that had to be completed by the parents, whereas for under 6 years old, there were 17 questions.

This study checked the validity of the main screening compared with the full deep screening by experts. Each participant in the screening received a further blind assessment from the authors, experts in the field, before their results from the screening instrument were examined, in order to check the efficacy of the system. The respondents of this piloting instrument are outlined in Table 3.

In order to check the effectiveness of the current system, the True Positive (TP), True Negative (TN), False Negative (FN), and False Positive (FP) were necessary to evaluate the main screening in comparison with experts. The results of the main screening piloting are outlined in Table 3.

Table 3: True positive, false positive, true negative, false negative, and accuracy of main screening piloting

NO	SCHOOL	RESP	TP	FP	TN	FN	ACCURACY
1	Fatimah Azzahra	23	14	0	4	5	78%
2	Fithrah Insani	29	17	0	6	6	79%
TOTAL		52	31	0	10	11	79%

Based on Table 3, results from one school were ignored, because the assessment had not been done. Thus, this study only took two schools, and found that the accuracy of TK/SD nursery Fatimah Azzahra was 78%, while the accuracy of SD Fithrah Insani was 79%. Thus, the total accuracy was 79%. The main screening had

good enough accuracy when compared with lengthy expert assessment. It could be concluded that the main screening could be used to identify whether the children had a risk of dyslexia or not.

RESULTS

The main screening was run with 3 further schools, including Indigrow, a small-scale special school for dyslexia run by Dewi and Solek and colleagues. If the system devised is accurate it should identify all the children in Indigrow who have already received a full expert diagnosis, as dyslexic. In order to analyze the main screening sensitivity, specificity, and accuracy were necessary. In particular, they are used to quantify how good and reliable a test is in identifying children with risk for dyslexia. The sensitivity, the specificity, and the accuracy are described in terms of True Positive (TP), True Negative (TN), False Negative (FN), and False Positive (FP) as and it is shown in Table 4.

Table 4: Analysis of main screening sensitivity, specificity, and accuracy

NO	SCHOOL	RESP	TP	FP	TN	FN	SENSITIVITY	SPECIFICITY	ACCURACY
1	SD Fithrah Insani	46	27	2	11	6	0.82	0.85	83%
2	Indigrow	6	6	0	0	0	1	-	100%
3	SDN Nilem	53	29	0	15	9	0.76	1	83%
TOTAL		105	62	2	26	15	0.81	0.93	84%

Based on Table 4, the sensitivity of main screening in SD Fithrah Insani was 0.82, the specificity was 0.85, and the accuracy was 83%. The sensitivity of the main screening in Indigrow was 1, as predicted, but here the specificity could not be calculated because all the sample were dyslexic, and the accuracy was 100%. Meanwhile, the sensitivity of main screening in SDN Nilem was 0.76, the specificity was 1, and the accuracy was 83%. Thus, the total sensitivity of main screening in SD Fithrah Insani, Indigrow, and SDN Nilem was 0.81, the specificity was 0.93, and the accuracy was 84%.

DISCUSSION

The situation in Indonesia, based on lack of awareness within both the teaching profession and parents, the scarcity of skilled resources and the geography of this archipelago has meant that there is a premium on the services of the pediatricians skilled in assessment and diagnosis. In order to address this issue, the pediatricians, authors of this paper set out to evaluate the literature internationally on early signs and symptoms of dyslexia, refine this into a questionnaire for parents to complete, train up certified counsellors and evaluate a computer expert system that would compare the results generated with expert opinion in the full assessments previously adopted. The approach adopted is a whole child perspective on the broad range of difficulties encountered in dyslexia, based on their clinical work and the literature.

An ideal screening test would have a 100% hit rate and 0% false positive rate, so that no children were overlooked, and support was limited to those who really needed this. However, a more realistic target would be 80-85% hits and no more than 20% false positives. In fact, there is a trade-off between hits and false positives, so that it is easy to increase the proportion of hits by relaxing the 'at risk' cutoff, but this will increase the proportion of false positives. Interestingly, it is always much easier to predict those who have strengths in literacy rather than those who are at risk.

In the current study, the values of the sensitivity represented the probability of the main screening test identifying children that had a risk of dyslexia. The higher sensitivity, the less likely the test returns false-positive results. From Table 4, the highest value of the main screening sensitivity was obtained from Indigrow. This condition occurred because there was no false negative (FN) cases, as predicted, given that all the children had received a previous expert diagnosis of dyslexia. Satisfying this criteria is a major issue in research, in that any system that failed to identify children known to be dyslexic has to be flawed.

In terms of the 2 test schools, the value of the main screening sensitivity from Fithrah insani was higher than the value of main screening sensitivity from SDN Nilem, because the number of false negative (FN) cases in SDN Nilem was higher than the number of false negative (FN) cases in SD Fithrah Insani. The number of false negative (FN) was still high because based on analysis between parents' answers in the main screening and the experts' observation during the assessment, the parents were not always totally aware or open about their childrens' difficulties. Furthermore, the sensitivity from all samples was 81%, This meant, by conducting the main screening test on a child at risk for dyslexia, there was an 81% chance, the children would be correctly identified as at risk for dyslexia. This compares favourably with

the results from the DALI checklists in India (Chatterjee, 2015) with 75% sensitivity and specificity.

What are the implications here of the high number of false negatives? It must be remembered that in Indonesia as a whole knowledge or awareness of dyslexia is in its infancy and most teachers have little familiarity with the syndrome or its symptoms. Consequently, risk for dyslexia is more easily identified by parents who have been familiarized with these concepts, and may even have experienced these difficulties themselves. Naturally, not all parents are aware of the expected performance of the child for the 5-7 year-old age group, and this means that the results are likely to be less than perfect. Moreover, it is likely that there is still some stigma involved, based on misunderstanding of dyslexia as a form of mental retardation, which may make parents reluctant to label their child as having difficulties. It is likely therefore that prediction in these cases will be less than perfect.

The numerical value of the specificity represented the probability of the main screening test identifying children that did not have a risk of dyslexia. From Table 4, the highest value of main screening specificity was obtained from SDN Nilem. This condition occurred because there were no false positive (FP) case. Meanwhile, from SD Fithrah Insani, there were 2 false positive (FP) cases, meaning that the children were identified to have a risk of dyslexia by the main screening, but identified to have no risk of dyslexia by the experts. The false positive (FP) case was also observed by the deep expert screening. Many researchers, however, argue that false positives are not too much of a problem, in that some early extra support will help children with difficulties, whether or not they are dyslexic. Therefore, false positives in this instance may be less important.

The value of main screening specificity from Indigrow could not be calculated because all sample were dyslexic, but this provides a yardstick against which to compare the other 2 schools.   Overall, the specificity of a main screening test from all samples was 93%. It meant when the main screening was conducted on a child without risk of dyslexia, there was a 93% chance, the children would be identified at no risk of dyslexia. The main screening had good enough sensitivity and good specificity in terms of international standards. Thus, the main screening could be used as the assessment to identify whether the children had a risk of dyslexia or not.

In addition to the accuracy, the sensitivity, and the specificity, this study used a Receiver Operating Characteristics (ROC) analysis. The ROC space depicted whether the diagnostic classification was good or not. Before the ROC was analyzed, the true positive rate (TPR) against false positive rate (FPR) had to be measured. The TPR of the main screening was 0.81, and the FPR was 0.071. The ROC curve is depicted below in Figure 2.

ROC CURVE FOR MAIN SCREENING
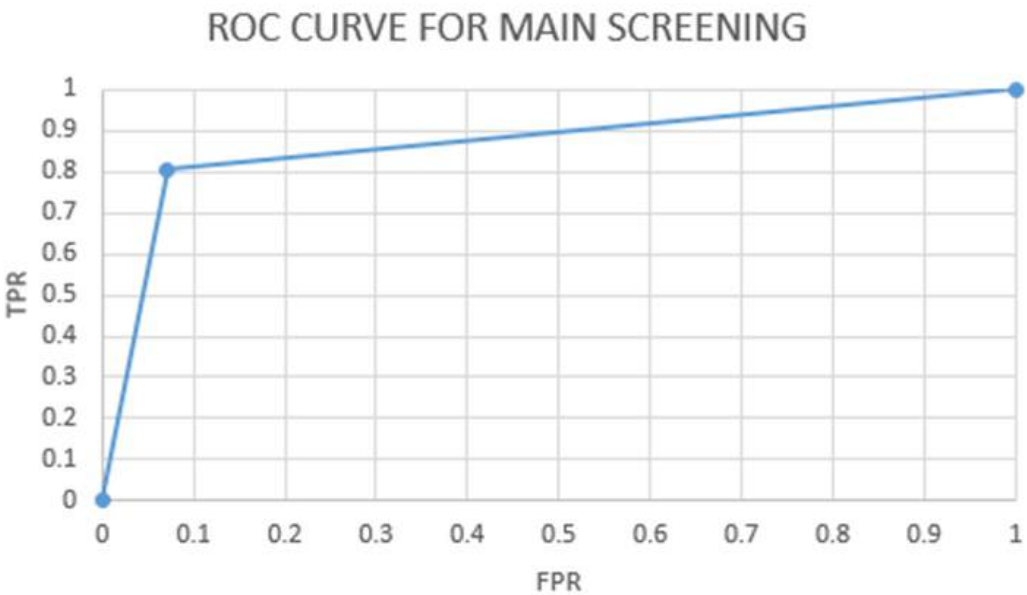
Figure 2: ROC Curve for Main Screening

Based on Figure 2, the area under the ROC curve (AUC) provided a way to measure the accuracy of the main screening test. The larger the area, the more accurate the main screening test was. The AUC was trapezoid. Thus, with the formula to measure the trapezoid area, the AUC was 0.87. According to Table 3, the main screening test had good accuracy. It could be concluded that the main screening questionnaire could be used to identify whether a child had a risk of dyslexia or not. This condition occurred because:

1.   The instruments that were used were valid. This study had run the piloting process 5 times. After piloting, the evaluation process had been done according to expert guidance. Based on the evaluation, the instrument was revised.

2.   The instrument used a simple sentence structure such that it was easily understood by the parents.

3.   Dyslexia has a varied spectrum, each child might have different signs and symptoms, in addition to the core issues. This study was not only assessed based on the total score, but also on each of the aspects, to provide an individual profile for each child to inform remediation.

LIMITATIONS AND DIRECTIONS FOR FURTHER RESEARCH

The system developed in this study enriches provision in Indonesia, a region where dyslexia awareness is growing fast, based on the work of the authors and their colleagues.   It is clear that a system designed to take the role of the expert would be beneficial, given the constraints on availability of expert support and guidance in this region.

The system as it currently stands cannot ascertain the overall cognitive ability of the children taking part. In this context, dyslexia is usually diagnosed in children with an IQ in the average range or above. However, most screening tests do not attempt to provide a measure of intelligence, and therefore this system should be seen as a first stage in a lengthier diagnostic process, that may follow on from attempts to remediate the deficits, in a response to intervention paradigm.

Furthermore, there are limitations in using parents to evaluate their children, as discussed above, with more specifically the assumption parents will provide valid answers, but in the current situation it is likely to present the best outcome available. However, as knowledge and awareness of dyslexia grows throughout Indonesia, it is likely that a similar approach could be adopted by teachers, who could complete the questionnaires on early school progress to identify those children who may previously have been overlooked.

In future research, the outcomes for children should be evaluated, once they have been identified by this system and have received support via Lexipal, the computerized system devised for Indonesia by the authors.

CONCLUSION

The Dyslexia early identification system (DEIS) consists of a main computer-based screening that can be accessed anywhere and anytime, even via your mobile phone. Based on the results of several experiments, testing, and analysis, this study concluded that the main screening is able to identify whether the children have a risk of dyslexia or not, in line with expert opinion. Further research is needed to build on the capabilities of this system, but it represents an important contribution to the field, notably in a region where expertise is restricted, thus creating a bottleneck in the further development of dyslexia screening and support.

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Research will be presented it short, engaging and entertaining
sessions accompanied by poster presentations and the chance to
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Asian region.

UnITE SpLD 2018 Conference Presentation Abstracts

Asia Pacific Journal of Developmental Differences
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Technology Advancing Education

Geetha Shantha Ram
Dyslexia Association of Singapore

Abstract

Education has made great strides in the last decade with a deliberate effort to increase the access to and use of technology in the teaching of learners with Specific Learning Needs. International research has continued to demonstrate the benefits while shifting the conversation from a basic use of technology to a high quality and purposeful implementation of technology in learning environments. The Dyslexia Association of Singapore (DAS) has gone through a similar transition in its efforts to provide support to learners with dyslexia and other SpLDs, aiming to address edutech use through Teachers, parents and students. This talk will review studies conducted and explore various edutech initiatives that the DAS has implemented in a bid to advance SEN educational potential.

Keywords: Education Technology, SpLD, dyslexia

Profiling Children at-risk for Language, Literacy and Learning Difficulties in Heterogeneous Bilingual Populations

Mary Lee Lay Choo, Susan Rickard Low, Elizabeth J. Teh
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Abstract

Early identification of language, literacy, and other learning is especially challenging in heterogeneous bilingual populations (Hammer et al., 2014; Kohnert, 2010). This is because young bilingual children need to be assessed in both their languages on a wide range of tasks in order to determine the most accurate picture of individual strengths and weaknesses. In Part I, we will explain the theoretical background and the design of the tasks included in our CLAP (Cognitive Linguistic Assessment Profile) assessment battery which comprises Teacher and Parent report forms, and a series of linguistically and culturally appropriate tests with norms for three groups of 4 to 6 year-old bilingual children in Singapore (English-L1/Mandarin-L2, Mandarin-L1/English-L2 and Malay-L1/English-L2). The tests include measures of receptive and expressive vocabulary in two languages, sentence imitation, speech processes (articulation and phonology), short-term and working memory, nonverbal cognitive abilities, phonological awareness, reading and spelling skills, and socio-emotional processing. In Part 2, we will then present profiles for a selection of case studies conducted in local preschools, and explain how bilingual children's difficulties can be differentiated by teachers and clinicians before they decide which approach to intervention will be the most effective. These case studies will include children with English as a Second Language (ESL), Speech Sound Disorder, Intellectual Disability (ID), Autism Spectrum Disorders (ASD), Developmental Language Disorder (DLD), as well as Dyslexia.

Keywords: Language Development; Early Intervention; Assessment Tools

Exploring Assistive Technology to Support Students with Dyslexia. Introducing Possible Solutions.

Wong Meng Ee[1*] and Deborah Chua[1]

National Institute of Education, Nanyang Technological University

Abstract

In recent years, there has been an increasing number of assistive technology devices available to meet different disabilities. Many individuals with dyslexia have difficulty in reading, writing and spelling. The present pilot study explored the use of assistive technology to improve access to reading for individuals with dyslexia. OpenBook, Voice Dream Reader and Read2Go were considered. Under consideration are such features as text-to-speech with word tracking, font size adjustments, colour settings and word spacing. Given the scarcity of studies on the usefulness of these assistive technology solutions as a learning tool for students with dyslexia, three teachers of dyslexia were each engaged to participate in a pilot study. Teachers were asked to evaluate the features with a general assistive technology evaluation rubric. Additionally, teachers were also interviewed qualitatively on their perspectives on the features of the software. Findings obtained from the pilot evaluation will be discussed with reference to features documented in the British Dyslexia Association Style Guide and in the relevant scholarship to be dyslexia-friendly. Findings will also be discussed in the context of literature that claim a reading continuum positioning rather than reading deficit account for individuals with dyslexia.

Keywords: assistive technology, text-to-speech, print modification

Relationships between language and literacy development and academic self-efficacy and resilience

John Everatt

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Abstract

Learning to read underpins success within educational settings: difficulties with reading impact on all areas of a curriculum where reading is the key to independent learning. Poor educational achievement can lead to negative feelings about education, to poor self-concept and to behavioural problems, which may impact negatively on general well-being: individuals with literacy learning difficulties are also more likely to experience emotional and mental health problems. The current research has been investigating such relationships between literacy and psychosocial development, as well as ways to support literacy learning while targeting factors associated with poor self-concept and negative behaviours in children who experience significant challenges in their literacy learning. The research has involved adults and adolescents with assessments of dyslexia, as well as early and late primary school children with evidence of reading/writing difficulties. In most cases, the data were consistent with relationships between academic self-concept/self-efficacy and measures of language and literacy as early as the children's first year of school. Such relationships were larger for students with language and phonological difficulties, suggesting that those with a broader range of difficulties may suffer negative impacts on psychosocial development more than others. Interventions targeted at slightly older primary grade students has looked at ways of building resilience to challenges in learning, as well as providing strategies for overcoming reading/writing difficulties and for maintaining self-efficacy and reducing off-task behaviours. These results will be discussed to inform further developments in intervention work that considered well-being as well as academic achievement.

Keywords: Dyslexia, self-concept, negative behaviours, resilience

The Imagery-Language Foundation: Teaching All Children to Read and Comprehend

Angelica Benson and Andy Russell

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Abstract

Based on 32 years of instructional experience with 45,000 at-risk readers, we know that the dual coding of imagery and language is critical for language comprehension and word reading (Lindamood-Bell Learning Processes, 2017). Imagery is a basic sensory-cognitive function connecting us to the language we hear and the print we read. There are two distinct types of imagery—symbol imagery and concept imagery—intrinsic to word reading, orthographic processing, and reading comprehension. This presentation examines the effect of imagery-based, sensory-cognitive instruction on word reading and comprehension in children with reading difficulties. A consistent, repeated finding is that students with reading difficulties have shown significant word reading and comprehension improvements with imagery-based sensory-cognitive instruction. Do these same improvements hold true for students diagnosed with dyslexia or autism spectrum disorders? Behavioral and neurological research validates the imagery-language connection resulting in lasting effects on word attack, word recognition, comprehension and specific areas of brain function in at-risk readers, including students with dyslexia or autism spectrum disorders (Eden et al., 2004, Oulade et al., 2013, Krafnick et al., 2015, Murdaugh et al., 2015, Murdaugh & Maximo et al., 2015, Christodoulou et al., 2015, Romeo et al., 2017). Supported by Dual Coding Theory (Paivio, 1979), key research findings, and 32 years of instructional experience, this session reveals that imagery is a primary sensory-cognitive power source that can be developed and brought to consciousness for reading independence in children, including struggling readers, and those previously diagnosed with dyslexia or autism spectrum disorder.

Keywords: Sensory-Cognitive Instruction, Imagery-Language Connection,
            Reading Intervention, Symbol Imagery, Concept Imagery

Also Presented as a Poster

Madras Dyslexia Association (MDA) - a 25 years journey

D Chandrasekhar

Madras Dyslexia Association, India

Abstract

Madras Dyslexia Association was formed in 1992, when there was very limited awareness on dyslexia and a minimal support system to help the children. Initial periods were spent in creating awareness amongst parents, teachers and public. Little later, the parents started looking for trained special educators We started training of special educators and part time remediation outside school hours. When we saw no relief for severely dyslexic children we created the full time remediation centre. We ran this arrangement for quite a few years. We realised that we were hardly scratching the surface. Our federal state alone has nearly 2 million dyslexic children and 700,000 of them were educated in Tamil medium, which is the local language. India has 22 official languages The problem is not purely academic and is life long. We started resource rooms in schools by training the school teachers, and monitoring these resource rooms for a period of two years and hand over this to the school. We created a kit for the special educators. We developed TVP to provide screening and remediation techniques for those learning in Tamil language. We created a kit for them also. We started setting up resource rooms in Tamil medium schools using TVP and kit. We realised the need for training large number of teachers. Hence we increased the frequency of our training. We started doing something We realised technology is the solution and we decided to digitise our training programme. We developed a software to track the child and give the feed back on the methodologies used. We are creating software to help remote monitoring of the resource rooms. We understood that Dyslexia is life long and requires attention from birth to adulthood. We have started pre primary screening/ remediation for children of less than 5. We are planning to start work with grown up dyslexics in the near future as we look for the newer challenges.

Keywords: MDA Evolution Meeting challenges Multilingual Volume

Effectiveness of Reading Comprehension Instruction for Primary School Learners with Dyslexia

Chen Fang-Ju and Lilian Yue

Dyslexia Association of Singapore

Abstract

Reading comprehension not only involves the ability to read and recognise words, but also to be able to make meaning from what was read. Reading comprehension tasks can be a very challenging task to a learner with dyslexia as they experience difficulties in word recognition, a precursor to text reading. In addition, they also lack a knowledge of reading strategies to help them cope with their difficulties. Reading comprehension passages are an area which learners with dyslexia have great difficulties in when tackling the Primary School Leaving Exam (PSLE), a high-stake national examination to gain entry to secondary school. Chinese learners with dyslexia at Dyslexia Association of Singapore (DAS) are taught comprehension strategies developed through incorporating Bloom's Taxonomy and Singapore primary school's textbooks. This study is set out to evaluate the effectiveness of the reading comprehension curriculum developed at the DAS using these reading comprehension strategies through a structured learning process of modelling, scaffolded practice and independent practice in increasing a learner's ability to answer reading comprehension questions. The questions set encompasses 6 types of questions, namely, knowledge, comprehension, application, analysis, synthesis and evaluation question types. Students in this study are aged between Primary 3 and Primary 5. Pre and post intervention survey will be done with the students. Their class work will also be collected for analysis. Feedback for classes are also collected from the educational therapists. The findings of the study would be used to inform current intervention and possible future developments in reading comprehension in Chinese for learners with dyslexia in Singapore.

Effects of Executive Attention Deficits in Children with Dyslexia: Beyond Phonology in bilingual dyslexics

Suvarna Rekha Chinta and Bipin Indurkhya

Madras Dyslexia Association, India

Abstract

Reading is one of the cognitive tasks that require high alert states; many studies around the world demonstrate that frontoparietal regions of the brain are involved in the reading process. Parietal regions are also mandated to alert states, disruption of parietal regions leads to disruption of attention mechanism. Considerable evidence has shown that dyslexics have a disruptive attentional mechanism, which in turn influences the reading process. In our previous studies, we observed attention deficits among children with dyslexia (CWD). In this study, we explored the attention and phonological abilities of bilingual children with dyslexia. These abilities were examined with Attention Network Test (ANT) and phoneme awareness test (PA) respectively. Data were obtained from twenty-two children with dyslexia and compared with twenty-two age and IQ matched normal readers with an average age of 12 years (SD = 0.25 years). Observed the statistically significant difference in an ANT with no interaction effect. The group difference on alerting network implies an inability to enter into and maintain an alert state in activities that require high attention. The deficit on orienting network implies lesser or no reaction to the target cue, that in turn affected the performance. Finally, the deficit on the executive network implies an effort full control of attention, error monitoring and interface control. Therefore, a disruptive attentional mechanism in dyslexics could be one of the reasons for higher reaction times and lower accuracy compared to normal readers. Additionally, we observed a marginal difference in gender, which indicates a slight difference in performance levels of girls and boys. However, ANT male disadvantage was well pronounced, and the effect of gender was especially positive for boys who were dyslexic. But on word / non-word reading tests, we observed longer duration. To sum up, by directly addressing both attentional and phonological deficits with the same sample, it has been possible to test the applicability in rehabilitation contexts less frequently studied in the literature. Our results show a clear role of prominent attentional deficits and attenuated phonological processing. This deficit is not a general attention deficit; rather, it is specific to the process of alerting and executive attention. Consequently, strategies designed to enhance these attention networks should be considered while developing remedial training programs for children with dyslexia, to increase their success in academic and behavioral domains. At the same time, interesting venues for future research for the exploration of gender differences in dyslexia is apparent from these data.

Keywords: alerting- network, dyslexia, executive- network, orienting- network, and phonology.

Rolling out an evidence-based Intervention for struggling learners and providing professional development for teachers through a global partnership in India: A pilot project.

Maria De Palma, Uma Kulkarni, Maureen W. Lovett
1.   The Hospital for Sick Children, Canada
2.   Anjali Morris Foundation (AMF), India
3.   University of Toronto, Canada

Abstract

We describe a pilot partnership between the Hospital for Sick Children's Empower™ Reading Program (Toronto, Canada), a set of research-based literacy programs for children with reading disabilities, and the Dr. Anjali Morris Foundation (AMF) (Pune, India), a leader in services for Indian students at risk for LD and in teacher professional development. In June 2016, 10 AMF teachers were trained by the first author in the Empower™ Reading Decoding and Spelling (DS) program, which focuses on foundational literacy skills. Implementation of this 110-lesson program was conducted at AMF with 60 struggling readers. Pre-, mid- and post-program results are available for 40 students who completed the program. Standard scores on the W-J Letter-Word Identification and Word Attack subtests demonstrate considerable improvement in decoding and word identification skills, with average standard scores on Letter-Word Identification increasing by more than a standard deviation, and by almost two standard deviations on Word Attack. By post-testing, students improved by an average of 28 test words on an experimental measure of multi-syllabic word reading. These positive results led to the scale-up of Empower's teacher PD starting in June 2017; 21 additional teachers from AMF and five schools are being trained and three AMF teachers are being trained in the Comprehension and Vocabulary EmpowerTM Program. Preliminary results of this expansion will be available by June 2018. This partnership may inform future literacy intervention practices globally, providing programming and teacher PD in low- and middle-income countries, and building capacity to help those who struggle with literacy learning.

Keywords: scaling up; global partnership; literacy; reading; struggling readers; evidence-based intervention

Resource Room – Remedial education for children with SLD within the school premises – the need of the hour.

Vilasini Diwaka, Mala Raju Natarajan

Madras Dyslexia Association

Abstract

Children with Specific Learning Disabilities need timely remedial support/ intervention in their school going years to optimize their academic performances lack of this support creates increasing discrepancy between their abilities and performances. Children fail to perform to their full potential despite being of average to above average intelligence. They flounder and is lost. Such remedial support is not easily accessible but when established within the school environment can make a vital difference to this scenario and is beneficial in multiple ways. This presentation advocates the inclusion of a Remedial center in the mainstream school to support the education process of a child with Dyslexia to ensure that no child to fall through the cracks. First it highlights how such a centre can create a Dyslexia Sensitive Educational Environment. It focuses on the need to identify and to provide remediation to the child with Specific Learning Disabilities within the school milieu. Then the paper uses case studies of SLD children in mainstream schools where MDA has set up resource room centres to demonstrate the positive impact of the project on critical stakeholders like the management of the school, parents and teachers and importantly details how the strategies used for teaching the students have universal implications and could valuably benefit all students in the classroom. The paper lastly discusses the process of setting up of such a centre.It presents evidence to show that running a remedial centre within the school campus is sustainable, scalable, replicable and is pivotal to supporting students with SLD in their critical years of learning.

Keywords: Specific Learning Disabilities, Remedial Centre Mainstream, Inclusion

Dyslexia and learning – the triangle hypothesis as an explanatory framework for dyslexia.

Angela Fawcett[1*]

Dyslexia Association of Singapore

Abstract

For many years, our research has been tracing the deficits in dyslexia to a problem in learning, in automatisation, procedural learning and in delayed neural commitment, and this evidence has been presented internationally. Recently, we have argued that it is important to recognise the positive aspects of dyslexia, that can compensate for many of these deficits, the peak of the triangle in this new theory. In this talk, I shall introduce our latest hypothesis, and complete the triangle hypothesis of dyslexia, presented for the first time at this conference. The triangle hypothesis proposes a 2nd ongoing source of problems for learning in dyslexia, based on consistent mishandling of the learning issues, by lack of awareness of the manifestations of dyslexia in education. An emphasis on rote learning and a rigid approach, that fails to recognise learning differences, exacerbates and compounds the underlying problems, creating learned helplessness in dyslexic children, who may therefore never fulfil their potential. This theory suggests that early recognition and appropriate support is the best way forward to ensure that dyslexic children develop resilience, flourish and manifest their many strengths, rather than giving up the lifelong struggle for success. The talk will be illustrated with experimental findings and evidence from research over a 30-year period.

Keywords: procedural learning, automatisation, delayed neural commitment, positive dyslexia, the triangle hypothesis,

An Evaluation of the preference-based teaching approach for children with dyslexia and challenging behaviours

Sharyfah Nur Fitriya

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Abstract

Dyslexia is characterised by difficulties inaccurate and/or fluent word recognition, reading comprehension, written expression and poor spelling. Research studies have mainly focused on helping students' diagnosed with dyslexia through educational remediation. However, little research has been done on increasing on-task behaviour and attentiveness while reducing behavioural problems for students' diagnosed with dyslexia. In Dyslexia Association of Singapore (DAS), students' diagnosed with dyslexia tend to get disengaged in the classroom setting. This small-scale qualitative case study used a non-concurrent multiple baseline design across three participants and was conducted at DAS between August 2016 to March 2017. Its goal is to examine the effectiveness of a preference-based teaching approach. A preference-based teaching approach involves identifying student preferences within the classroom setting and designing teaching programmes for each student in consideration of these preferences. An evaluation of the preference-based teaching approach was carried out through a video observation of 15 teaching sessions and questionnaires. Analysis of the questionnaires revealed that the participants enjoyed the sessions and found the preference-based approach fulfilling. The video recorded sessions were analysed by the researcher and the Inter-observer agreement (IOA). The sessions revealed that all three students' performed 100% on-task behaviours and active engagement from sessions eight to 12. The study concluded that the preference-based teaching approach had an effect on the on-task behaviour and attentiveness level for all three students' diagnosed with dyslexia. The findings of this study can be used to improve teachers' lesson planning skills with the aim to increase students'' on-task behavior and active engagement levels.

Keywords: preference, on-task behaviour, attentiveness, active engagement, classroom setting, inter-observer agreement (IOA), attentiveness hyperactivity disorder, dyslexia

Effect of Exposure on self esteem of Dyslexics

Harini Mohan[1] **and Rashmi Wankhede**[1]
Madras Dyslexia Association, India

Abstract

Dyslexia has long been perceived to be a barrier for students not only in academic pursuits but in creative pursuits as well. This can be linked to the psychological trauma these students go through because of their academic shortcomings especially in traditionally study oriented societies in the Asia-Pacific region. A constant emphasis on their learning disability disheartens them and also imbibes in them the idea that scholastic achievement is the only metric for meritocracy. The situation is worsened when these students in mainstream schools observe students around them. However, it has been historically proven that students with dyslexia often possess latent talents and skills in fields that are not necessarily academically oriented, that measure up, if not supercede those of other students. It has long been the belief of MDA that such talents in vocational and creative activities are what must be utilised and tapped if we are to create students who can go on to better themselves and the society around them. With this simple idea in mind, MDA launched Dyslexia Week, a festival for awareness and talent based competitions designed to unearth hidden talents amongst dyslexics. With a healthy participation of 450 students, the festival is now looking to collaborate with organisations around the world. Our message is simple: It is not how smart students are, it is about how they are smart

Keywords: Self esteem of Dyslexics

Speech, Language and Communication Needs - Case Studies

Lee Er Ker, Ho Shuiet Lian, Elizabeth Lim and Sharon Reutens
Dyslexia Association of Singapore

Abstract

Case Study 1: A six-year-old Kindergartner was occasionally difficult to understand due to speech that was not as clear as that of his classmates. He enrolled in speech-language therapy where he participated in fun and interactive activities focusing on correct placement and practice of the target sounds. The boy's marked improvement in speech made him much more intelligible.

Case Study 2: A seven-year-old student in Primary1 made speech errors which were either unusual or not appropriate for his age. Certain sounds, such as /k/, /g/ and /r/, were initially not stimulable. Through speech-language therapy, he was later able to produce these sounds either in isolation or in words through multisensory and visualization activities to learn correct placement and production of target sounds.

Case study 3: A seven-year-old Kindergartner diagnosed with moderate-severe language disorder possessed a limited vocabulary. During speech-language therapy sessions, a combination of direct intervention techniques was used to improve vocabulary acquisition in a small group setting. Results show an improved recall and understanding of words targeted, as well as a slight gain in non-targeted words.

Case study 4: A nine-year-old student in Primary 3 with language impairment presented with errors in in syntax. In speech-language therapy sessions, direct intervention in explicit teaching of sentence structure and the use of connectors were employed to facilitate improvement in both receptive and expressive language orally and in writing.

Keywords: Speech and Language Intervention

Impact of Multiple Intelligences on the emotional wellbeing of the child with Specific Learning Disabilities (SLD)

Swetha Krishna, Yashodhara Narayanan

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Abstract

Typically a child with Specific Learning Disabilities is pushed from pillar to post in the process of identification and remediation of their difficulties. This along with the constant focus on their negatives leaves the child emotionally stressed and unable to perform academically. A vicious circle of underperformance follows. This paper focuses on the use of Multiple Intelligences as a complimentary method in exploring the unique potential of these children and its impact on their emotional health. It primarily focuses on the methods used at HYDRA – a Multiple Intelligences based resource centre, where the unique natural potential and competencies of the SLD child are identified and nurtured. The paper starts with a short introduction to Dr. Howard Gardner's theory of Multiple Intelligences. It will then take a look at why the use of Multiple Intelligences is vital for children with Specific Learning Disabilities. The practical aspects of how the process unfolds at HYDRA will be explored, through videos. Next it will take a detailed view at the impact this process has on the emotional wellbeing and self-esteem of the child, through a few case studies Finally the paper aims to explore the further action points that can be taken in the use of Multiple Intelligences in creating a nurturing, harmonious environment that empowers and enables the child with SLD in realising his potential.

Keywords: Multiple Intelligences, Dyslexia, empower and enable, complimentary technique, Dr Howard Gardner

The Development of Education for Students with Learning Disabilities in Taiwan

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Abstract

In Taiwan, the child with Learning Disabilities had been provided the special education service acted by the Special Education Regulations in 1977. The term, learning disabilities, is a broad term used to define the child who exhibits significant learning difficulties in one or more of these areas: listening, speaking, reading, writing or calculation. The current definition and identification was required in the Regulation of Students with Disabilities and Giftedness by the Ministry of Education in 2013. The education for the students with learning disabilities has been developed for 40 years.

The Ministry of Education in Taiwan has been publishing national statistics pertaining to special education annually since 1999. Those data come from the national Special Education Transmit Net that collects special education related information across the whole country. This report will present the tendency analysis with the incidence rate, education placement, gender and related issues for the students with learning disabilities in Taiwan.

Keywords: Learning disabilities, Education, Incidence rate, education placement

Music Teachers and Dyslexia: Perceptions, Understanding and Observations

Mary Mountstephen
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Abstract

Academic studies that focus on primary teachers' knowledge of dyslexia are relatively scarce; however some sources indicate that many teachers hold a number of misperceptions and varied interpretations of the nature of dyslexia and that these impact on expectations of classroom performance, (Soriano-Ferrer, Echegary-Bengoa & Malathesa-Joshi, 2015). Areas of deficits were identified in domains including general information, symptoms/diagnosis and effective interventions/ support. In music, there is a focus on sequencing, pitch, rhythm and links have been made between these and phonological awareness (Goswami, Huss, Mead, Fosker & Verney, 2012, Crispiani & Palmieri 2015). Overy (2003) refers to current theories suggesting that timing deficits may be a key factor and dyslexic children have been found to exhibit timing difficulties in domains such as language, music, perception and motor control. Thus, music teachers are a unique position to observe weaknesses and strengths in their students' performance, based on a secure, research based knowledge about dyslexia. In this presentation I will provide some background to this field and provide an overview of my findings in relation to the responses a small group of teachers made to a survey about their knowledge, perceptions and observations in relation to aspects of dyslexia. The intention is to use the findings to inform professional development programmes, providing music teachers with appropriate research and knowledge to support their observations and interventions.

Keywords: Teacher knowledge, non-language indicators of dyslexia, common misperceptions

Going Beyond Instructional Technology Integration Models in Instructional Designs with EdTech

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Abstract

Almost every educational institution day is attempting to begin or already on their journey to incorporate educational technologies into the lesson designs. The instructional designers or educational technologists of these institutions would have had looked at various prominent instructional technology integration models such as the TPaCK, SAMR, RAT, TAM, TIP and TIM, some of which this presentation will cover in greater detail. The question remains though, on what makes a model valuable to instructional designers and educators. Instructional technology integration models are extensively used in trainings for educators as well as educational research in understanding and evaluating pedagogical integration of educational technology in educational institutions. Just as theoretical constructs are embraced and applied into practice and research, one should note that they are diverse and appear to be chosen under uncritical, tribalistic (Kimmons, 2015; Kimmons and Hall, 2016) or anarchic (Feyeraband 1975) ways. Some technology integration models have had the advantage of greater dispersion and thus seem more prominent such as the TPaCK. For example, the TPaCK is very popular amongst researchers whereas the SAMR model is more popular among instructional designers and educators but what is not as clear are 1) what are the elements underlying this dispersion of preference; 2) what characteristics of such models make them importable by various groups of users and 3) how these models should be adopted, adapted and critically assessed with regards to other models. Analytical discussions about such theoretical pluralism will limit advocacy for generalist theoretical constructs which most people in the field of educational technology are familiar with without ignoring those that we are not. This presentation will therefore critically analyse some of the instructional technology integration models, of which some come from the same theoretical constructs, to suggest how models can be brought together to create a unique approach for the educational institution. This is because the needs, focus and preference of each stakeholder (researcher, educator, policymaker, administrator, etc.) within the same institution is diverse and it is unrealistic to expect a single theoretical construct to meet these needs and objectives satisfactorily.

Keywords: technology integration

Case Management Discussion - Supporting Challenging Learners

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Abstract

Learning difficulties may arise from learning disorders such as dyslexia, attention deficit hyperactivity disorder (ADHD), specific language impairment (SLI), dyspraxia, dysgraphia, sensory processing, auditory processing and many others. In addition, emotional and behavioural issues can also lead to barriers to learning. The situation can be made worse if a student diagnosed with any learning disorder displays emotional and behavioural issues. In an increasingly complex world, teachers have to be aware of which diagnosis is impacting more on the learning difficulties of students as this would suggest on how the learning needs are to be met and how a class with such students can be managed efficiently. Teachers teaching a class of various profiles of learners would find classroom management demanding as behavioural challenges surface. It is well-documented that a teacher will not be able to teach efficiently if he/she has to handle emotional and behavioural issues of students. At the Dyslexia Association of Singapore (DAS), Educational Therapists (EdTs) with students who display challenging literacy and behavioural needs are supported by a group of Educational Advisors (EAs). These students are observed for their learning needs and strategies are implemented to mitigate their difficulties. Action plans and goals are set for the semester as a form of progress monitoring towards specific achievement. Case management discussions when done right, result in the most satisfying and comprehensive support for students and teachers, whose lives we aim to enrich and empower. With the benefit of a multidisciplinary team and their varied perspectives, we can plan, coordinate and review the care of our students.

Keywords: behaviour difficulties, dyslexia, attention deficit hyperactivity disorder (ADHD), specific language impairment (SLI), dyspraxia, dysgraphia, sensory processing, auditory processing

Phonological processing skills for typical and atypical readers in Singapore

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Abstract

Phonological awareness is a strong correlate and predictor of reading across languages (Melby-Lervåg & Lervåg, 2011; Kidd et al., 2015;). Difficulties with phonological processing are a hallmark of dyslexia (Snowling, 2000; Stanovich, 1988), leading to the predominant view of the phonological core deficit model for dyslexia. This is in spite of alternative multiple deficit models (Pennington, 2006). Moreover, most research on dyslexia is of Western origin, and has only recently broadened to other regions and contexts. Etiology and diagnosis often are founded upon the phonological core deficit view, but questions remain about the suitability of this emphasis across various contexts. In this study based in Singapore, we compare the performance of dyslexic children with typical child (aged 6-10) and adult (aged 19-34) readers on subtests of the CTOPP2. Phonological awareness tasks (blending and phoneme isolation), rapid naming tasks (for letters and digits), and a memory task (forward digit repetition) were administered to the groups, along with English word reading. Using ANOVA, we find that the groups did not differ on phonological awareness performance. For the rapid naming tasks, the adult readers performed better than the children, and the adult group performed better than the dyslexic children on the memory task. Correlational analysis showed that word reading was related to rapid naming and memory scores for the children altogether, while word reading by adults was related to phonological awareness as well as rapid naming and memory scores. Results are discussed with implications for diagnosis of reading disorders.

Keywords: Phonological awareness, rapid naming, phonological memory, dyslexia

Getting Reading Right with SMARTER*phonics in Sarawak, Malaysia: Empowerment of Preschool children in English Language

Ong Puay Hoon

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Abstract

Literacy is the ability to read, write and learn. Because of its "multiplier effect", literacy helps eradicate poverty, reduce child mortality, curb population growth, achieve gender equality and ensure sustainable development, peace and democracy. In 1947, UNESCO recognized the acquisition of literacy as a fundamental aspect of an individual's development and human rights (UNESCO, 1947). Its 'Education for All' movement is a global commitment to provide quality basic education for all children, youth and adults.

An approximate three percent of the total number of primary school children in Sarawak was said to have failed to achieve the minimum criteria of English language in the Literacy and Numeracy Screening (LINUS) Test in 2016 (State Education Department, 2017). Although there has been no systematic research, it is suspected that a significant proportion of these failures has risk for dyslexia and/or other learning disabilities. The SMARTER*phonics program was developed by the Dyslexia Association of Sarawak to empower all emergent readers, with and without risk for dyslexia and other learning disabilities, with basic decoding and encoding skills in English. It is currently being adopted by all preschools in the state. This article presents the outcomes of a six-month implementation of SMARTER*phonics among 740 preschool children (aged 5-6 years old) in terms of comparative analysis of scores from pre- and post-tests. In addition, the post-test scores obtained by these children will be compared to a control group of 99 children who were not exposed to the program at the end of the school year. The outcomes point to the importance of phonics-based instructional programs which are structured, cumulative, specific and multisensorial to teach preschool children to read and write in English.

Keywords: Reading in English Language, SMARTER*phonics

Constructivist-oriented approach for Teaching and Learning for children with special needs in the mainstream primary school.

Ow Yeong Wai Mang

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Abstract

This is an autoethnographic inquiry into the quest to explore the impact of constructivist-oriented teaching on children with special needs in a mainstream primary school in Singapore. Situated in a social constructivist paradigm of inquiry and using a variety of qualitative methods for information generation, this research is two-fold. By employing information gleaned from multiple interviews with both students and teachers, the research explores the current issues and problems faced by this particular group of children in their learning in the mainstream classroom. Rising from the input of this initial generation of information, this research further explored the autoethnographical journey of the researcher as a teacher who started as a novice in constructivist-oriented teaching, illustrating the researcher's attempts to use the elements of constructivist-oriented teaching to resolve the issues and problems of children disabled in learning in her classes. The researcher's journey continued four years later, with her being a more experienced constructivist-oriented teacher. Her mode of teaching is grounded on Lev Vygotsky's social constructivist views, especially those articulated in his theory of dysontogenesis, which emphasises the empowerment of individuals rather than a focus on their impairments or deficiencies, suggesting how children with special needs should be offered the opportunity to maximise their potential. Information generated from this research is presented as an autoethnographical novel, which is a detailed appraisal-based description of the educational experience. This part of the research concludes that constructivist-oriented approaches offer a viable platform for the teaching of children with special needs, making them more enabled, although all educational stakeholders have to be adequately equipped to sustain such approaches. A framework is then proposed for teachers who can exercise multiple roles to effectively work with children with special needs.

Keywords: special needs, constructivist-oriented teaching and learning

Executive functions and its relation with Dyslexia: exercises to improve planning and self-regulation

Eleonora Palmieri and Crispiani Piero
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Macerata University, Italy

Abstract

Difficulties in executive functions, with particular reference to neural circuits, whose functionality requires effective exchange between the hemispheres, forms the basis for our Cognitive Motor Training (The Crispiani Method) utilising cross pattern exercises as part of a larger research programme. Based on the prompt activation (incipit) of important early markers of executive functions such as planning the directionality from left to right, visual tracking, cognitive control, self-regulation, organization in space and time, inhibitory processes and monitoring the state of alertness, our children improve their performances and everyday living: walking, riding a bike and in many higher order functions, relating to school performance, and academic skills such as reading, writing and maths.

Keywords: executive functions, planning, self regulation, cross patterns exercises

A Stitch in Time

Gowri Ramanathan and Sanskruti Shah
Madras Dyslexic Association, India

Abstract

KEY : Our main aim at Ananya is to identify the child who may be at risk for possible learning difficulties and to facilitate the child in the way best suited for him or her, without labelling him or her. There is a very old and powerful saying, 'a strong foundation is the key for a good building'. Education is not only about imparting what we know, but also about understanding the uniqueness in every child, and providing a fair chance for the holistic development of the child, depending on his strengths and needs. As the child grows, lets be involved and pay attention to the developmental progress and difficulties the child undergoes. We can nurture, support and provide resources to maximize the child's abilities, as early as possible, so that no vital links are left unnoticed. To acquire any skill, first the pre-skills develop. Then, with constant stimulation the skill is exhibited by the child appropriately. If there is a lag in the development of a pre-skill, then automatically there will be a lag followed in the areas connected to that pre-skill. It is extremely important to try and bridge this gap in order to pre-empt any future failure the child may face. The paper will focus on:-

1.   The vitality of early intervention and why it should not be over looked.
2.   The areas to look out for while conducting the informal assessment at the pre primary level.
3.   How to make connections of the child's skills displayed today with the future development of his skills.
4.   The possible cause of any academic delays.
5.   How this timely intervention will provide a platform for the caregivers to make a unique structured plan and work towards the overall development of the child, thus bringing out the best in him and make school a happier place.
6.   Early intervention to address learning delays can make a crucial difference in the child's life.

Keywords: Early intervention, holistic development.

Full Time Pull out Remedial Centre Model for Children with Specific Learning Disabilities

Harini Ramanujam and Meenakshi Sriram[1]

Madras Dyslexia Association , India

Abstract

The paper presents the model of a full time pull out remedial centre, "Ananya" of Madras Dyslexia Association. MDA was started by a few parents and educationists 25 years ago to help children with Specific Learning Disabilities. This model caters to needs of SLD children who have a wide gap between their performance and grade requirements and need intense remediation on a full time basis which is typically unavailable in a mainstream school setting. In this model the child is "pulled out" from the school for a year or two. During his tenure at Ananya, the child is equipped with academic skills and executive functionary skills for a smooth onward journey in main stream school and life . At Ananya a team of experienced special educators, therapists, counsellors and parents work on specially crafted program that remediates difficulties even as it enables to bring about the holistic development of a child. Once the child has acquired the necessary skills, the parents are guided and mentored on a regular basis in the child's journey into the main stream environment. The paper concludes by elaborating how with years of working in this area, the centre has evolved into a " action research program" developing specialised resources, methodologies, continuous implementation with progress monitoring strategies for children with Specific Learning Disabilities

Keywords: Full time Pull out centre

A 360 Post-Sec Pact - Know, Find, Learn

Nor Ashraf Bin Samsudin and **Geetha Shantha Ram**

Dyslexia Association of Singapore

Abstract

The post secondary landscape in Singapore has evolved over the past decade and increasingly, more attention is being paid to learners with dyslexia attending Institutes of Higher Learning (IHL). Existing policies and funding cover students with more "visible" disabilities but miss out on students with the hidden handicaps ike dyslexia. Following consultations with various IHLs, it quickly became clear that to best support post-secondary learners with dyslexia, a holistic support model must be employed that combines raising of awareness, formal investigation of needs and training for teachers to identify and support learners in school.

This presentation shares a vision - a 360 Post-Sec Pact, which individuals and schools are encouraged to consider if they are keen to empower post-sec learners. This pact is based on a framework that effective intervention begins with internal awareness raising, a formalised and systematic screening and identification effort and teacher readiness. Besides elaborating on this pact, this presentation will share some identification tools such as checklists as well as metacognitive strategies aimed at improving self awareness and executive functions to begin this process with post-secondary learners.

Keywords: Post-secondary, Dyslexia, Support framework, Dyslexia awareness, Identification, Screening checklist Intervention, Executive Functions, Metacognition, Teacher readiness

Exploring the effectiveness of the English Examination Skills Programme on struggling non-dyslexic learners

Emilyn See and Joanne Tan

Dyslexia Association of Singapore

Abstract

The effectiveness of sequential, cumulative and multisensory intervention programmes on learners with dyslexia has been proven in multiple academic literature. This study serves as a follow-up on a previous research which explored the classroom practices of the English Exam Skills Programme (EESP). In comparison between students with dyslexia and a control group, the study found significant progress in their grammar, vocabulary and comprehension components of their English examination paper after intervention.

Aligning with Universal Design for Learning (UDL) framework, the EESP is postulated to benefit all learners, including struggling learners with or without a diagnosis of SpLD or any learning disorders, and are scoring below 65% in their school English Language examination papers. This study seeks to investigate the possible effectiveness of the EESP on a group of struggling non-dyslexic learners after a 20-week intervention.

Keywords: English Exam Skills, structured intervention, dyslexia, struggling learners, UDL

Identifying dyslexic-type difficulties in English-Chinese learners in Singapore

Priscillia Shen
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Abstract

With the increasing awareness of dyslexia in both monolingual and bilingual countries, there is a need for screening procedures that are valid for different languages and reliable to identify dyslexia differentiated from inexperienced second language learners. Although phonological deficit has been the consensus as being the underlying cause of literacy difficulties across languages and bilingual populations, other cognitive factors related to the different scripts of the languages should be considered for a more practical purpose of assessment development as well as a more appropriate educational support. Hence, there is a call for screening measures or analytical tools from a bilingual perspective that provides for a spectrum of dyslexic-type difficulties in two languages. The methodology follows the test development protocol suggested by Tashakkori and Teddlie (1998; cited in Teijlingen & Hundley, 2001), which involves a qualitative study exploring potential factors contributing to the construct under study, followed by the development of items, pilot testing, and finally a validation. The research is currently ongoing and the first phase has been conducted using qualitative case study approach. The objective of the case study is to identify the Singapore dyslexic-type difficulties bilingual learners have in either / both English and Chinese languages. Analysis of qualitative data adopts the grounded theory (Charmaz, 2006) to present a framework to explain how dyslexia affects learning of English and Chinese languages and its symptoms manifested in each language. The findings will form the basis for the development of the bilingual dyslexia screening tool prototype, which will be constructed and validated in a follow-up study.

Keywords: bilingual, English, Chinese, bilingual dyslexia screening
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Test of the Double Deficit Hypothesis of dyslexia: Comparison in two Japanese writing systems

Fumie Shibuya and Akira Uno
University of Tsukuba

Abstract

The Double Deficit Hypothesis (DDH; Bowers and Wolf, 1993), suggests that dyslexia results from a combination of phonological awareness and naming-speed problems. Papadopoulos, et al., (2009) reported that the degree of transparency in a writing system affects the level of dyslexia in Latin and Greek languages. In the present study, we investigated how the writing system affects the DDH using Hiragana and Kanji. Hiragana is quite transparent, while in contrast, Kanji is an opaque writing system. The participants were 564 children in elementary school from first to sixth grade. We conducted cognitive ability and reading tests of Hiragana and Kanji in all the participants. In Hiragana, four groups were found based on the scores in phonological and naming-speed test: double-deficit group (DD; n = 1), phonological deficit group (PD; n = 4), naming deficit group (ND; n = 3), and a group we could not classify based on DDH (Other; n = 1). On the other hand, in Kanji, three groups were found: PD (n=6), ND (n = 1), and Other (n = 11). We could not find DD in Kanji. We could find a single naming speed deficit group in both writing systems, however the DD group did not show the severest reading difficulty, in comparison with other groups in Hiragana, as would be predicted by the DDH. Our data suggested that the degree of transparency may not explain the results of dyslexia based on the DDH.

Keywords: The Double Deficit Hypothesis, the degree of transparency in a writing system, Japanese speaking children, Kanji and Hiragana

Impact of DAS Maths Intervention: An exploratory case study of struggling primary school learners without dyslexia

Siti Aishah Shukri and **Sathi Manon**

Dyslexia Association of Singapore

Abstract

DAS Maths has been helping our existing students with dyslexia since 2009 as a 3rd hour programme, conducted once a week. While the programme has been known to benefit our students with dyslexia (Yeo, Bunn, Abdullah, Bte Shukri & Oehlers-Jaen, 2015), there is little information on whether the same type of intervention would be of any benefit for non-dyslexic students who are also having difficulties in mathematics. This case study aims to investigate the impact of conducting the DAS Maths intervention on struggling learners without dyslexia and at the same time, explore the profile of these learners whose scores improved after going through the remediation. Two students of Primary 3 and Primary 5 were selected to undergo a 20-week intervention with a group of students with dyslexia in their own respective class. A pre and posttest at the start and end of each term were conducted and teachers were interviewed to state their observations about how their teaching instructions were received by the two students. The two students made considerable improvements which were parallel to their peers in the same class. The results showed that there are profiles of struggling learners without dyslexia who could also benefit from the DAS Maths remediation. Analysis on their profile is still in progress. Additionally, observations made by teachers will also have implications for future understanding of teaching practices.

Keywords: non-dyslexic, maths, intervention, remediation, primary school learners without dyslexia, struggling learners
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A Qualitative Study of Collaborative Practices between Allied Educators and Teachers in Mainstream Primary Schools

June Siew

DAS Academy, Singapore

Abstract

Inclusive education in Singapore is relatively new (see Lim, Wong, & Tan, 2014; Tam, Seever, Gardner, & Heng, 2006; Weng, Walker, & Rosenblatt, 2015; Yeo, Ching, Neihart, &Huan, 2016). To support inclusion in mainstream schools, Allied Educators for Learning and Behaviour Support or AED(LBS) have been deployed to schools since 2005 with the responsibility of supporting children with mild special educational needs (SEN) such as dyslexia, attention deficit hyperactivity disorder (ADHD) or autism spectrum disorder (ASD) (MOE, 2016). To date, there is at least one AED(LBS) in each primary school and in 92 secondary schools (MOE, 2016). Yet, the number of children with SEN in mainstream schools is quickly rising (Lim, 2016). To allow effective penetration of SEN support, AED(LBS) increasingly need to engage the support of mainstream teachers to ensure every student can thrive in an inclusive classroom. In this context, collaboration between AED(LBS) and teachers becomes a cornerstone of successful inclusion in mainstream schools. In the absence of any local published studies which focus on collaborative practices between AED(LBS) and teachers in the local mainstream schools, this study seeks to examine the current collaborative practices between AED(LBS) and teachers and identify the factors that enable or impede these practices. It is anticipated that these findings can lead to improved practices in our relatively new inclusive education system. This is an on-going study and preliminary results will be presented.

Parent Advocacy - A Success Model

Tina Tan
Society for Promotion of ADHD Research and Knowledge, (SPARK) Singapore

Abstract

As a representative of SPARK, I will be speaking on how parents can better advocate for their ADHD children in the school context in order to build a collaborative working relationship with shared expectations and reduced pressure for all parties.

Keywords: Parents, Coping, Collaboration, Success definitions, Pressure

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Evaluating the MOE-Aided DAS Literacy Programme

Tan Wah Pheow, Lois Lim, Winston Quek, Pearllyn Kang and Lee Yong Jun
Temasek Polytechnic and Dyslexia Association of Singapore

Abstract
Dyslexia is a learning disability that hinders the accuracy and fluency of word reading, spelling and writing, despite average or above average intelligence and adequate educational exposure (Peterson & Pennington, 2012; Thompson et al., 2015). Affecting over 700 million people worldwide, it is one of the most prevalent learning disability (Dyslexia International, 2014). According to Snowling (1980), most children with dyslexia have a phonological processing deficit, which is thought to hinder word recognition and interfere with the mapping of phonemes of spoken words and written letters. The phonological deficit hypothesis posits that dyslexics' difficulty in mapping sounds to their corresponding letters causes them to struggle with reading and recognizing words. Past studies found that interventions aimed at developing phonological awareness improved dyslexics' linguistic abilities. The Dyslexia Association of Singapore (DAS) provides intervention through the MOE-Aided DAS Literacy Programme (MAP) to help students improve their phonemic awareness, phonics, morphology, vocabulary, reading fluency and comprehension, as well as writing abilities. The MAP adopts a holistic approach that caters to the profile and learning challenges of students accessing the programme, and is specifically designed for the local context. The present study evaluates MAP's effectiveness by tracking 83 students' (aged 7-9) literacy abilities over a period of 12 months. To overcome ethical and logistical constraints, an age-control study design was employed. Upon admission into MAP, students were categorized into one of four age-categories (7 - 7.5 years old, 7.5 - 8 years old, 8 - 8.5 years old, 8.5 - 9 years old). Students were assessed upon admission, and at 3, 6, 9 and 12 months after admission. For each assessment session, students completed a speeded reading task, a writing task and a spelling task (further divided into sound-, letter- and written-spelling subtasks). Parallel forms were developed and employed for all the tasks across the sessions. To evaluate whether MAP intervention improved different linguistic abilities, students in the same age range, but with different lengths of interventions, were compared. For example, students in the 7 - 7.5 years old age-group after 12 months of intervention (age range = 8 - 8.5 years old) were compared to students in the 8 - 8.5 years old age group with 0 months intervention. Comparisons were made for intervention periods of 6 and 12 months. Participants' performance for the different tasks were also tracked for each of the age groups. Based on the statistical analysis, three main findings emerged: (a) the MAP intervention improved performance in both reading and spelling tasks, but not the writing task; (b) improvements were more likely to be observed for younger participants; and (c) effects of MAP intervention were only apparent after 6 months. The findings will be discussed in the context of the existing MAP curriculum, and possible suggestions on improving it.
Keywords: Programme Evaluation

Examining subtypes of dyslexia and their associated cognitive profiles - A pilot study

Deborah Tan Wen Li and Liu Yimei
Dyslexia Association of Singapore

Abstract

A pilot study carried out in two parts examined the prevalence of the subtypes of dyslexia and the cognitive profiles of Singaporean primary school students who were diagnosed with Dyslexia. Twenty-nine students with dyslexia and a control group of 29 students with no known learning difficulties participated in the first part of the study. Measures of phonological coding and orthographic coding were administered to determine if students with dyslexia belonged to either one of the six subtypes (pure or relative phonological dyslexia, pure or relative surface dyslexia, mixed dyslexia, or mild dyslexia). In the second part of the study, the deficits in orthographic or phonological coding of the 29 students with dyslexia were then correlated with various cognitive factors – phonological awareness, verbal short-term memory, rapid automatised naming (RAN), visual skills. Results in the first part of the study showed that about half (51.7%) of the dyslexic students displayed a dissociation in their phonological and orthographic processing skills. There were also dyslexic students who did not exhibit a clear dissociation between their phonological and orthographic skills - 31% of the dyslexic students showed relatively intact skills in both areas (mild subtype) whereas 17.2% had similarly impaired skills in both areas (mixed subtype). Results in the second part of the study showed positive correlations between phonological coding tasks and phonological awareness, verbal short-term memory and visual factors. Orthographic coding tasks only correlated positively with specific areas of visual skills. However, RAN did not correlate with both phonological coding and orthographic coding tasks.

Keywords: Dyslexia, subtypes of dyslexia, cognitive factors

The emphasis on the explicit teaching of Reading Comprehension to learners on the DAS Main Literacy Programme

Serena Tan

Dyslexia Association of Singapore

Abstract

Reading comprehension is defined as the "process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (Snow, 2002). Aside from experiencing difficulty in reading, spelling and writing, learners with dyslexia also struggle with comprehending text that involves higher-order thinking processes which is required of them to extrapolate meaning from the text and make sense of what they have read. Therefore, the explicit teaching of reading skills and textual features such as the employment of annotation is highly emphasised in the delivery of Reading Comprehension to learners at the Dyslexia Association of Singapore (DAS). This presentation will also include a few sample comprehension questions taken from the Reading Comprehension curriculum pack, the corresponding section of text relevant to those questions to highlight the systematic process and structure put in place to guide and scaffold learners to understand the text better.

Keywords: Dyslexia, Reading comprehension,

Working with Youths with extremely low language and literacy: A case study

Chen Wei Teng
NorthLight School, Singapore

Abstract

This workshop aims to share strategies used to teach youths with extremely low language and literacy level. The sharing isbased on experiences working with students from NorthLight School, a vocational school in Singapore which takes in students who fail their PSLE and who often experience a double whammy in life – they often come from disadvantaged family backgrounds and have learning difficulties such as dyslexia, ADHD, speech and language impairment or intellectual impairment. Very often, these youths have very low self-esteem and come with a huge dollop of emotional baggage towards learning. These teaching strategies are based on an adaptation of the Orton-Gillingham approach typically used to work with individuals with dyslexia.

Strategies shared will include:

- Teaching decoding of single-syllabic and multisyllabic words to youths who experience a great deal of frustration in their learning and who need to see quick success
- Touching the chords of their heart
    - - motivating learning through music
    - - building alliteration and semantic fluency via rhythm
    - - teaching decoding and reading using music
- Working with students with poor working memory
    - - teach students to remember information by:
    a) getting them to use drawings to create meanings for themselves
    b) teaching them to learn via association
    c) helping to develop their access skills using mnemonics and stories
    d) explicitly teaching chunking skills
- Use of assistive technology

Keywords: .Low language, low literacy, youths

The effectiveness of family literacy programme on the early literacy achievement of Singaporean preschool children identified to be at risk of literacy difficulties

Weng Yiyao

Dyslexia Association of Singapore

Abstract

Early literacy lays the foundation for the acquisition of conventional literacy skills. Lack of adequate literacy skills has a profound impact on later school success. Family Literacy Programmes (FLPs) is an intervention that promotes active participation among families to improve their child's literacy. This research explored the effectiveness of FLP on the early literacy achievement on Singaporean preschool children identified to be at risk of literacy difficulties. Two research questions were investigated: (a) Does FLP increases the early literacy attainment for preschool children at risk of developing literacy difficulties and are attending an existing literacy intervention programme?; and (b) What are parents' perceptions of the effectiveness of FLP? Participants included 8 parents and 9 preschool children from 4 to 7 years old enrolled in DAS Preschool Programme. Data sources for analysis included pre- and post-test before and after intervention, post-workshop questionnaire and interview data. The research concluded FLP was not effective in the early literacy achievement on Singaporean preschool children identified to be at risk of literacy difficulties. However, parents had a positive perception of the effectiveness of FLP. Although FLP did not improve early literacy score, it provided skills and knowledge for parents to teach and guide their child in home-based literacy activities. Future research could look into how the content of FLP can be designed to train and provide parents with literacy knowledge, skills and instructional strategies. In-depth and research-based evidence should be implemented to evaluate the long-term effectiveness of FLP.

Keywords: Early intervention, parent and family support, early literacy

Our Literacy World: The Preschool Class at DAS

Wong Kah Lai and Weng YiYao

Dyslexia Association of Singapore

Abstract

DAS preschool programme is designed for the Kindergarten One and Two preschoolers identified to be at risk of developing literacy difficulties. The small group remediation programme equips our students with learning strategies that can be applied to their classroom setting. Differentiated teaching strategies to teach literacy will also be shared. Through hands-on activities, this workshop will also showcase some of these literacy and differentiated teaching strategies that we adopt within our classrooms.

Keywords: Preschool, workshop, intervention

UnITE SpLD 2018 Conference Poster Presentation Abstracts

The effectiveness of memory games in improving reading fluency and reading comprehension of children with dyslexia

Soleha Razali
Dyslexia Association of Singapore

Abstract

This research study examines the effectiveness of memory games intervention in improving reading fluency and reading comprehension of children with Dyslexia. A total of 22 students diagnosed with Dyslexia participated in the research study. First, it was examined whether there are any transfer effects to reading fluency and reading comprehension on children with Dyslexia after going through the memory games intervention. Next, it was explored whether the lower ability students made more improvements than the higher ability students. Unfortunately, the memory games intervention did not produce any results. The reading fluency and reading comprehension of children with Dyslexia did show significant improvements after going through the memory games intervention. However, the lower ability students did make more improvements as compared to the higher ability students. Even though no significant results were found in this research study, there are room for improvements that can be made to find out the true effectiveness of memory games intervention in improving reading fluency and reading comprehension of children with Dyslexia.

Keywords: Memory Games

The effects of font type on reading accuracy and fluency in Japanese children with developmental dyslexia

Takashi Gotoh, Akira Uno, Naoki Tani
Mejiro University, Japan
Tsukuba University, Japan

Abstract

The purpose of this study is to clarify the effects of different types of Japanese font on reading performance in Japanese speaking children with developmental dyslexia.

Methods : Participants included 36 children with typical development and 23 children with developmental dyslexia from fourth to sixth grades elementary school student. We conducted rapid reading tasks and hearing of the introspectiveness. In this study, we used four kinds of stimuli: two scripts (paragraph and kana non-words) by two font types (Round-Gothic and Mincho style font). We asked participants to "read the words and paragraph as fast as you can without making mistakes". We analyzed duration time of reading, number of errors and self-corrections. After the reading tasks, participants were required to answer which font type was easy to read.

Results : Typical development and developmental dyslexic group did not show significant differences in duration time of reading, number of errors and self-corrections between two types of font. On the other hand, the answer in subjective readability from the group with developmental dyslexia showed significant differences and children with developmental dyslexia had impression that Round-Gothic as the font easily to read.

Discussion : In this study, Round-Gothic and Mincho style fonts did not improve reading performance for children with dyslexia. However, Round-Gothic style font tended to be recognised "readable font" subjectively by children with developmental dyslexia. Our results suggest that subjective readability for the Round-Gothic style font contribute to reduce mental burden of reading among children with developmental dyslexia.

Keywords: developmental dyslexia, font type, reading accuracy, reading fluency, readability

Profile of Children with Expressive Language Delay in Zainab Hospital Pekanbaru, Indonesia

Dhita Natasha Dwiriyanti Hardi ,Dian Larassati and Yoan Utami Putri
Zainab Hospital Pekanbaru , Indonesia

Abstract

A language disorder is an impairment that makes it hard for someone to find the right words and form clear sentences when speaking. It can also make it difficult to understand what another person says. There are three kinds of language disorders. Receptive language issues involve difficulty understanding what others are saying. Expressive language issues involve difficulty expressing thoughts and ideas. Mixed receptive-expressive language issues involve difficulty understanding and using spoken language. The objective of the study is to identify characteristically related to children and their parents associated with expressive language delay. The study conducted with all the children in Zainab Hospital Pekanbaru Indonesia diagnosed as expressive language disorder in 2017. Protocol for the Identification of Risk Factor for Language and Speech Disorders (PIFRAL) was used for this study Descriptive statistics and student's t test were used to analyze the frequency and relationship between risk factor. The onset of the complaint occurred after [±SD] 41,76 ± 12,108 months old and mostly are male gender (72.7%). Most of them (54,5%) whose mother had just completed high school and 60.6% of a mother in the category "doesn't work. Out of the 33 participants, 20 were the first child in the family (60.0%). Deleterious oral habits (64%,) and bilingual (51.5%) were significant to incidence of expressive language disorder in that children. Conclusion: Most of children are the first boys. They are mainly raised by a mother with low levels of education and do not work. But many of them have bad oral habits , bilingual and this are significant.

Keywords: risk factor, expressive language

"I Read and Write!" Evaluation a Multi-sensory Structured Language (MSL) Program for Arabic

Omar S. Hassan
Center for Child Evaluation and Teaching, Kuwait

Abstract

"I Read and Write!" is an individualized, structured language training program and materials for teaching persons with moderate to severe difficulties with learning to read and spell in Arabic. The program is designed for use in a one-to-one or small group (two-three students) tutorial setting and focus on Modern Standard Arabic generic to the Gulf Region. Areas of literacy targeted are early reading skills (phonological awareness and letter awareness), decoding/encoding, fluency, vocabulary and comprehension, as well as written expression skills. While the material will be geared for Chall's reading stages 1-3 (approximate reading and spelling grade levels K/1 through grade 7/8), The program's broad skills goals will be indexed to key curricular benchmarks for Gulf region language curricula for grades 1-9; the purpose of doing this is to demonstrate the curricular relevance of the materials to teachers and school administrators throughout the Gulf, but the skills are relevant for all other Arab countries and learners of Arabic.

Keywords: Multi-sensory Structured Language (MSL) Program , Dyslexia, Dyslexia in other languages

How I guide a child with language development delay

Kong Wai Kuen

National Institute of Education, Nanyang Technological University, Singapore

Abstract

A 5 year old focus child who is currently studying in Kindergarten 1. Some learning activities are done one to one which focus on learning through engaging him in the activities and toys that the boy likes. Throughout the activities, I have followed this method:
- Constantly ask questions to assess and to check the child's understanding,
- Then prompt him if he cannot answer.
- After prompting, wait for 5 seconds for his response.
- Then praise him for attempting and answering correctly.

Activity 1:
Asks the child to talk about his cars that he is playing. Then tell him that I am writing down his story so that we could read his story again after I have written them down. He continues to say while I write down. After writing down we go through and read the story told by him. After a few rounds, try to point out a few words that he is not sure and after he has 3 familiarized, ask him if he would like to copy the story in his own handwriting.
He complies and through this activity, he learns talking, reading and writing.

Activity 2:
Asks the child to pick up a book from a few pre-selected books that he likes. Then read together with the child. Pointing to the words one by one on each page of the book. Read together with the child. After a few rounds, asks the child to read, while helping him to point each word. Through this activity, he learns new words and reading a book on his own.

Association Between Screen Time and Expressive Language Delay Children in Zainab Hospital Pekanbaru, Indonesia

Dian Larassati, Yoan Utami Putri and Dhita Natasha Dwiriyanti

Hospital of Zainab Pekanbaru, Indonesia

Abstract

The use of interactive screen media such as televisions, smartphone and tablets by young children is increasing rapidly. The American Academy of Pediatric (AAP) recommends that children ≥ 2 years of age should have < 2 hours of screen time per day and that children< 2 years of age be discouraged from television watching. Recommendations for use by toddlers are crucial, because effect of screen time are potentially more pronounced in this group. Therefore, need to identify screen time factors that may have impact on language development. This study investigated the association between children's exposure screen time and expressive language delay. The source of data was collected in Zainab Hospital during 2017. The subjects of this study were children with expressive language delay. In addition, normal children were used as control subject. Linguistic ability were reviewing by language Milestone and Denver II, The data were analyzed by chi-square test. Odds ratios and 95% confidence interval were presented.

There were 24 boys and 19 girls; mean $41,8 \pm 12,108$ month of the case group and 17 boys and 14 girls, mean $36,45 \pm 12,129$ month of the control group were enrolled. Children with ≥ 3 hours screen time had around 3.2 times (OR 3,167 95% CI: 1.139-8.806) more risk of expressive language delay. Children with expressive language delay spent more time screen time than normal children ($3,61 \pm 0,0609$ hours/day vs.$2,00 \pm 0,949$ hours/day; p= 0,025). Conclusion: children had screen time more than 3 hours /day were approximately 3,2 times likely to have expressive language delay than normal children.

Keywords: screen time, expressive language delay

An Autoethnographic Exploration in the search for the Enhancement of Learning for Students with Special Needs

Ow Yeong Wai Mang

National Institute of Education, Nanyang Technological University, Singapore

Abstract

This is a longitudinal autoethnographic inquiry into the quest to explore the support for students with special needs in a mainstream primary school in Singapore. By employing information gleaned from multiple interviews with both students and teachers, the research explores the current issues and problems faced by this particular group of children in their learning in the mainstream classroom. Issues perceived by both students and teachers include problem in completing writing assignments, a lack of interest in the subject matter taught, as well as a short attention span during daily work. Rising from the input of this initial generation of information, this research further explored the autoethnographical journey of the researcher as a teacher who started as a novice in constructivist-oriented teaching, illustrating the researcher's attempts to use the elements of constructivist-oriented teaching to resolve the issues and problems of students with special needs in her classes. The researcher's journey continued four years later, with her being a more experienced constructivist-oriented teacher. Her mode of teaching is grounded on Lev Vygotsky's social constructivist views, especially those articulated in his theory of dysontogenesis, which emphasises the empowerment of individuals rather than a focus on their impairments or deficiencies, suggesting how students with special needs should be offered the opportunity to maximise their potential. Information generated from this research is presented as an autoethnographical novel, which is a detailed appraisal-based description of the educational experience. This part of the research concludes that constructivist-oriented approaches offer a viable platform for the teaching students with special needs, making them more enabled, although all educational stakeholders have to be adequately equipped to sustain such approaches. A framework is then proposed for teachers who can exercise multiple roles to effectively work with students with special needs in the mainstream classroom.

Keywords: special needs, constructivist-oriented teaching and learning

Risk Factors Identification in Children with Expressive Language Delay in Zainab Hospital Pekanbaru, Indonesia

Yoan Utami Putri, Dian Larassati and Dhita Natasha Dwiriyanti

Hospital of Zainab Pekanbaru, Indonesia

Abstract

Speech and language development represent a meaningful indicator of a child's development and cognitive ability. Identification of children at risk for development delay may lead to early intervention services and family assistance at young age. This study investigated the risk factors of children and their parent related to the expressive language delay. The case-control study included 33 children with expressive language delay and 31 normal children. Expressive language delay was diagnosed by reviewing language milestone and Denver II. The following risk factors were identified by using PIFRAL (Protocol to Identify Risk Factors for Language Speech Related Changes). The differences of relationship between risk factors were tested by chi square test. The sample in this study was adjusted in 2 models. Model 1 was adjusted for due date above 37 weeks group. Model 2 was additionally adjusted for birth weight above 2500 grams group. The significant risk factors in model 1 were effects of maternal education's level (p= 0.011), positive family history (p= 0.010), jaundice (p= 0.036), deleterious oral habit (p=0.0001), time spending with mother (p=0.0001), and speaking more than one language (p= 0.005). In model 2, the significant risk factors were effects of maternal education's level (p= 0.037), deleterious oral habit (p=0.0001), time spending with mother (p=0.0001), and speaking more than one language (p= 0.005). Based on this study, the significant risk factors for children with expressive language disorder in a term and normal birth weight were deleterious oral habit, time spending with mother, speaking more than one language and maternal education's level.

Keywords: expressive language delay, risk factor

Developing A Dyslexia – Friendly Environment in classroom

Sudha Ramasamy

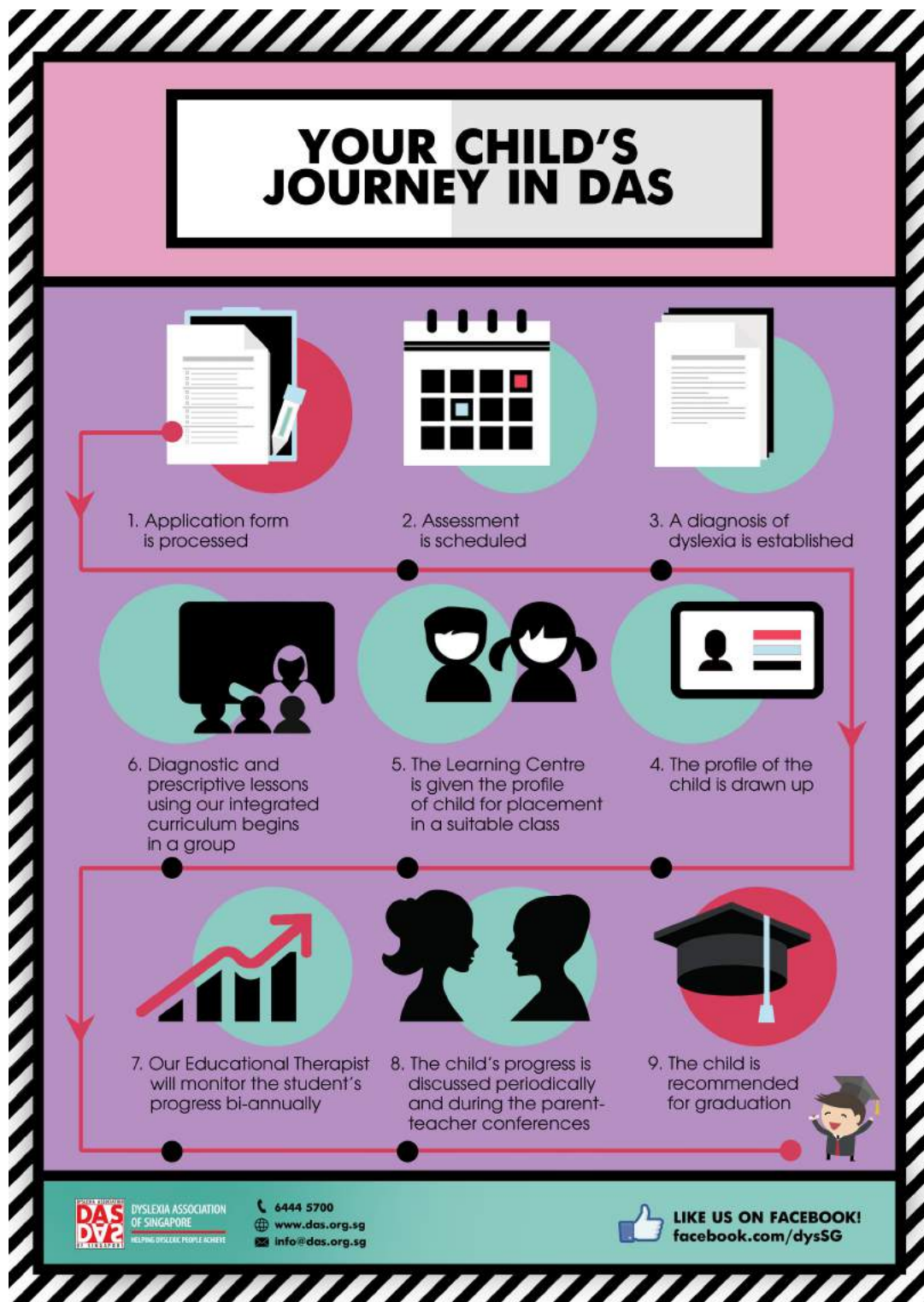Madras Dyslexia Association, India

Abstract

This paper is aimed for teachers who have heard the term dyslexic, know they may have students within their class who possibly could be dyslexic but have no further knowledge of how to adapt their teaching style to assist them. The presentations introduce teacher to dyslexia, and shares ways teachers can adjust their teaching, taking very little additional time, to include dyslexic students and at the same time reach many other students with learning difficulties. The presentation details components of a creating an environment which embraces the use of the word dyslexia; promotes a clear and practical valid understanding of dyslexia for young teachers. A dyslexia-friendly classroom environment encourages dyslexic students to follow their strengths and interests. This paper identifies how the "classroom" and "institution" can be made dyslexia friendly, thus creating an inclusive learning environment. When teachers use the strategies they not only help dyslexic students learn, but engage and improve learning for all students in the class. Additionally, a dyslexia-friendly environment allows educators to be alert to problems and identify children who might be dyslexic. This paper shares guidelines about the changes we can make in the physical environment, adapting new strategies to implement in our classroom. Help the teacher to choose the right tool that fit each student's needs as a learner. Whilst this paper is aimed at supporting dyslexic individuals, many of the strategies suggested here would be equally appropriate for those who are not dyslexic as well as those who are. The aim here is to suggest a range of approaches and strategies that can be adapted to suit the needs of many individuals.

Keywords: Friendly Environment in classroom, Practical understanding of dyslexia, adapting new teaching strategies.

EDUCATION

EXCHANGE

YOUR CHILD'S JOURNEY IN DAS

1. Application form is processed

2. Assessment is scheduled

3. A diagnosis of dyslexia is established

6. Diagnostic and prescriptive lessons using our integrated curriculum begins in a group

5. The Learning Centre is given the profile of child for placement in a suitable class

4. The profile of the child is drawn up

7. Our Educational Therapist will monitor the student's progress bi-annually

8. The child's progress is discussed periodically and during the parent-teacher conferences

9. The child is recommended for graduation

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Can Memory Games be Effective in Improving Reading Fluency and Reading Comprehension of Children with Dyslexia?

Soleha Razali

Senior Educational Therapist
Dyslexia Association of Singapore

INTRODUCTION

Dyslexia is a specific learning difficulty with a deficit in the phonological processing of language that prevents an individual from acquiring language at a typical pace (International Dyslexia Association, 2008). Since reading is the foundation to acquire other cognitive skills required for learning (De Jong, 2006) it is essential to find out how to help people with dyslexia cope with their difficulty. With the right remediation, it will allow students with dyslexia to get the help and support that they need earlier on in their life. Phonological based intervention is one of the most sought after options to tackle reading difficulty (Cohen, et al., 2006) , because reading acquisition involves the ability to detect and manipulate phonemes in spoken words (phonemes sensitivity or phonological awareness. One example, the Orton Gillingham (OG) approach used at the DAS has been proven to be effective in various research studies.

However, according to Gathercole et al. (2004), there is a close relationship between working memory and reading ability. Children with dyslexia perform poorly on working memory tests such as digit span, series recall of unrelated string of words and non-word recall tests (Jefferies & Everatt, 2004; Swanson, et al., 2009). In other words, an individual with reading difficulty is likely to have poor working memory as well. Therefore, working memory is one of the other areas of interest that should be taken into account

> "reading is the foundation to acquire other cognitive skills required for learning, it is essential to find out how to help people with dyslexia cope with their difficulty.

when it comes to tackling reading difficulties. Investigating how poor working memory affects reading, gives us opportunities to explore other ways to help children with dyslexia tackle their reading difficulty. Working memory training could also be included as a part of the intervention for students with dyslexia. Therefore, this research was designed to provide more insight on whether working memory training will help improve reading for students with dyslexia in terms of fluency and comprehension.

WORKING MEMORY, READING PROCESSES AND WORKING MEMORY TRAINING

One of the learning outcomes that have been found to be related to working memory is reading, not only in the early stages in accurately decoding but also for comprehension, the overall goal of reading. Reading comprehension is one of the more complex tasks that students have to tackle after learning how to read. It involves not only the decoding of the texts but also understanding the words and the overall text. For students with reading difficulties, their ability to understand the passage that they are reading will be compromised. Therefore, it is crucial to find out ways to help support these students to better cope with their difficulties in reading comprehension.

One approach to improving working memory is working memory training. A study conducted by Dahlin (2011) found that working memory ability of children with special needs improved considerably, and led to improvements in reading comprehension skills of participants. However, there was no significant improvement in word decoding. Overall, the results from studies of this type are mixed, it is particularly difficult to make an impact on standard scores, and there has been some controversy over the usefulness or otherwise of memory and brain training games. Nevertheless, there are a range of free materials available that could have an impact on reading and its skills.

METHODOLOGY

To address these issues, 22 students with dyslexia from Dyslexia Association of Singapore (DAS) were randomly assigned to a memory games intervention group and control group. The assessments consisted of a pre-test and post- test of reading fluency and reading comprehension using DIBELS. A quantitative research design was chosen to address the question of whether memory games intervention helps to improve reading fluency and reading comprehension of children with Dyslexia as compared to their fellow classmates in the control group who did not receive any additional intervention.

Students in DAS are banded according to their ability, Band A the lowest band and Band C the highest band. Students in Band A have significant problems in the basic language skills and require more support in developing oracy skills, Band B students have fairly developed language skills but still show significant reading and spelling difficulties and Band C students have fairly developed language skills and some functional literacy skills but continue to struggle with higher order literacy skills such as reading fluency, reading comprehension and composition writing (Shanta Ram & Lim, 2014). 81% of the participants were made up of Band A students, and therefore struggling with both oral and reading skills.

DIBELS Oral Reading Fluency (ORF)

DIBELS ORF is an individually administered standardized test that test for the reading accuracy and fluency of students with connected text. Students are required to read a passage out loud for one minute. Mistakes made while reading will be indicated. The total number of words read correctly at the end of the one minute mark will be the oral reading fluency score.

Retell Fluency (RTF)

RTF is a measurement to check for comprehension based on the ORF and students were prompted prior to reading the passage that they might be asked to recall what they have just read. The RTF will help to identify students whose comprehension skill is not on par with their reading fluency.

INTERVENTION

Students went through the intervention in groups of 3 to 4 students per session. All students played 3 memory games in the 30 minutes intervention, 10 minutes of game time was allotted for each memory game, with 1 intervention (memory king) delivered by iPad individually. 8 sessions of the memory games intervention were carried out in the span of 11 to 12 weeks, with post tests on DIBELS

Training Task

Three memory tasks were used

Memory King   ,

an iPad based intervention, based on a pairs memory cards matching game, designed to improve performance by adding motivation, played individually or in competition.

Memory Matching game

A card memory game, based on cartoons and super heroes theme that are popular among students. Each memory card was printed with words that students are required to read before flipping over the card. Therefore, students will not only have to remember the location of the memory cards, but they will also be practicing reading at the same time. This game has a dual purpose of practising working memory and also reading accuracy. This is a game that the researcher has developed with to help the students practise reading accuracy after they have learnt a new phonics concept taught in class. The words were taken from the Fry 100 Instant Word List of high frequency words that should be recognised by readers instantly, at their level of achievement. This multisensory game, with the mixture of audio and visual skill, enables students to train their brain to multitask and switch their attention every now and then. The number of cards gradually increases with every round. This is to further challenge their working memory capacity by putting more stress on their ability to retain more information at a time. Furthermore, this is an attempt to implement the concept of adaptive training that is used in other working memory training. Students played an average of 3 rounds per weekly session.

When I went to the market

An auditory game which requires participants to memorise an ever expanding list of items, repeated in the correct order. This game requires not only concentration to retain the list of items but also the ability to think of more words to add. An average of 4 to 5 rounds of this game was played in each session, depending on the student's ability to concentrate and remember the list of items.

Ethics guidelines provided by USW were followed to ensure no bias in choosing the participants. The memory games that were chosen were a mix of fun and educational, selected to be beneficial in the DAS setting.

RESULTS

The results showed no significant improvement on any of the DIBELS reading measures, but effect size analyses showed a small effect for post-test retell fluency, and moderate effects for both measures of reading. Moreover, both the weakest Band A and the strongest students showed improvement.
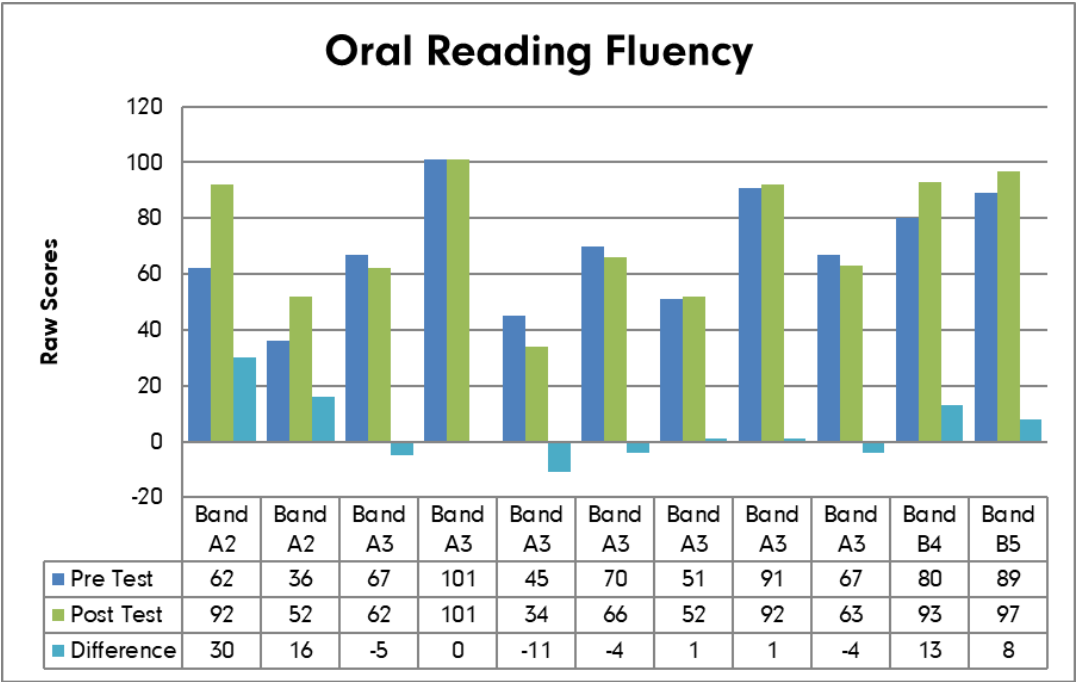
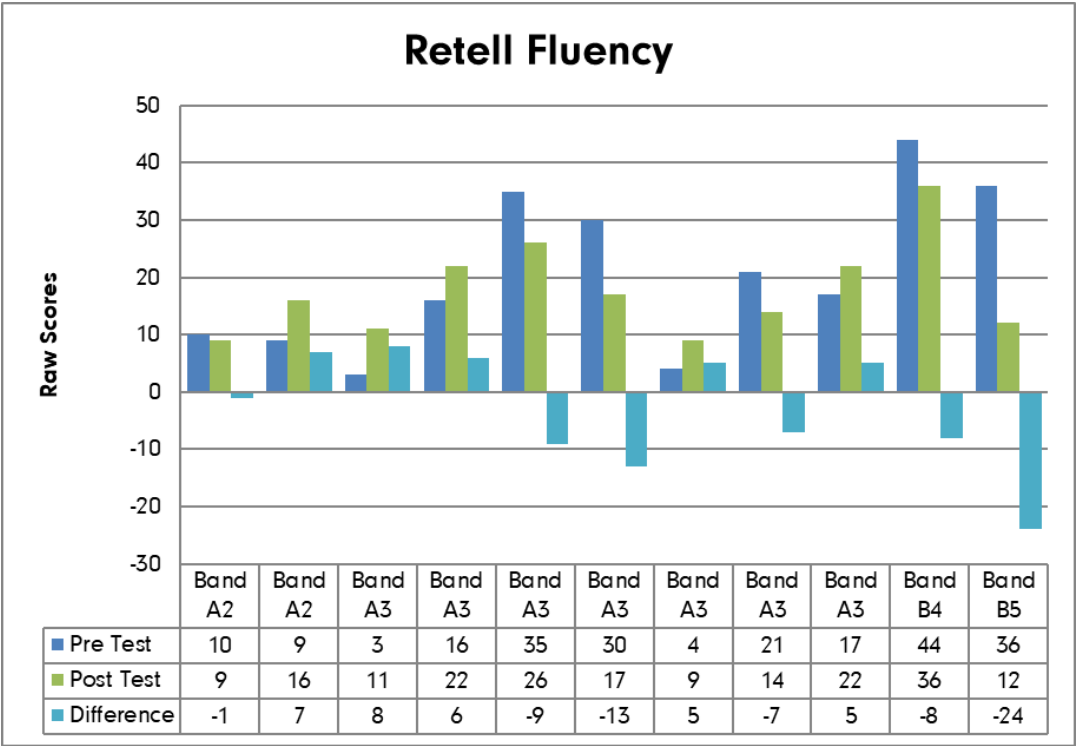*Figure 1: Raw scores by Band for Oral reading fluency*

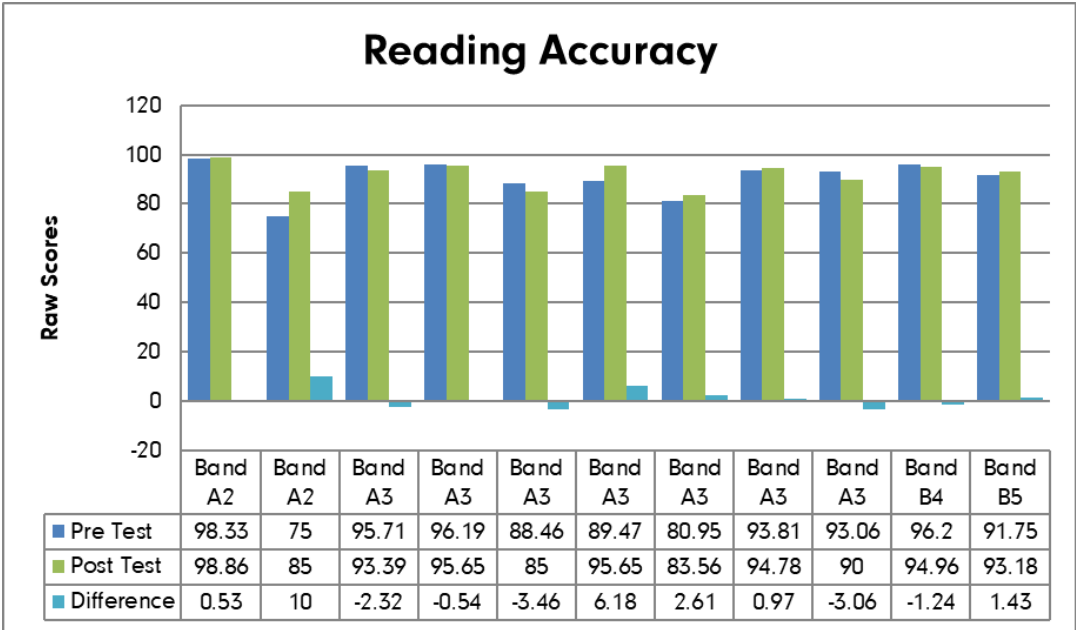*Figure 2: Raw scores by Band for Retell fluency*

Reading Accuracy

	Band A2	Band A2	Band A3	Band A3	Band A3	Band A3	Band A3	Band A3	Band A3	Band B4	Band B5
Pre Test	98.33	75	95.71	96.19	88.46	89.47	80.95	93.81	93.06	96.2	91.75
Post Test	98.86	85	93.39	95.65	85	95.65	83.56	94.78	90	94.96	93.18
Difference	0.53	10	-2.32	-0.54	-3.46	6.18	2.61	0.97	-3.06	-1.24	1.43

Figure 3: Raw scores by Band for reading accuracy.

Again, improvements were made for both low Band A and high Band B students.

DISCUSSION

The research suggests that overall there was very little effect of the memory intervention on standardised measures of reading. The question arises, why does this arise and what can be done to improve future research?

The standardised assessment tool used in this study, DIBELS, might not the most effective measure of improvement, and a curriculum based measure might be more appropriate. The current research study assessed students' performance on reading fluency and reading comprehension directly after the completion of the intervention, whereas a delay may be most useful to examine longer term effects. The memory games might not be the most effective, and the method of delivery may vary between researchers.

Interestingly, however, these is some suggestion that the adaptive memory cards game designed by the researcher had some impact on reading accuracy for the intervention group. The addition of the reading task, in addition to the visual memory task has potential for further exploration.

LIMITATIONS

There are some limitations to this research study. First and foremost, there were no measures of working memory obtained at pre-test and so it was not possible to ascertain whether or not the memory intervention did in fact impact on memory itself. The sample size selected was small, and the range of student's ability and profile were also limited. A more thorough look at the background of the students would be beneficial. For instance, students with different levels of working memory ability could be selected. This would explore whether the memory games training had an effect on only students with poor working memory or those with average level of working memory capacity. However, due to time constraints and scheduling conflict, these areas were not fully explored.

Secondly, parents of the participants might feel obliged to allow their children to participate in the intervention due to the researcher's relationship with their children as their educational therapist. Parents may feel that there might be negative consequences that their child might encounter if they did not allow their children to participate in the research study. This may have an ethical implication that go against the research guidelines that indicated that participants have the right to refuse participation in the research study and withdraw at any point of the research study.

Thirdly, the period of intervention was too short and not intensive enough. Past research studies have used a period of 8 to 10 weeks of intervention with each intervention lasting more than 30 minutes each time (Alloway, et al., 2013; Karbach, et al., 2015). In addition, the intervention took place on a daily basis. This memory games intervention however, took place only once a week for approximately 30 minutes per session, and this meant that students had only 10 minutes to play each game. Students did not have enough time to challenge themselves more with each game. In addition, the once a week intervention is also not frequent enough as training should take place frequently in order to allow changes to take place. Therefore, a more comprehensive and intensive intervention would possibly yield more significant results.

FUTURE RESEARCH

Based on the limitations found in this research study, it will be encouraging to explore a few factors that were lacking. The area of working memory training has shown promising potential therefore, more research on it will be helpful in exploring further in the field.

One of the areas to explore is the motivational aspect of working memory training. A research study by Hooft et al. (2003) delved into the motivational gains and behavioural changes of students. They included a teacher and parent questionnaire on the Amsterdam memory and attention used in the study. Teachers and parent provided feedback on any behaviour changes that were seen in the children and reported positive change to their behaviour after going through training (Hooft, et al., 2003). Therefore, working memory training could possibly boost the motivation of students towards learning which in turn could have an impact on their academic performance as well. It could result in positive attitude towards learning and motivate them to enjoy the learning process.

This would be especially beneficial to students with poor working memory as they are often misunderstood as being lazy and not attentive in class (Alloway, 2006). This misrepresentation of them could result in low self-esteem and low motivation towards learning as they could not keep up with the rest of their classmates in class. Hence, if working memory training has a positive impact on the motivation level of students, it could be one of the methods used to facilitate learning.

It will also be helpful to explore the longer term effects of intervention as it was found that there were more improvements in academic performance after 6 months or more after the completion of the intervention (Dahlin, 2011; Egeland, et al., 2013; Holmes & Gathercole, 2013). According to Holmes, et al. (2009, p. F13), "..any improved cognitive support for learning caused by training would be expected to take some time to work its way through to significant advances in performance on standardized ability tests". Therefore, a follow up post-test could be done to determine whether memory games intervention has a long term effect on academic performance of students with dyslexia. This will be able to determine whether the memory games intervention is effective in improving reading fluency and reading comprehension of students with dyslexia.

In this research study, the focus was only on the transfer effect of memory games training to reading fluency and reading comprehension. However, in future studies, it will be beneficial to look into whether memory games have an effect on improving working memory capacity. According to Redick, et al. (2015), if one wants to find out whether working memory training has a far transfer effect to academic outcome, it is important to also demonstrate that working memory training produced near transfer to working memory tasks as well. This is so that there will be substantial evidence of whether the memory games intervention has an effect of working memory capacity as well. However, to find out if working memory training improve working memory tasks, it is important to ensure that the working memory tasks are not similar to the working memory intervention (Redick, et al., 2015).

Intervention for students with dyslexia is focused mainly on supporting students in terms of their literacy, hence, this research study focused on improving reading fluency and reading comprehension of students. However, for future research, in order to add value into the field of working memory, it will be best to look into improvement in working memory capacity. It will be beneficial to have a variety of working memory training tools to aid or improve intervention for students with dyslexia.

Furthermore, it will be promising to explore the mechanisms involved in memory games. With this information, it could further substantiate the benefit of using memory games as there will be more concrete indication of the memory processes involved in the game. There might still be questions as to whether memory games involves training the working memory therefore further research on that would help to increase the validity of memory games.

Finally, previous research studies involved individual based intervention, rather than group interventions in working memory training. Therefore, future research on the comparison between individual based and group based intervention of working memory training could also be explored. It will be adding value to the field of working memory training to explore whether group intervention has any different effect from individualised intervention in working memory training.

In future research studies, it will be beneficial to find a more suitable tool of assessment to measure the reading fluency and reading comprehension of students with dyslexia. Instead of using DIBELS, other standardized assessment tools such as York Assessment of Reading for Comprehension: Early Reading and Passage Reading Primary (YARC Primary) could be used. This assessment provides an in depth individual assessment of child's decoding and comprehension skills. Furthermore, YARC Primary is suitable to assessing reading (decoding and comprehension skills in pupils with English as an additional language. Since Singapore is a multilingual society, this would be a more suitable tool to measure the reading fluency and reading comprehension of students in Singapore.

Another alternative tool of assessment that could be used is the Curriculum Based Assessment (CBA) by the DAS, a measurement of the learning components of the MAP class. There may more effect if students are assessed according to the academic skills that they are currently learning. Therefore, CBA could possibility be a better tool to measure any improvements made by the memory games intervention on the students' reading fluency and reading comprehension.

Finally, a greater variety of memory games could be included in the memory games intervention. In this research study, only three memory games were used. There are

many other memory games that could be included in the intervention as well. This would provide a variety of games to the students so that they would not be bored of the games. In this research study, multiple platforms of memory games were explored, Memory King which is an Ipad based memory game, the Memory Cards Game which is a physical card memory game and When I Went to the Market which is a verbal memory game. Since technology is abundantly used in today's context, more Ipad based or computer based memory games intervention would be a more fun approach to introduce memory games to the students. In addition, a survey of the student's most preferred games could be conducted to enhance future memory games intervention. It would also be helpful to hear from the students' point of view which of memory games they found the most helpful or challenging, to improve their working memory. The information provided would add value to the field of working memory training in terms of the students' awareness of the intervention that they went through.

In summary, memory games intervention did not improve reading fluency and reading comprehension of students with Dyslexia, although there was some evidence of improvement in accuracy. The possible explanations for the lack of results could be due to the use of an unsuitable assessment tool which is not sensitive enough to detect any improvements made as a result of the memory games intervention. The short time lag between the completion of intervention and the post test could be a possible reason for the lack of results as previous research suggested that it may take a while for the effect of the memory games intervention to work. The memory games intervention might not be intensive enough as it was carried out in a group setting therefore, this is a possible explanation for the lack of result shown in the reading accuracy and reading comprehension of the students who went through the intervention. Despite these limitations, memory games intervention might help students with Dyslexia in terms of their academic performance, if more research was conducted. Based on previous research, there is still a possibility that it might work if the right conditions are met.

CONCLUSION

The purpose of this research study was to investigate the effectiveness of memory games intervention on reading fluency and reading comprehension of students with dyslexia. Although there were no significant results in the memory games intervention on the reading fluency, comprehension and reading accuracy of students with dyslexia, it is still promising to see improvements made in some of the students. The students enjoyed themselves during the memory games during the intervention. Although the majority of the students saw this intervention as just games that they play for fun, confidence in themselves grew week after week and they were more motivated to achieve in playing the games. Some students even gave tips to the

others on how to remember the items and how to play the memory card game better. Therefore, further research on memory games intervention should be done so that it can be used as form of additional intervention in the DAS classes.

The results from this research study would be beneficial for the development of the curriculum in DAS. This is because DAS is continually looking for continual development of their curriculum that would benefit students with Dyslexia. If memory games are found to help improve reading fluency and reading comprehension in children with dyslexia then it can be implemented as a part of the intervention offered in DAS. It could also be used as a form of filler activity to be used during break time or during classroom activities. Since DAS advocate multi-sensory teaching, the memory games that were used in the intervention could be one of the teaching resources as well. Therefore, more research should be done to support the effectiveness of using memory games to improve working memory capacity and also academic achievements.

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Teaching Today's Learners on Their Terms: A DAS Perspective.

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"Teaching Today's Learners on Their Terms" - an apt title for the learning and education of children today. Born in the millennium, these children take to technology like fish to water thus, the term "digital natives" is conferred on them to portray their symbiotic relationship with technology. As children become more savvy with technology usage at a very young age, so too must adults and educators be.

Born before the millennium, we might not be digital natives like these children, but are we ready to be "digital immigrants", embracing technology and utilising it in our teaching? On the other hand, is technology not the invention and creation of people from the past? Why are we not the digital native then? Do digital immigrants have to play catch-up with digital natives to be equipped with necessary skills or can we hold hands with them to guide them towards something new?

> "As children become more savvy with technology usage at a very young age, so too must adults and educators be."

The EduTech Team of the Dyslexia Association of Singapore (DAS) continuously thinks of ways to support the educators of the Main Literacy Programme (MLP) in order to elevate lesson designs and objectives with the integration of technology. The objective of this sharing was to bring to light the underlying pedagogical approaches in the efficacy of educational technology integration in the classrooms.

TECHNOLOGY IN TEACHING AND STUDENT ENGAGEMENT

Today, teachers can be expected to be able to bring together pedagogical, content and technological knowledge (TPACK) for good learning. The DAS MLP educators and their classrooms are equipped with iPads, ceiling mounted short throw projectors, Mimio Teach Interactive Systems as well as Smart Boards to explore their extensive use of these tools to deliver instructional materials to their learners. The TPACK framework suggests that the 21st Century Learner will benefit most from this combination of teaching. This will then garner student engagement. Student engagement can be seen from 2 perspectives:

1. Engagement level - authentic engagement, passive compliance, ritual engagement, retreatism and rebellion.

2. Engagement types - behavioural engagement, emotional engagement and cognitive engagement.

Ideally, students should be behaviourally, emotionally and cognitively engaged in learning. Additionally, in order to achieve authentic engagement where there is high attention and high commitment in learning, proponents of technology have argued that it can be an effective tool to meet this requirement. The benefits of technology as a teaching tool can be displayed in the forms of presentation of content, freedom of expression, authentic task and feedback. It is suggested that students are seen to be less overwhelmed and more participative with the use of technology.

Educators often strive to achieve a balance between teaching and learning. There must be a good amount of imparting knowledge (teaching) and an equal amount of reciprocation from the learners - which is learning. Gagné published The Conditions of Learning back in 1965, suggesting that certain mental conditions must be present in order for knowledge absorption and retention to occur. He also introduced the 9 Events of Instruction, based on the internal and external cognitive factors that contribute to learning. The internal factors are the learner's prior knowledge, while the external factors are outside stimuli, such as the form of instruction. Educators can use these 9 events of instruction to develop learning experiences that stick and offer 21st century learners the opportunity to engage in every step of the instructional process.

1. GAIN ATTENTION

Engage students immediately so that their focus is applied to the class and not split between worries or tasks outside of class.

- ♦ Pose a question and have students write a response or talk to another student
- ♦ Pass an item around the classroom (i.e. an equipment, tool, example)
- ♦ Show a short video (YouTube, animated, self-created)
- ♦ State statistics or world facts regarding the topic, or share current news/ events to pique student curiosity and interest

2. INFORM LEARNERS OF OBJECTIVES

Communicate expectations to the students about the skills, knowledge, or attitudes they are to master as outcomes of the course or session. This may appear in the syllabus, handouts, instructions for activities, projects, papers, etc.

- ♦ Explain criteria for performances and assessments
- ♦ State expectations about how this impacts their success in the field, such as having an attitude of professionalism

3. STIMULATE RECALL / PRIOR KNOWLEDGE

Require students to apply and recall current knowledge and understanding to new concepts.

- ♦ Ask students about their prior experience and learning regarding the concepts
- ♦ Connect prior material with how it relates to the new material
- ♦ Recall previous activities and events in the curriculum or the students' lives that relate to the new material

4. PRESENT THE CONTENT USE A VARIETY OF METHODS TO DELIVER CONTENT.

Concepts portrayed in different mediums will assist learners with comprehension.

- ♦ Visuals (photos, graphics, videos, charts, graphs, models, maps)
- ♦ Audio (mini podcast, narrated PowerPoint, video, sounds)
- ♦ Read and write (textbook, articles, handouts, news, request students to write reflections/key information about concepts)
- ♦ Activities (group work, projects, problem-solving, games, presentations, role-playing, ask questions

5. PROVIDE LEARNING GUIDANCE

Give advice and guidance to students about what studying methods or resources students may use to help be successful in learning this material.

- ♦ Explain what helped you master this material or what former students have done to be successful
- ♦ Share resources
- ♦ Provide instructions, expectations, and timelines regarding material, content, and projects

6. ELICIT PERFORMANCE (PRACTICE)

Provide opportunities for students to apply and practice their knowledge and skills in a safe setting.

- ♦ Lab practical's, written assignments, role-playing, practice interviews, practice case studies, projects

7. PROVIDE FEEDBACK

Timely feedback is most effective. A student needs feedback to correct misinterpretation and application of information.

- ♦ Immediate feedback with online quizzes
- ♦ Provide rubrics for students to assess in detail what components were incomplete, missing, or need improvement
- ♦ Provide an opportunity for students to give feedback to each other in regards to performance or application

8. ASSESS PERFORMANCE

It is important for students to keep track of their performance throughout the course and not just in the middle and/or end.

- ♦ Provide prompt feedback with assignments and activities
- ♦ Require students to reflect and assess on how they think they are doing in the course
- ♦ Provide opportunities for students to self-assess their knowledge and understanding by using quizzes or optional self-check assignments throughout the assessment

9. ENHANCE RETENTION AND TRANSFER TO THE JOB

Students must apply the information with present-day application and/or relevance.

- ♦ Ask students to share how the information relates or will relate to their personal experiences and future
- ♦ Provide job-aids and outlines of information that students may use in the field

CAN DIGITAL IMMIGRANTS (EDUCATORS) TEACH DIGITAL NATIVES (STUDENTS)?

Geoff Morris, in his presentation 'Teaching with Technology - Digital Immigrants teaching Digital Natives' suggests that students today will spend over 10 000 hours playing video games, over 200 000 emails and instant messages, over 10 000 hours talking on cell phones, over 20 000 hours watching the television (including over 500 000 commercials) and maybe 5000 hours book reading. With the rise of modern and new technology, digital immigrants may find it hard to adapt to this technology and use it in their teaching as they often assume that students today are the same as the students in the past and whichever method works for those students will work on today's learner as well. So how can educators as digital immigrants bridge this gap so that learners as digital natives benefit much from their teaching?

Claire (2013) mentioned that the learning preferences of digital natives include teamwork, flexibility in the learning environment, student-based projects that incorporate challenging assignments, and most importantly respect for student voices. Therefore, the only way for digital immigrants to be equipped with the necessary skills to teach digital natives with the use of technology is by learning these skills from the digital natives themselves. When students get the opportunity to teach their peers and teachers what they know, it will eventually give meaning to their learning. As digital immigrants, it is important for educators to understand and accept the fact that there is a vast divide between digital natives and digital immigrants. Only when such acceptance is present, can we minimize the gap between digital natives and digital immigrants.

Some basic guidelines in how to approach teaching digital native (Claire, 2013):

- explaining objectives clearly
- student-centered learning
- problem-based learning
- project-based learning
- inquiry-based learning
- active learning
- asking open-ended questions
- constructivism or co-constructing
- learning by doing
- allowing students to find and following their passion
- allowing time for questions and sharing their thoughts and opinions

- creating presentations in text and multimedia
- giving students guidance
- delivering material in the context
- creating rigor
- practice through games
- teach that failure is a learning process

EDTECH RECOMMENDATION

This session also included tools that are useful for teaching such as:

- ♦ Padlet
- ♦ StoryBird
- ♦ Google Slides
- ♦ Videos

PADLET

Numerous MLP educators have demonstrated the creative use of Padlet during the biannual M-Learning Week. Padlet is a dynamic and collaborative space where many users can come together in a safe environment to either contribute ideas, comment or answer questions which can be moderated by the teacher (if need be). Padlet's interface is kept simple thus making it user-friendly for young learners too. For example, reproduction of new vocabulary can be interesting and motivating via this tool as can be seen below.

Word of the day: fascinate
Make a sentence with this word and post it here. Remember to put your name on the post.

Tim Harry Potter books are very fascinating.

Anton I have always been fascinated by the Japanese culture.

Roger The Pyramids of Egypt are still very fascinating.

Sasha Discovery some fasc shows.

Jennifer The magician fascinated the audience.

Tarun Our fascination with technology is not good for our health.

Carol Martin Luther King Jr was a fascinated speaker.

Mr Sha Carol, fascinated is a verb. You need to use the adjective form of the word here. What is that?

Patrick My 1 year old brot finds the vaccum very fascinating.

Corinne Walt Disney world has fascinating fireworks every night.

Jose I was fascinated by the animals in the zoo.

Aaron My dog is fascinated to see me when I come home from sc

Mr Sha Aaron, this is not the right use of the word. You want to try again?

Jessica We should not be fascinated by new things easily as they often have unknown bad

Melody I am fascinated by the Nintendo Wii.

Mr Sha Jessica, good thought but you should try to make simpler sentences. You want to go again?

STORY BIRD

Especially for educators who are aspiring writers, Storybird is the app to use for creating picture books with students as young as in kindergarten to Grade 9 (equivalent to Secondary 2 in Singapore's context). Students start by selecting a theme for their writing, compose their story and then select the pictures they want. The stories will then be published as a book online. This app comes both as a free version and paid version. By paying for the app, teachers and students would be able to print out their stories.
Here's the link to find out more on Storybird: https://storybird.com/educators/
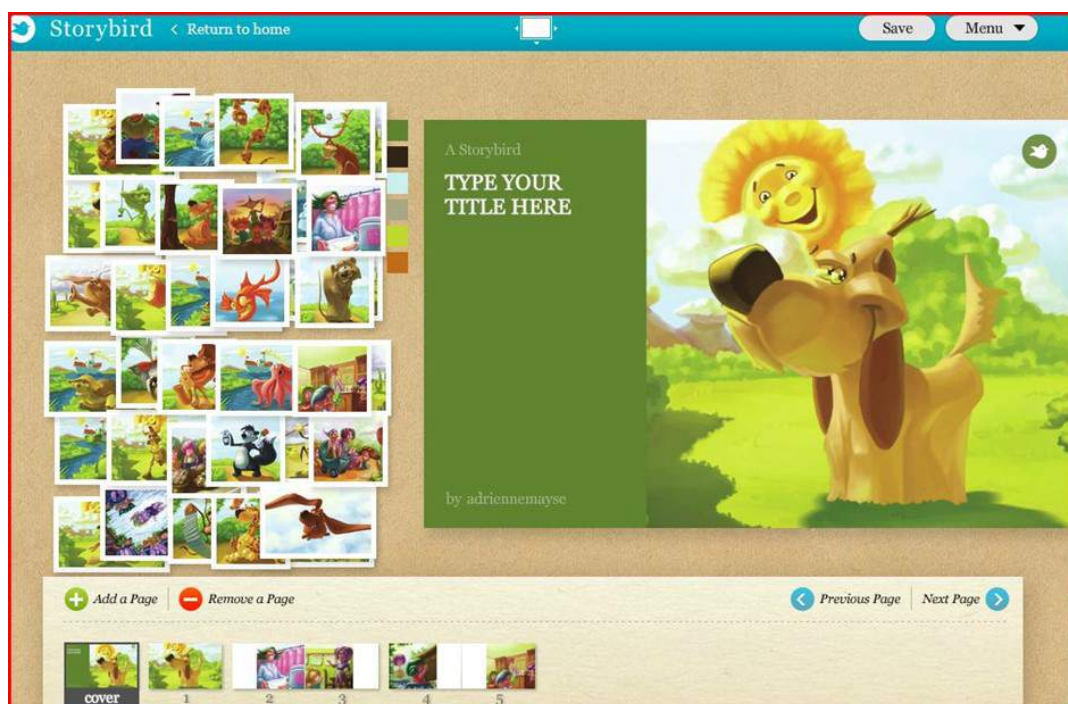
GOOGLE SLIDES

Another app that's very useful and quite exploited by DAS educators in the classroom is the Google Slides. Fans of Powerpoint would like to check this out! The slide designs are picturesque that would elevate your presentation layout to sophisticated level. Partnering with a projector or a smartboard in your classroom, imagine a technology-based lesson created for your digital natives in the classroom. To find out more, log into your google account and access the link here: https://www.google.com/slides/about/

Google Slides is a great tool for learners who are either reluctant in developing content or are still developing their sequencing skills. It can be a individual task or a cooperative and collaborative task where students work on various areas of the task and then review each other's parts as a whole. Top the activity up with a presentation and watch them presenting their works proudly.
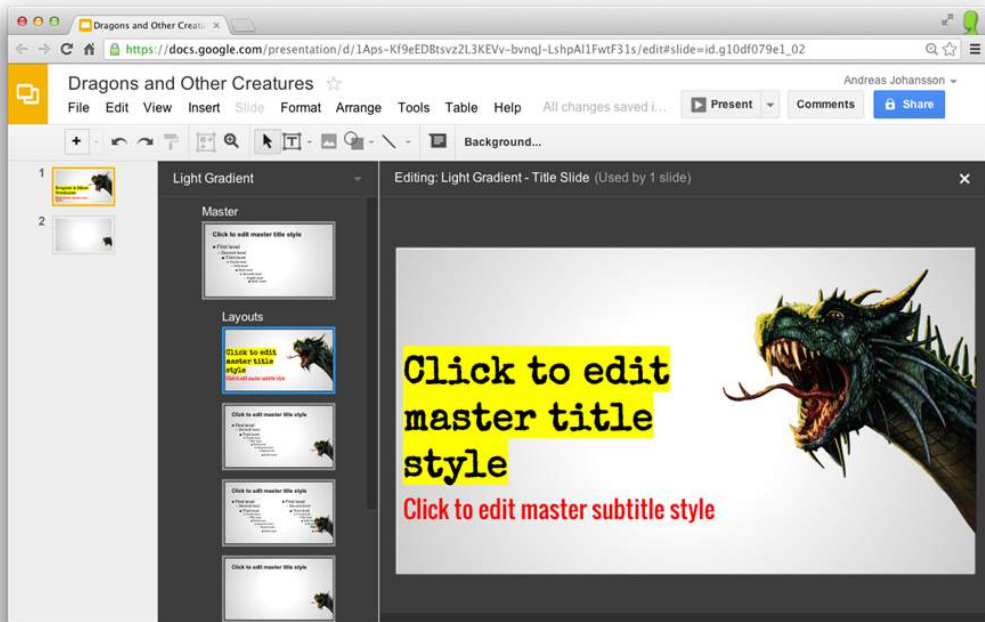
VIDEOS

The power of videos in MLP classrooms are underrated especially when working with students who require multi-sensorial material delivery. Videos are becoming more and more necessary not just for showing content but for students to review their own recording (think of video blogging - a.k.a vlogs) which are not only trending but an essential skill in 21st century learning - to be able to fluently and coherently get their ideas across through a video. In the session, videos of the presenter's student was shown and in one of those, the student was comparatively reviewing some snacks at the comfort of his home.

MIMIO-TEACH INTERACTIVE SYSTEM

DAS EdTech Team has been exploring the use of Mimio Teach Interactive Systems for some time now through a research study conducted in phases. This interactive system is very helpful for the kinaesthetic learners in our classroom. The set up for this device is extremely easy and the use is effective. It is a portable device that can turn any whiteboard into an interactive board. This device allows teachers to move away from traditional pen and paper activities and move into a more engaging platform of interactive learning. Once the device has been set-up, students can come to the whiteboard and use the stylus to manoeuvre on the white board. Lessons will move from passive learning to active learning.

CONCLUSION

At the end of this RETA session, attendees reported that they felt motivated to improve their technology savviness and exploratively use more of tech-tools in their teaching. Indeed, it is in line with the Orton Gillingham (OG) Principles of simultaneously multisensory and diagnostic and prescriptive which is the mantra of the DAS MLP educators. As the educational approaches in the world is getting more advanced with ever evolving technology, the importance and urgency of incorporating educational technologies knocks on every classroom door. As educators, we have to embrace this fact and educate ourselves on how to approach teaching digital natives by creating engaging instructional materials to meet the learning needs of the 21st century learner. Only through this way, can we minimize the gap between digital immigrants and digital natives so that our students could benefit more from our teaching.

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HANI ZOHRA MUHAMAD
Educational Advisor & Lead Educational Therapist

Hani Zohra Muhamad is a Lead Educational Therapist and an Educational Advisor (EA). Hani joined the Dyslexia Association of Singapore in 2006 and has over the years been teaching and working with students with dyslexia and other co-morbidities such as ADHD and SLI. As an EA, Hani contributes to the mentoring and training of new educational therapists, as well as support colleagues with challenging students. Hani holds a Masters Degree in Education (Special Education) from Nanyang Technological University (NIE-NTU), a Bachelor of Science (Hons) in Management from University of London (UOL) and a Cambridge International Diploma for Teachers and Trainers (Dyslexia). Hani is also a member of the Register of Educational Therapist Asia (RETA).

NUR ALIA BTE SALIM
Senior Educational Therapist

Nur Alia Bte Salim is a Senior Educational Therapist with the Dyslexia Association of Singapore (DAS). She has a Diploma in Dyslexia Studies and a Certificate in Dyscalculia and Numeracy Teaching by DAS as well as the Cambridge International Diploma for Teachers and Trainers. She has a Master of Education (Special Education) from the Nanyang Technological University/National Institute of Education (NTU-NIE). Nur Alia is a Curriculum Developer for English Language Literacy (ELL) division. As a dual-specialist, she teaches learners with Dyslexia both in the Main Literacy Programme (MLP) and the Essential Math Programme.

NUR ASHABIENA MOHD ASHRAFF
Educational Advisor

Nur Ashabiena Mohd Ashraff works in the DAS as an Educational Therapist since 2016. Nur Ashabiena graduated from the University of Wollongong (Australia) with a Bachelor of Science in Psychology. Upon graduation, she has rendered her service to various organisations; she volunteered as a Mind Stimulation Activity (MSA) facilitator with National Kidney Foundation (NKF) where she created activities that encourage dialysis patients to keep their minds engaged and active during dialysis, she has also worked as a temporary research assistant with National Institute of Education (NIE) where she conducted 1-1 cognitive testing with students age 5 to 6 years old. To ensure that she practices what she preaches, Nur Ashabiena has decided to volunteer as a stroke befriender with Singapore National Stroke Association (SNSA) where she conducted counselling sessions for stroke patients at Khoo Teck Phuat Hospital (KTPH) and Tan Tock Seng Hospital (TTSH).

Her passion in making a difference in the lives of others has led her to join the DAS as an Educational Therapist where she believes that she can make a difference in the lives of children, the future generation. Nur Ashabiena graduated with a Specialist Diploma in Educational Therapy (DAS Academy) and currently, she is also an Educational Advisor (EA). She has been giving support to other Educational Therapists, as well as, conducted training for the new batch of Educational Therapists. Nur Ashabiena is also a member of the Register of Educational Therapists- Asia (RETA)).

SOOFRINA MUBARAK
Senior Educational Therapist and EduTech Coordinator

Soofrina joined the DAS Association in 2012 and is now the EdTech Coordinator for the ELL Division and also a Senior Educational Therapist. Through working with dyslexic learners, Soofrina developed the interest to incorporate educational technologies in the lessons to make the learning and teaching both efficient and within reach for all. Guided by the mantra "As slow as we must but as fast as we can", Soofrina explored classroom differentiation using EdTech tools and now passionately shares knowledge for the professional development of teaching colleagues.

With a Bachelor's Degree in Economics and Finance, Soofrina pursued post-graduate studies in Special Educational Needs and is currently sponsored by DAS to complete her Master of Arts (Instructional Design and Technology) in National Institute of Education (NIE).

ABOUT THE AUTHORS

JANITHA PANICKER
Senior Educational Therapist
English Language and Literacy Division

Janitha is a Specialist Teacher with DAS International and a Senior Educational Therapist with DAS. The love for children and the love of teaching, motivated Janitha to become an Early Childhood Teacher. With an International Diploma in Early Childhood Course (Montessori Method of Education), she embarked on her career as a Preschool Educator. During the rich and fruitful experience of enlightening little ones, she realised that there were children with differences who needed specially trained teachers to guide them. Based on her degree in Psychology (University of Kerala, India), she was offered a teaching position which enabled her to work with children with special needs (Autistic, ADHD, GDD). Janitha also obtained a Diploma in Educational Studies-Learning Disorders Management and Child Psychology (Linguistic Council) and a Diploma in TESOL (London Teacher Training College). When an opportunity presented itself to work closely with Dyslexic children, she joined DAS as a Learning Support Officer in 2011. Following this, she became a Senior Educational Therapist holding a Post Graduate Certificate (SpLD) and a Specialist Tutor. Although her forte is working with young children and lower Primary students, she has many years of experience teaching upper primary and secondary students.
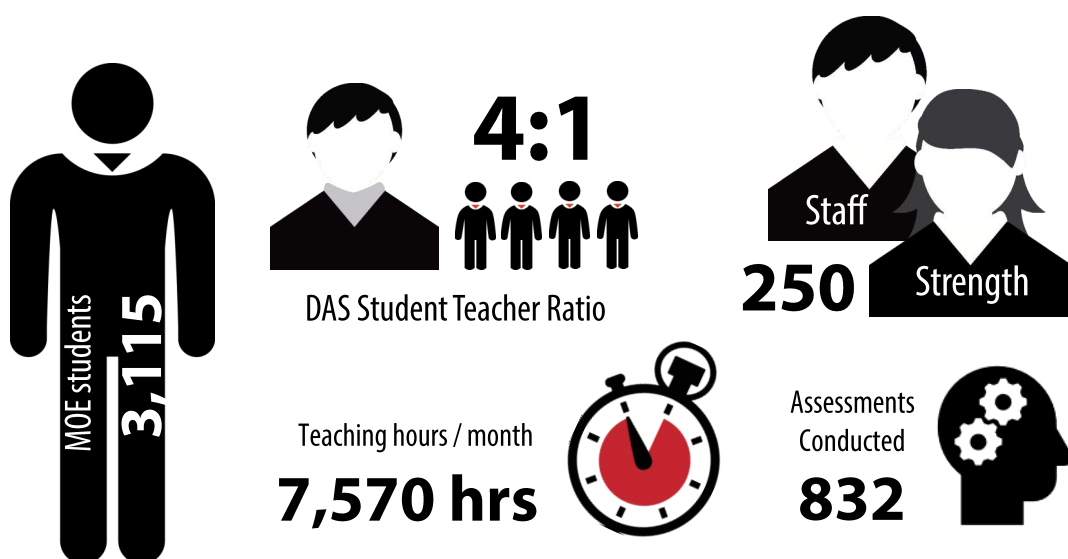
ABOUT DAS

2017 -2018

2017-2018: Another successful year

♦ The DAS Main Literacy Programme (MAP) division reached historical enrolment highs of 3,100 student enrolment mark.
♦ DAS launches SpLD Assessments to cater for a wider range of needs that we see in our clients.
♦ The Specialised Educational Services (SES) division achieved a historical enrolment high of over 1,236 student enrolments.
♦ DAS Student Graduation and Awards Ceremony was the largest event on our calendar with over 800 guests in attendance at SUTD Theatre.
♦ DAS awarded "MLP Educational Therapist of the Year" to two Educational Therapists.
♦ DAS staff have presented at 18 conferences, both locally and internationally.
♦ UnITE SpLD Conference 2018 - "Research Worth Sharing", saw presentations from more than 66 local and international presenters.
♦ DAS published its fifth volume of the Asia Pacific Journal of Developmental Differences, a total of six issues since its launch in 2014.
♦ DAS Academy delivers Masters Programme in block sessions
♦ DAS Academy increasingly receives requests from MOE schools to conduct on site workshops and courses
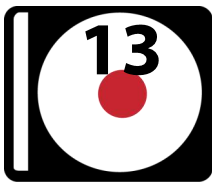♦ DAS international supports students regionally by using online tutoring.

MOE students 3,115

4:1
DAS Student Teacher Ratio

Staff 250 Strength

Teaching hours / month
7,570 hrs

Assessments Conducted
832

Speech and Drama Arts

30 Students

Presented 'Hang Tuah' at
DAS Student Graduation

14
Learning
Centres

Bursaries given
1,635

Awareness talks
98

DAS website
504,025 views

Awareness talks reached
4,258
people

13
DAS resources

FREE Computerised
screenings
872

DAS
Alumni

455

1,581 Referrals made

Facebook views
105K f

I WISH YOU KNEW
Video

160
DAS graduates
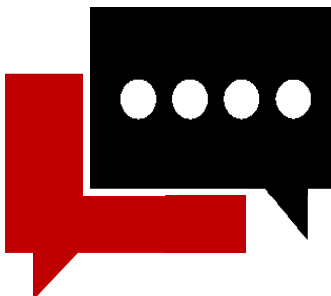
DAS Locations

🌐 **DAS SpLD Assessment Services**
73 Bukit Timah Road, #05-01
Rex House, Singapore 229832
HOTLINE: 6444 5700

🌐 **DAS International Services**
73 Bukit Timah Road, #05-01
Rex House, Singapore 229832
HOTLINE: 6643 9600

🌐 **DAS Academy Ltd**
73 Bukit Timah Road, #05-01
Rex House, Singapore 229832
HOTLINE: 6336 2555

**DAS HOTLINE
64445700**
Mon to Fri 9:00am to 5:30pm

DAS Learning Centres

1. **Ang Mo Kio**
   Anderson Primary School, Indoor Sports Hall
   19 Ang Mo Kio Ave 9, Singapore 569785

2 **Bedok**
   Fengshan Primary School, Indoor Sports Hall
   307 Bedok North Road, Singapore 469680

3 **Bishan**
   9 Bishan Place, #06-03
   Bishan Junction 8, Singapore 579837

4 **Chinatown Point**
   133 New Bridge Road, #04-01
   Chinatown Point, Singapore 059413

5 **Chua Chu Kang**
   Blk 17 Teck Whye Lane, #01-167
   Singapore 680017

6 **Jurong Point**
   1 Jurong West Central 2, #05-01
   Jurong Point, Singapore 648886

7 **Parkway Parade**
   80 Marine Parade Road, #22-01/02
   Parkway Parade, Singapore 449269

8 **Queenstown**
   Queenstown Primary School
   310 Margaret Drive, Singapore 149303

9 **Rex House**
   73 Bukit Timah Road, #05-01
   Rex House, Singapore 229832

10 **Sengkang**
   Blk 257C Compassvale Road, #01-545
   Singapore 543257

11. **Serengoon**
   Blk 411 Serengoon Central, #01-387
   Singapore 550411

12 **Tampines**
   Blk 163 Tampines St 12, #01-257
   Singapore 521163

13 **Woodlands**
   Blk 165 Woodlands St 13, #01-567
   Singapore 730165

14 **Yishun**
   Blk 932 Yishun Central 1, #01-101
   Singapore 760932

EMBRACE DYSLEXIA
Commitment

1. Raise awareness for Embrace Dyslexia by:

    Sharing information about dyslexia in the workplace

    Inviting DAS to conduct Awareness Talks

    Including information about dyslexia in the staff handbook

2. Explore opportunities to work with the Dyslexia Association of Singapore:

    Workplace Giving or Volunteering initiatives

    Mentoring DAS Alumni for internships or work experience

3. Champion dyslexic individuals:

    Recognising their strengths and understand their weaknesses

    Providing appropriate support and encouragement

4. Donate to DAS Programmes to help low-income families with bursaries

5. Advocate for Embrace Dyslexia by signing this commitment

Students with dyslexia struggle in the education system each and every day. DAS believes that each student is unique in their own way and have strengths that will see them through their education and into a successful career.

At the Dyslexia Association of Singapore we EMBRACE DYSLEXIA and know that every child will unlock their potential to succeed.

DYSLEXIA ASSOCIATION OF SINGAPORE

DAS HANDBOOK 2018

*A collection of articles, essays, DAS programme evaluations, research,
case studies and practical information for people with dyslexia,
their families and for the professionals who work with them
to help them embrace dyslexia.*

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www.das.org.sg