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Editorial Comment

Angela J. Fawcett, Editor-in-Chief

It is a very great pleasure to publish the 12th issue of the Asia Pacific Journal of Developmental Differences, now in its sixth year of publication, which is published by the Dyslexia Association of Singapore. The response to the previous issues continue to be extremely gratifying, and we intend to maintain these high standards in this issue and forthcoming issues.

In common with a number of other academic journals, we have now set up a scientific committee of reviewers to assist the editor and editorial board in the review process. We would like to thank the members of this scientific committee for their contribution in reviewing all the articles presented here.

In this issue, we again present seven articles representing international research on a number of important issues addressing theory and practice. The first article in this issue from Sharyfah Nur Fitriya, based on her Masters' thesis, addressed the important issue of keeping children with severe ADHD on task. The approach adopted here focused on preference-based teaching. Adopting a case study approach, the children were invited to compile a list of their preferred activities and interests, and these were used to focus their attention over several weeks of intervention. Following baseline measurements which indicated very low levels of engagement in these children, the project was able to achieve 100% on task performance after a few weeks, facilitating the learning of these difficult to teach children.

An interesting companion piece here is the article from Siti Mariam Binte Daud. Based on her Masters' thesis the article examines the experience of mainstream students with dyslexia in Singapore and their perspectives on inclusion. Both positive and negative results were reported and their conclusions indicated a need for greater awareness in teachers and the development of respect for dyslexia and its strengths and weaknesses.

Following the theme of comprehension, the next article from Tuty Elfira Abdul Razak in this issue focuses on the use of picture books to enhance comprehension in younger primary children struggling with dyslexia. Based on her Masters' thesis, this research shows that scaffolding the learning of this group pictorially can be particularly effective in providing support.

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In the next section, a powerful case study on the adverse consequences of dyslexia in University is presented by Beckett and Glazzard. Based on the experiences of a mature student in social work, the article demonstrates the full impact of dyslexia when it is not adequately supported and misunderstood. The article reveals the bitter consequences and the devastation that can occur in these circumstances.

Interest in dyslexia in Indonesia has escalated in recent years despite the lack of standardised tests for use in screaming and diagnosis. In the next article, Rexsy Taruna and colleagues present a new phonological awareness test, the CAPA, is constructed in Bahasa Indonesia and validated on over 100 children aged 5-6. The article and the associated test fill a very real need for the region and have been designed for use by speech therapists.

This is followed by an article from Mary Mountstephen, an experienced special-needs co-ordinator specialising in motor skills interventions, studying for a PhD at the University of Reading. Here she presents a commentary on the effectiveness of physical exercise in enhancing executive function in children with ADHD. The article is illustrated with examples of different categories of movement that have proved effective with this group. It is clear that just a few minutes a day of exercise incorporated into the curriculum can have a lasting impact for all children. This is particularly important at a time when in the UK there are complaints that play-time has consistently been eroded, cutting down the opportunity for interactions of this sort.

The final article in this issue presents a comprehensive study of teacher perceptions of the enhanced comprehension curriculum, designed to address the growing needs for secondary level input at the Dyslexia Association of Singapore. In this article, both qualitative and quantitative data are presented on teachers' perceptions of the usefulness of this new approach. This is an important article addressing a complex area of research, derived from the main literacy programme at the Dyslexia Association of Singapore, by Serena Tan Abdullah and colleagues. The results indicate that the majority of respondents found the new curriculum useful at all levels but their confidence in delivering this more advanced curriculum varied. This suggests that further support and training would be appropriate in line with best practice in the area.

It has been a pleasure in this issue to note the success of a number of members of staff from DAS in their research projects and to bring their findings to a wider audience.

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An Evaluation of the Preference-Based Teaching Approach for children with Dyslexia and Challenging Behaviours

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Abstract

Dyslexia is characterised by difficulties in accurate and/or fluent word recognition, reading comprehension, written expression and poor spelling. Research studies have focused mainly on helping students diagnosed with dyslexia through educational remediation. Less research has been undertaken on increasing on-task behaviour and attentiveness while reducing behavioural problems for students diagnosed with dyslexia. This small-scale qualitative case study used a non-concurrent multiple baseline design across three participants and was conducted at DAS in Singapore between August 2016 and March 2017. The study examines the effectiveness of a preference-based teaching approach, based on identifying students preferences within the classroom setting and designing individual teaching programmes incorporating these preferences. An evaluation of the preference-based teaching approach was carried out through questionnaires and video observation of 15 teaching sessions. 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 Inter-observer agreement (IOA) obtained. 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 a major effect on the on-task behaviour and attentiveness level for all three students diagnosed with dyslexia. These findings can be used to improve teachers lesson planning skills with the aim to increase students' on-task behaviour and active engagement levels.

Keywords: preference, on-task behaviour, attentiveness, active engagement, classroom setting, inter-observer agreement (IOA), attentiveness hyperactivity disorder, dyslexia.

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INTRODUCTION

Dyslexia is defined as difficulties in accurate and/or fluent word recognition, reading comprehension, written expression, and poor spelling. These are due to deficits in the phonological component of language that are often related to other cognitive abilities which can cause behavioural or emotional problems (Rutter and Maughan, 2005). Dyslexia is often accompanied by challenging behaviours which are defined as externalising disorders. Externalising behaviours refer to conflicts with other people, such as rule-breaking behaviour, aggression, social problems and problems with attention (Dahle et al., 2011; Rescorla et al., 2007).

These behaviours are often manifest in students with dyslexia, who may display externalising behaviours. These students frequently suffer from attentiveness and concentration issues, which may result in losing interest in the tasks that are assigned to them (Knivsberg and Andreassen, 2008). This group includes students diagnosed with dyslexia with co-morbid ADHD. Research has suggested that interventions should address both the educational needs and the behavioural needs of children with reading and behaviour problems (Morgan et al., 2008).

Studies have examined the effects of the preference-based teaching approaches for adults and children (Green et al., 2005), with multiple disabilities, typically for those with intellectual disabilities. In these studies, preference-based teaching has been described as a useful tool to increase attentiveness and manage behavioural problems in students with multiple disabilities. At DAS, teachers often find it challenging to complete their lesson plans because students diagnosed with dyslexia lose engagement and interest in the classroom. As an Educational Advisor at DAS, the primary purpose of this research is to help teachers to complete their lesson plans and engage students diagnosed with dyslexia to stay on-task and increase attentiveness during lessons. For this study, the preference-based teaching approach will tap into a student's interests and existing knowledge. These will be integrated into the lesson to increase on-task behaviour and improve attentiveness in the classroom setting.

At the DAS, students are taught the basic concepts of reading, spelling, and writing by adopting the Orton Gillingham (OG) principles of structured, sequential, multi-sensorial and phonics-based teaching (Ritchey & Goeke, 2006; Rose & Zirkel, 2007). This study aims to include a preference-based teaching approach that is aligned with OG principles in the classroom, which will help increase on-task behaviour further, and improve attentiveness, as well as manage behavioural problems for students with dyslexia. The effectiveness of the preference-based teaching approach on students with dyslexia and challenging behaviours such as ADHD will be evaluated.

In examining the preference-based teaching approach with OG approach in the DAS classroom, this study aims to help teachers to better manage students with dyslexia and

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their challenging behaviour and at the same time aim to increase engagement of students with dyslexia. This study hopes to enhance the current intervention for students with dyslexia by using students interest and preferences in planning lessons so that students can remain on-task. Moreover, it also aims to increase the knowledge of teachers on how to handle students with challenging behaviour. The preference-based teaching approach will help teachers create a better rapport with students which is predicted to subsequently impact the overall effectiveness of the students learning.

LITERATURE REVIEW

The preference-based teaching approach is based on designing lessons which include students preferred activities. The lesson plan consists of students' hobbies and interests (Reid & Green, 2006) to keep students on-task and engaged. Preference-based teaching can also fall under the category of students preferred learning style, based on preferred sensory modalities such as visual, auditory and tactile. Sensory modalities can have a significant impact on students learning behaviour (Renzulli and Smith, 2010). In their study, students preferred learning styles were matched with the teacher's learning style. However, in the current study, students are given a list of preferred activities to choose from which are not dependent on the teacher's preferred learning style. The teacher will then create a lesson integrating the students' hobbies and interests in the lesson plan. The preference-based teaching approach adopted here taps on student's hobbies and interests, and this assessment indirectly allows the students to also choose their preferred learning style as they have the chance to state their preferences.

Preference-based teaching approaches can be traced back to a study carried out by Pace et al., (1985), who conducted an experiment to assess preferred and non-preferred stimuli with six adults with profound disabilities. The results showed that when the preferred stimulus was given, there was a higher response rate to target behaviour in comparison with the baseline and non-preferred stimulus condition. The key objective is to ascertain the preferred activities of adults to achieve the target behaviour (Green and Reid,1999). Target behaviours are the desired behaviour, such as completing the assigned task and concentrating in class (Slattery, 2013). Each individual can have different target behaviours assigned to them.

Since 1985, many researchers have adopted preferred activities in a range of studies with adults and children with profound disabilities to achieve target behaviours in training or teaching programmes (Green and Reid,1999). For example, Green and Reid, (1999) experimented with 18 adults with profound disabilities to evaluate the preferred stimuli or reinforcers in training programmes. The results revealed that highly preferred stimuli were likely to function as reinforcers or motivators in training programmes conducted for adults with profound multiple disabilities, yielding similar results to Pace et al., (1985).

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According to Parson and Reid (1999), preferred activities may be applied in any teaching programme to enhance students enjoyment, which involves four basic components, namely: (1) task analysis, (2) prompting, (3) reinforcement and (4) error correction. Parson and Reid's study revealed that strategies for teaching students with severe disabilities needed to differ from those involving students with moderate or mild disabilities because students with severe disabilities require more guidance. Therefore all four components were necessary as teaching guidelines for para-educators.

On the other hand, the preference-based teaching approach can come across as similar to a permissive parenting style, because the students are given their preferred activities before, during and after each teaching activity (Maccoby and Martin, 1983). It has been suggested that parents are more lenient and less authoritative with their children. This would be consistent with Romi and Freund (1999) study that compared the attitudes of parents and teachers in one school in Israel catering to low ability students with disruptive behaviours. Their results indicated that 80% of the parents tended to be less strict with the students and did not acknowledge the severity of students disruption. Moreover, learning styles themselves have recently fallen into disrepute as a vehicle for teaching, arguing that supporting evidence is weak, although 76% of teachers in the UK for example, follow these principles (Simmonds, 2014).

However, despite these potential limitations, all the above research studies have proven to increase attentiveness and manage behavioural problems with adults and children with mild to severe disabilities during a training and teaching programme.

In this study, the preference-based teaching approach is adopted with OG principles to increase on-task behaviour further, increase attentiveness and manage behavioural problems for students diagnosed with dyslexia. At the DAS, the educational therapists apply the OG approach involving the four basic components (Parson and Reid,1999). This is necessary to provide the highest level of support for special needs students with the most significant difficulties. Nevertheless, teachers still face issues completing the lesson plan because students with dyslexia often lose interest in the classroom and start showcasing challenging behaviours such as rule-breaking and attentiveness problems (Dahle et al., 2011).

The similarities between students diagnosed with dyslexia and students diagnosed with dyslexia and attention deficit hyperactivity disorder (ADHD) are that both groups of students can lose interest and engagement in the classroom and in turn display challenging behaviour. The preference-based teaching approach will benefit the two groups of students in areas of improving students engagement and at the same time manage the behavioural problems of these students.

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RATIONALE

Three research questions guide this study:

1. What are the effects of the preference-based teaching approach on students diagnosed with dyslexia?
2. What are the effects of the preference-based teaching approach on' on-task behaviour for students diagnosed with dyslexia?
3. What are the effects of the preference-based teaching approach on attentiveness for students diagnosed with dyslexia?

These research questions aim to evaluate and understand the usefulness of preference-based teaching approach in producing positive results in terms of on-task behaviour in children diagnosed with dyslexia between the ages of 11 to 13.

PARTICIPANTS

Students at DAS have been formally diagnosed with dyslexia by psychologists and range from 7-17 years old; most of them come from mainstream schools under the Ministry of Education (MOE). They attend a two-hour literacy class as additional educational support each week during the school term. Most students attend the literacy classes at the DAS learning centre after school hours, with classes kept to a maximum of five students per class. Lessons are based on the OG approach which involves a diagnostic and prescriptive, multisensory, structured and sequential way of teaching (Gillingham & Stillman, 1997).

The DAS Integrated lesson plan follows a systematic way of teaching students phonics within a structured scope and sequence; they will then apply the phonics concepts taught for reading, spelling and dictation. The DAS integrated lesson plan also includes comprehension and writing skills which are essential to learning the English language.

In this study, all three participants were selected from a group of 12, based on the following three criteria, diagnosis, behaviour and age. The first criterion is a formal diagnosis of dyslexia with or without co-morbidities of ADHD from psychologists from MOE or DAS. The second criterion is their score on conduct problems and hyperactivity in the Strengths and Difficulties Questionnaires (age 4 - 17), administered by parents (Goodman, 1997). The third criterion is for the participants to be between the ages of seven to 17; they have to be current DAS students enrolled in the DAS Main Literacy Programme. In this study, the three students participating were between 11 to 13 years of age.

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THE RESEARCH DESIGN AND PROCEDURES

A qualitative case study that uses a non-concurrent A-B-A multiple baseline design was selected as the method of data collection and analysis across the participants. This research design has been chosen as it helps to stagger the timing of (A) baseline-to-(B) intervention to-(A) baseline. The data collection process commenced with the recruiting of students based on their MOE psychological reports for confirmation of the diagnosis of dyslexia with or without co-morbidity of ADHD. A pre-behavioural screening followed this, through the Strength and Difficulties Questionnaire which were handed out to all by mail. (Goodman, 1997).

The selected participants completed a face-to-face interview to fill out a child preference assessment (see Appendix A). These sessions of baseline to intervention phases were video recorded. During the baseline phase, one inter-observer and a researcher identified the targeted behaviour, that needs to be improved in the intervention phase. In the intervention phase, the targeted behaviour was broken down into the duration of on-task and off-task. After the video recording session, participants were asked to evaluate the preference-based teaching approach through an evaluation questionnaire and semi-structured open-ended questions which were mailed separately to the participants. The following list summarises the steps that were involved during this data collection process:

In this section, we will go through the 6 steps to recruit the participants.

1. During the recruitment of participants, the researcher examined all MOE psychological reports for 12 participants from the researcher's class to confirm the diagnosis of dyslexia. The researcher only opens up the intake of students to the researcher's class due to time constraint.

2. All 12 participants went through the pre-behavioural screening with the use of a Strength and Difficulties Questionnaire (Goodman,1997) rated by the participant's parents on 'conduct problems' and 'hyperactivity'.

3. Three participants were selected: two were diagnosed with dyslexia and co-morbidity of ADHD as well as another participant diagnosed with dyslexia; two boys and one girl. The first participant selected scored six for hyperactivity and five for conduct problems, the second participant selected scored six for hyperactivity and six for conduct problems and the third participant selected scored eight for hyperactivity and three for conduct problems. All the three participants chosen for the study scored in the range of six-10 for the component of 'hyperactivity'' and in the range of three-10 for the component of 'conduct problems' in the Strength and Difficulties Questionnaire (Goodman, 1997) which falls under the categorisation of borderline to abnormal.

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4. The first participant displayed task avoidance and disruptive behaviour such as running around in the classroom. The second participant showed traits of disruptive behaviours such as talking out loud and refusing to follow the teacher's instructions. The third participant often talks about topics that are out of context during the lesson. These students are selected for the study because they are not interested in learning, not motivated in class and not engaged during lessons. They also have shown disruptive behaviours in the Strength and Difficulties Questionnaire and these are the students we are targeting in this study.

5. The children and their parents were contacted by phone and agreed to participate in the study. Approval was gained from the ethics committee at the University of South Wales, UK and DAS through the submission of the University Research Ethics Review Form. This process was put in place to ensure an upholding of ethical standards when studying human subjects. Informed consent was obtained from the participants and parents for the video recording of the 15-week sessions. The informed consent contained a confidentiality agreement between the researcher, and the participants and their parents. This form was signed and returned to the researcher. The confidentiality agreement is to protect the identity of participants from the study. However, the researcher has the right to disclose confidential information to relevant parties in the event of dangerous occurrence during the study (Creswell, 2012).

6. The video recording of the A-B-A phases was obtained from the researcher for data collection from all three participants. In total, there were 15 sessions for each participant, of which each session is a one-hour video recording of lessons conducted at the DAS learning centre. All the three participants were in the DAS Main Literary Programme(MLP) for five years. The researcher who is the Educational therapist for the three participants in the study is familiar with the implementation of the preference-based teaching approach, for the sessions, an Inter-observer from DAS has been trained by the researcher to identify the behaviour that needs to be improved upon the baseline phase – this refers to 'targeted behaviour'. Before the video recordings, the inter-observer was trained for a month to identify the targeted behaviour for each participant. The duration of active engagement, and on-task and off-task behaviour for each participant were analysed with the behavioural categories listed in the Behavioural Observation of Students in School (BOSS) structured observation code (Shapiro, 2010).

7. The final step involves the researcher evaluating the study with the use of questionnaires that were mailed to the participants following the 15 sessions. The questionnaires entail the use of an Evaluation Rating Scale and semi-structured open-ended questions respectively. The questionnaires were to complete before being mailed back to the researcher.

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MEASURES

Child preference assessment

A child preference assessment was conducted to find out a preferred list of items and activities that would motivate the three participants to be on-task for their targeted behaviour. (Slattery, 2013). The child preference assessment was a significant step in the data collection process as it determines the activities that will be conducted during the intervention phase. The assessment involves ascertaining six favourite items and five favourite activities of these children. These items and activities were subsequently used and incorporated into the one hour lesson for nine weeks during the intervention phase.

The one-hour lesson for each participant included one of the six preferred items or one of the five preferred activities chosen by the participants during the individual child preference assessment. The first participant's selected items include video games, stickers and Star Wars cards; their preferred activities include art and crafts, watching movies, playing video games and playing on the computer. The second participant's preferred items include puzzles, modulus, markets and their preferred activities include watching movies, playing video games and playing on the computer. The third participant's preferred items include crayons, markers, piano tiles, Pokémon go and their preferred activities include arts and craft, listening to music and re-creating volcano experiments.

Questionnaires on the effects of the preference-based teaching approach on students diagnosed with dyslexia.

Two questionnaires were sent out to the three participants via mail at the end of the intervention phase. The first questionnaire was based on an Evaluation Rating Scale which consists of five questions (Slattery, 2013). Each question had been formulated to facilitate easy understanding and aims to find out how the participants felt about the preference-based teaching approach using the 5-point Likert scale: strongly disagree, disagree, undecided, agree and strongly agree.

The second questionnaire comprised four open-ended questions which aim to further understand the learning experience of the participants in a preference-based teaching approach. These questions were formulated for the participants to freely express their thoughts on the preference-based teaching approach (Slattery, 2013). More information on both questionnaires can be found in Appendix A and C.

Lesson video recording: A-B-A multiple baselines

The purpose of making a video recording is to highlight the distinctions between a preference-based teaching approach compared to the regular teaching curriculum at

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the DAS. For 15 weeks, each participant attended an hour session each week with the researcher on different days. For the first baseline phase, three weeks were allocated. The baseline phase was important for the researcher to determine the participants' behaviour that needs to be improved: this is referred to as the 'targeted behaviour'. In the following intervention phase, each participant's targeted behaviour is broken down into on-task and off-task behaviour. During the nine weeks of this phase, the video recordings were analysed by the researcher and IOA.

One of the key findings was the total time-on-task which was then converted to a percentage of on-task behaviour in all the sessions. During the second baseline phase in the final three weeks, the researcher then analysed the data collected to ascertain whether the targeted behaviour was still observable without the incorporation of the preference-based teaching approach. In all, the video recordings it was predicted will support the concept of an enhanced and more effective learning process for students diagnosed with dyslexia and challenging behaviours, using a preference-based teaching approach.

PARTICIPANTS	BASELINE PHASE (A)	INTERVENTION PHASE (B)	BASELINE PHASE (A)
Student A	3 weeks	9 weeks	3 weeks
Student B	3 weeks	9 weeks	3 weeks
Student C	3 weeks	9 weeks	3 weeks

During the (A) baseline- (B) interventions (A) baseline phases, the data collection tools involved a video recording data sheet for the period of "on-task", "off-task" and total time for the duration of "on-task" behaviour for the participants (Slattery, 2013). The video recording data sheet can be found in Appendix B. The lesson plan used during the sessions were DAS Integrated curriculum lesson plan and the OG approach principals were being applied during all sessions. Both the baseline phases did not contain the preference-based teaching approach. The intervention phase contains the application of the preference-based teaching approach in the lesson plans. The on-task behaviour for each participant was highlighted in the data recording sheet which will prompt for further analysis of active- engaged time. The video recording data sheet can be found in Appendix B. The on-task behaviour in the intervention videos were further analysed for the actively engaged time.

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Target behaviour

The behaviour that needs to be improved from the first baseline phase is called 'targeted behaviour'. Targeted behaviour was determined from the baseline phase by the researcher and one Inter-observer, with each participant having a different targeted behaviour depending on the baseline phase. For Student A, the targeted behaviour was to not run around in the class and to complete the tasks assigned; for Student B, the targeted behaviour was to control one's voice projection and obey the teacher's instructions during the lesson; for Student C, the targeted behaviour was to ask questions related to the lesson and complete the tasks assigned. All observations were analysed by a researcher and an inter-observer. The targeted behaviour was then broken down into on-task behaviour and off-task behaviour according to the behavioural categories listed in the BOSS structured observation code (Shapiro, 2010). On-Task behaviour refers to targeted behaviour that was completed by participants. By contrast, off-task behaviour refers to behaviour that deviated from targeted behaviour: participants who did not perform the tasks that teachers have assigned them to complete are considered to be engaging in off-task behaviour. The on-task behaviour and off-task behaviour was analysed using the BOSS code under the data analysis section. The BOSS code was used to analyse the actively engaged duration for each participant too.

Active engagement:

The importance of observing the active engagement duration from on-task behaviour was to gauge the attentiveness level for each participant. The actively engaged time was collected from the on-task behaviour for each participant in the baseline phase and the intervention phase. The targeted behaviour chosen for each participant was broken down into 'on-task', and 'off-task' based on the BOSS structured observation. The on-task behaviour was further broken down into passive engagement and active engagement by the BOSS code. The active engagement duration for all the 15 sessions refers to the actively engaged time. The actively engaged time was determined using the recording data sheet which was the same sheet used for on-task behaviour. The recording data sheet can be found in Appendix B.

DATA ANALYSIS

Inter-observer agreement

The procedure for data analysis involved one Inter-observer and the researcher viewing 15 video recording for each for the three participants and finding the average and coming to an agreement between the on-task behaviour and off-task behaviour.
For "on-task" behaviour, the researcher followed the behaviour categories listed in the

BOSS code structured observation code (Shapiro, 2010). The reason for adopting the BOSS code was to break down the on-task behaviour into active engagement and passive engagement and also to categorise the off-task behaviour under, off-task motor, off-task verbal or off-task passive. The BOSS code provides a clear indication of the on-task and off-task behaviour during the video recording for each of the three participants. The first step was to identify the duration of on-task behaviour for each participant for the intervention phase.

The identification of on-task behaviour, specifically active engagement by the researcher and the IOA for each participant was to evaluate attentiveness in the classroom setting. One observer was trained by the researcher to identify on-task and off-task behaviour, to provide Inter-observer-agreement.

For the percentage of time-on-task, an agreement occurred when both the researcher and the IOA recorded the same onset and offset for on-task behaviour with a 5 s variation (window of error). The percentage of time-on-task was calculated by dividing the number of agreements by the number of agreements plus the number of disagreements then multiplied by 100. For the total on-task duration, an agreement occurred when both the researcher and the IOA independently recorded the same duration with a 10 s variation (window of error). The percentage of total on-task duration was calculated by dividing agreements by agreements plus disagreements then multiplied by 100.

Analysis of actively engaged time during on-task behaviour

In this study, the BOSS code was adopted to identify the participants on-task and off-task behaviour (Slattery, 2013). The reason for adopting the BOSS code was to further break down the on-task behaviour into active engagement and passive engagement and also categorise the off-task behaviour under off-task motor, off-task verbal or off-task passive.

The on-task behaviour, mainly the active engagement included the participant performing the targeted behaviour. For example, active engagement included writing, raising hands, answering a question asked by the teacher. The on-task behaviour-passive engagement included looking at a worksheet and listening to teacher directions. Different targeted behaviour was given to each participant depending on their first baseline phase.

For Student A, the target behaviour was to not run around in the class and complete the task assigned; for Student B the target behaviour was to control his voice projection and follow to teacher's instructions during lesson; for Student C the target behaviour was to ask questions that are related to the lesson and complete the task assigned.

The amount of time the participant engaged in the assigned academic task was considered to be an important instruction (Gettinger, 1986). The instruction was regarded as active engagement, to gauge how attentive the participant is in the classroom setting. The active engagement evaluates attentiveness in the classroom setting.

The BOSS code provides a clear indication of the on-task and off-task behaviour during the video recording, and this was identified by the IOA and the researcher.

The off-task behaviours were sorted into three categories, the off-task motor which included out of the seat, playing with pencil and doing things that were not according to teacher's instructions. The off-task verbal included talking about things that were not associated with the task at hand and calling out. The off-task passive included looking around and not doing the assigned task.

For the percentage of duration for actively engaged behaviour, the duration of the active engagement was chosen from the on-task behaviour in the video. An agreement occurred when both the researcher and the IOA recorded the same onset and offset duration for the actively engaged behaviour with a 5s variation (window of error). The duration of the actively engaged time was calculated and multiplied by 100 to get the percentage of the actively engaged time.

RESULTS AND DISCUSSION

1. ON-TASK BEHAVIOUR

Research Question 2: What are the effects of the preference-based teaching approach on students' on-task behaviour?

i. Participant A: On-task behaviour

Percentage of time spent on-task for Student A is displayed in Figure 1a. Student A was diagnosed with dyslexia and ADHD. Student A displayed task avoidance and disruptive behaviour such as running around in the classroom; this behaviour was deduced by the IOA and the researcher after viewing the initial three weeks of the baseline phase. Therefore, the targeted behaviour for Student A was to avoid running around in the class and complete the task assigned.

During the initial three weeks of the baseline phase, it can be observed that the percentage of on-task behaviour decreased from 26% to 23% and further to 15%. This shows that during the initial first three weeks of the baseline phase Student A was engaged in low levels of on-task behaviours. The preference-based teaching approach from session four to session 12 resulted in an immediate increase in on-task behaviour

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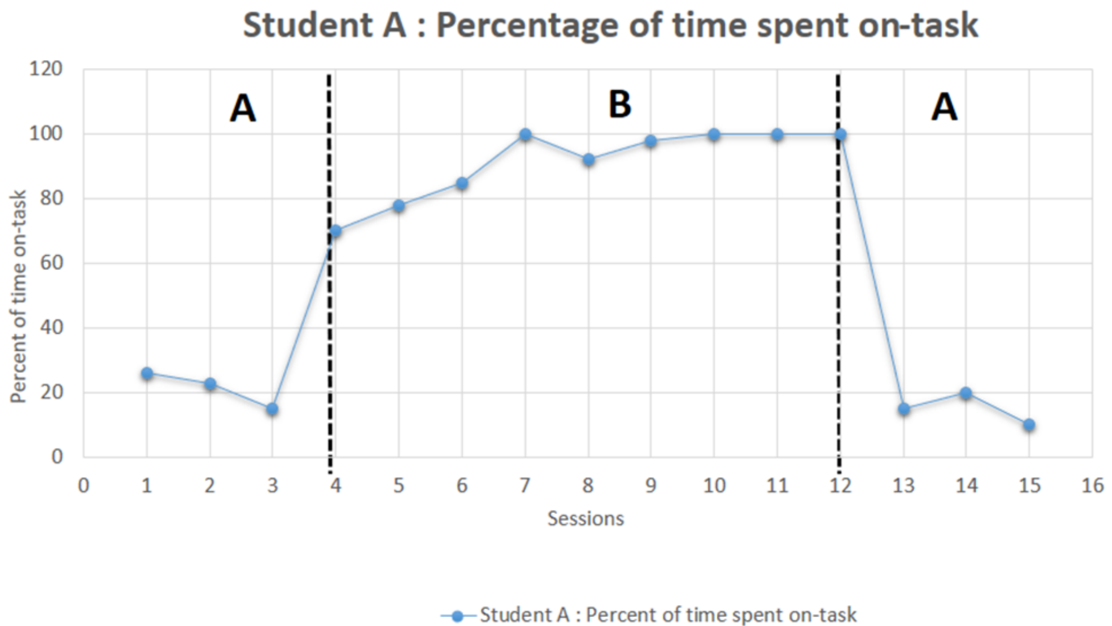

Figure 1a: Percentage of time spent on-task for baseline and intervention phase for Student A

for Student A (Mean: 91.4%, range, 70% to 100%). It shows an increasing trend in the percentage of on-task behaviour in Student A. In Session 10 - 12, Student A showed 100% of on-task behaviour.

To test the effectiveness of the preference-based teaching approach, the second baseline phase was implemented for three weeks after the nine weeks of the intervention phase. Once Student A was transferred back to the baseline phase for three weeks, Student A showed low levels of on-task behaviour. Figure 1a shows that the percentage of on-task behaviour decreases from 15% to 20% and further to 10%. Student A started to display task avoidance and disruptive behaviour such as running around in the classroom in the second baseline phase. Figure 1a showed that the introduction of the preference-based teaching approach was effective in keeping Student A on-task in session four to session 12 based on an increasing trend of on-task behaviour. The targeted behaviour was hence achieved during the nine weeks of intervention phase as the on-task behaviour increases.

The findings from Figure 1a showed that Student A is diagnosed with dyslexia and ADHD and with the introduction of the preference-based teaching approach, the on-task behaviour increased during the intervention phase. The above graph further supports the findings from Biderman et al., (1996) and Shaywitz et al., (2008) stating that is

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important for interventions to address both the educational and behavioural aspect for students with dyslexia as students with dyslexia were 3 times more vulnerable than their peers to ADHD, CD or ODD (McGee et al., 1986).

With the introduction of the preference-based teaching approach into the lesson, the teacher was able to complete the lesson with minimal time spent on controlling the student's behaviour. This shows that a preference-based teaching approach can be applied in the DAS classroom to manage the behaviour of students with dyslexia and ADHD (Green and Reid, 1999).

ii. Participant B: On-task behaviour

Percentage of time spent on-task for Student B is displayed in Figure 1b. Student B is diagnosed with dyslexia and show traits of disruptive behaviours such as talking out loud and refusing to follow the teacher's instructions. This behaviour supports the claim made by Miller et al., (2005) finding that students with dyslexia can display externalising behaviour in different ways even though their psychological reports do not state diagnosis of ADHD. This behaviour was deduced by the IOA and the researcher after viewing the initial three weeks of the baseline phase.

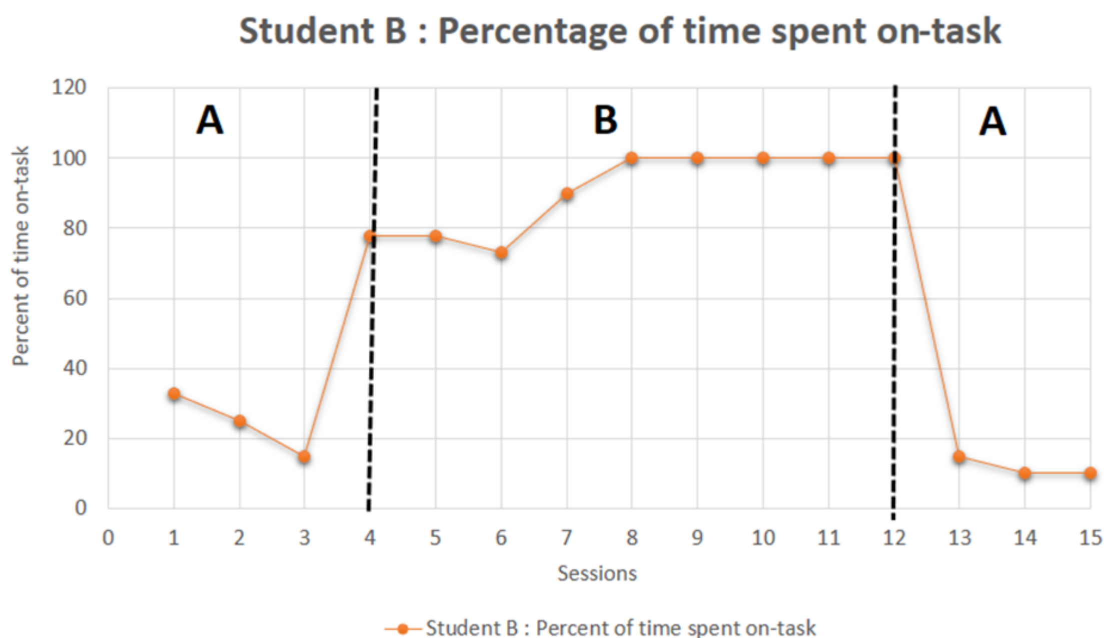

Figure 1b: Percentage of time spent on-task for baseline and intervention phase for Student B

Therefore, for Student B, the targeted behaviour was to control his voice while speaking and to follow teacher's instructions during the lesson. During the initial three weeks of the baseline phase, it can be observed that the percentage of on-task behaviour decreased from 33% to 25% and further to 15%. This shows that during the initial first three weeks of the baseline phase Student B was also engaging in low levels of on-task behaviours like Student A. During the intervention phase from session four to session 12, Student B showed an immediate increase in on-task behaviour (Mean: 91%, range, 78% to 100%). The range from 78% to 100 % shows a gradual increase in trends of the on-task behaviour in Student B. For Student B, the on-task behaviour of 100% was showed in session eight to session 12. The targeted behaviour was achieved during the nine weeks of intervention phase as the on-task behaviour increases.

To test the effectiveness of the preference-based teaching approach, the second baseline phase was implemented for three weeks after the nine weeks of the intervention phase. In the second baseline phase, Student B was transferred back to the baseline phase for three weeks, and Student B showed low levels of on-task behaviour. It can be observed from the figure 1a that the percentage of on-task behaviour decreased from 15% to 10% and stayed at 10% in session 15. Student B also started to display disruptive behaviours such as talking out loud and refusing to follow the teacher's instructions in the second baseline phase. Figure 1b shows the introduction of the preference-based teaching approach was effective in keeping Student B on-task and following to teacher's instruction from session four to session 12; figure 1b also showed that there was a gradual increased in on-task behaviour during the intervention phase. The results for Student B will be discussed at the end of the results section for the on-task behaviours.

iii. Participant C: On-task behaviour

Percentage of time spent on-task for Student C is displayed in Figure 1c. Student C is diagnosed with dyslexia and often talks about topics that are out of context during the lesson; this can be very disruptive and leads to off-task behaviour. Students with dyslexia can show disruptive behaviours that lead to off-task behaviours (Biederman et al., 1996) this behaviour was deduced by the IOA and the researcher after viewing the initial three weeks of baseline phase. Therefore, the targeted behaviour chosen for Student C was to ask questions that are related to the lesson and complete the task assigned.

During the initial three weeks of the baseline phase, it can be observed that the percentage of on-task behaviour decreased from 30% to 25% and further to 20%. This shows that during the initial first three weeks of the baseline phase Student C was engaged in low levels of on-task behaviours. The preference-based teaching approach from session four to session 12 resulted in an immediate increase in on-task behaviour for Student C (Mean: 96.8%, range, 90% to 100%). It shows an increasing trend in the percentage of on-task behaviour in Student C. In session nine to session 12; Student C

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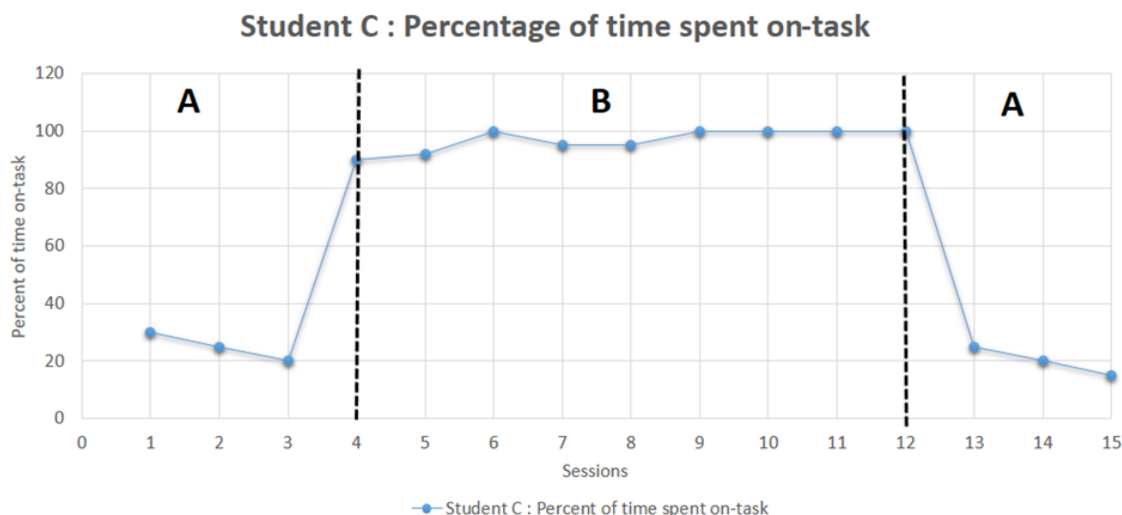

Figure 1c: Percentage of time spent on-task for baseline and intervention phase for Student C

showed 100% of on-task behaviour. The targeted behaviour was achieved during the nine weeks of intervention phase as the on-task behaviour increases.

To test the effectiveness of the preference-based teaching approach, the second baseline phase was implemented for three weeks after the nine weeks of the intervention phase. Once Student C was transferred back to the baseline phase for three weeks, Student C showed low levels of on-task behaviour. It can be observed from figure 1c that the percentage of on-task behaviour decreases from 25 % to 20% and further to 15%. Student C started to display task avoidance and talks about topics that are out of context during the second baseline phase. Figure 1c shows the introduction of the preference-based teaching approach was effective in keeping Student C on-task in session four to session 12 as there was an increasing trend of on-task behaviour and sharing about topics which are related to the lesson.

Student B and Student C are both diagnosed with dyslexia without any co-morbidities. However, they showed different externalising behaviours during the first baseline phase, and this leads to different targeted behaviour. This supports the claim made by Rutter and Maughan (2005) that students diagnosed with dyslexia may have behaviour issues due to their difficulties in reading (Shaywitz et al., 2004; Shaywitz et al., 2008). This behaviour can come in different forms of externalising behaviours (Sahoo et al., 2016) such as screaming out loud and talking about topics that are not related to the lesson in an attempt to avoid the task assigned.

In Figure 1b and 1c, it shows that during the intervention phase students stayed on-task

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and the targeted behaviours for Student B and C are both achieved. The introduction of the preference-based teaching approach helped students to stay on-task, and the teacher was able to complete the lesson between week four to week 12.

The results of on-task behaviour for all three students in figure 1a, 1b and 1c have shown that the intervention phase has been effective in keeping students with dyslexia and challenging behaviours to stay on-task during the lessons. The research by Shaywitz et al., (2008) demonstrated that students with dyslexia may have co-morbidities, and this study shows that a reading intervention and the behavioural intervention can be placed together to create an effective combined intervention so that learning takes place in the classroom while disruptive behaviours are controlled (Sahoo et al., 2016). The study by Reid & Green, 2006 noted that a lesson that takes into account students preferences keeps a student on-task. The findings from the above research further supported this study. This section will now discuss the results of active engagement for the three participants.

2. ACTIVE ENGAGEMENT - BOSS CODE

Research Question 3: What are the effects of the preference-based teaching approach on attentiveness for students diagnosed with dyslexia?

The actively engaged time is important to determine the duration of attentiveness for each participant during the on-task behaviour. The actively engaged duration is collected by analysing the on-task behaviour for each participant using the BOSS code. The BOSS code further breaks down the on-task behaviour into passive engagement and active engagement (Slattery, 2013). The active engagement duration from all the sessions was referred to as the actively engaged time. The actively engaged time was determined using the recording data sheet which was the same sheet for on-task behaviour.

In respect of the research question on the effects of the preference-based teaching approach on students' attentiveness, each of the three students was chosen a different targeted behaviour based on the initial baseline phase, and the targeted behaviour is broken down into active engagement and passive engagement.

However, the expectation of active engagement for all participants in the study was a behaviour that shows the participant was attentive during the lesson; this involved the participants displaying the behaviours of raising hands and answering a question asked by the teacher (Shapiro, 2010). The amount of time the participant engaged in the assigned academic task was considered to be an important instruction (Gettinger, 1986). This was regarded as active engagement, to gauge how attentive the participant was in the classroom setting. The active engagement will evaluate attentiveness in the classroom setting.

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The duration of the active engagement was chosen from the on-task behaviour in the video. An agreement occurred when both the researcher and the IOA recorded the same onset and offset duration for the actively engaged behaviour with a 5 s variation (window of error). The duration of the actively engaged time will be calculated and multiplied by 100 to get the percentage of actively engaged time (Slattery, 2013).

Percentage of active engagement for Student A, Student B and Student C is displayed in Figure 1d, 1e and 1f respectively.

For Student A, during the initial three weeks of the baseline phase, it can be observed that the percentage of active engagement decreased from 15% to 7% and remained at 7%. For Student B, the active engagement decreases from 17% to 15% and 0%. Student C active engagement decreased from 3% to 2% and increased to 10%. For Student A and B, the active engagement decreased gradually from session one to session three, however for Student C, there was an increase of active engagement during session two to session three by 1% which was very small. In session three, the levels of engagement remained at 10% which was still a minimal level of engagement. The sudden increase to 10% on active engagement for Student C can be hypothesised to occur as a result of reactivity, due to the Student C recollecting the presence of the camera in the classroom.

i. Participant A: Actively engaged behaviour

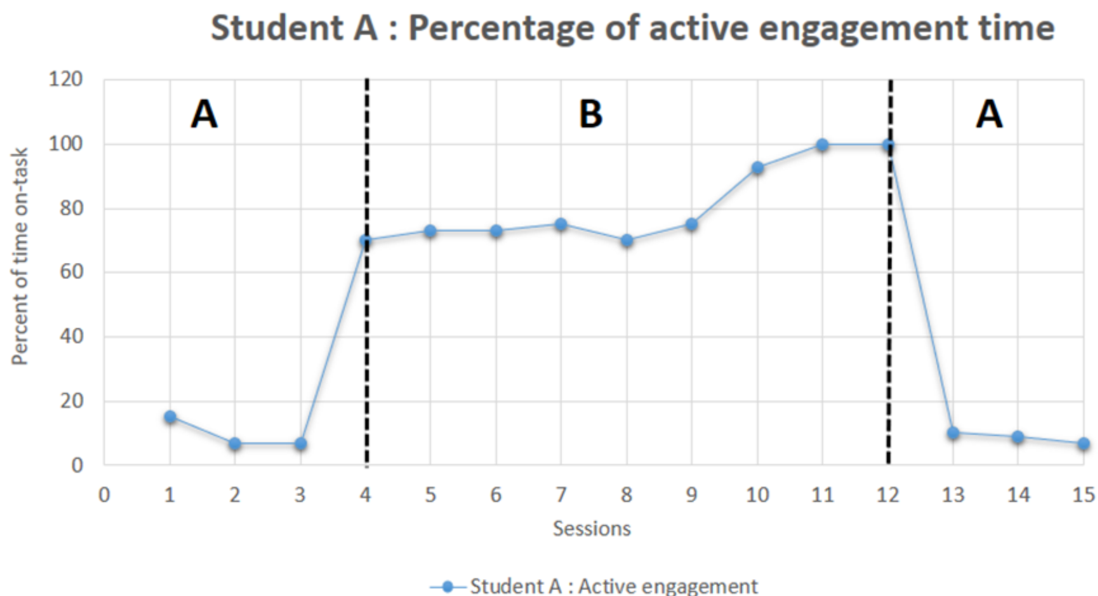

Figure 1d: Percentage of active engagement for baseline and intervention phase for Student A

ii. Participant B: Actively engaged behaviour

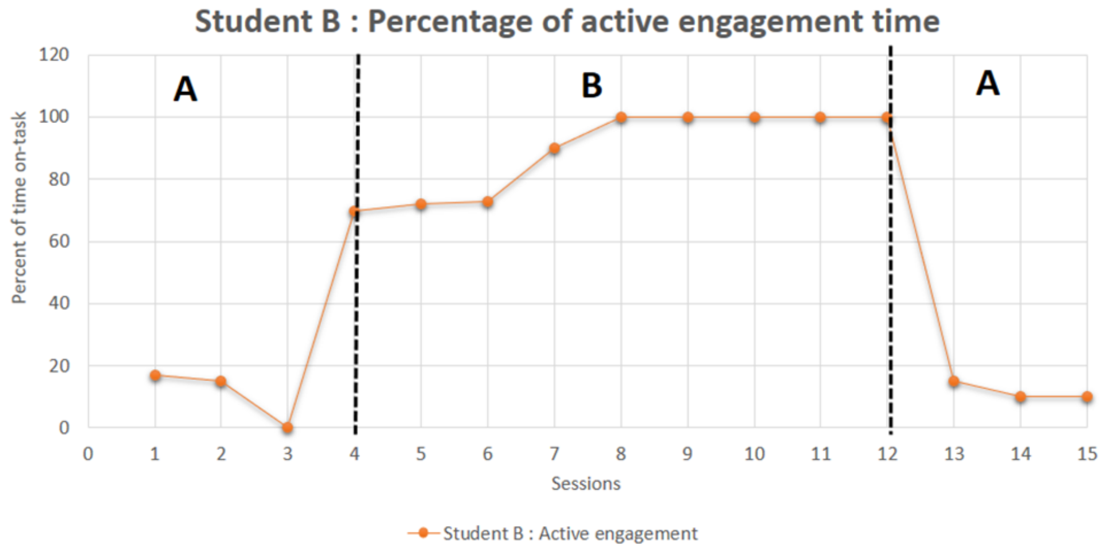

Figure 1e: Percentage of active engagement for baseline and intervention phase for Student B

iii. Participant C: Actively engaged behaviour

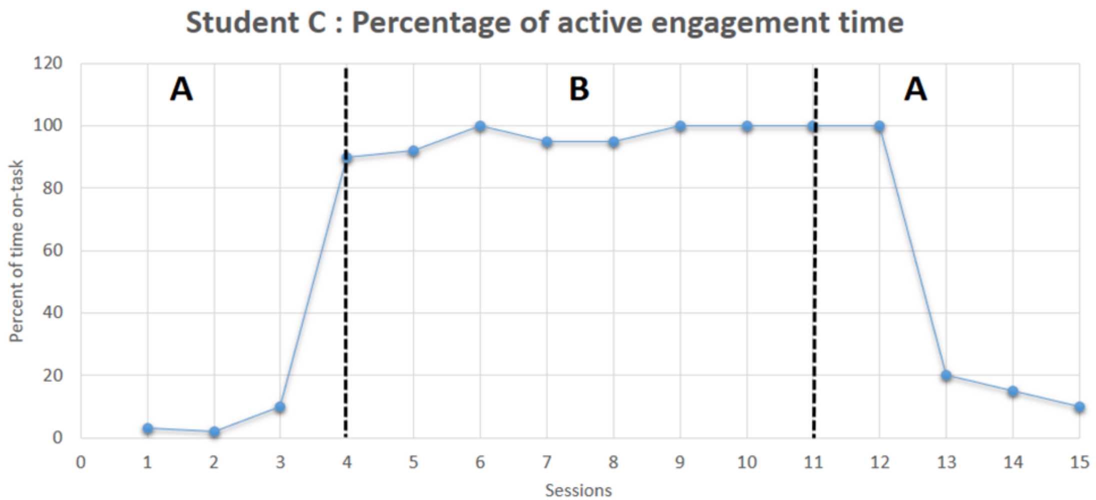

Figure 1f: Percentage of active engagement for baseline and intervention phase for Student C

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The data shows that during the initial first three weeks of the baseline phase, all students had low levels of active engagement duration. During the intervention phase from session four to session 12, all students had a significant increase in the active engagement duration. Student A (Mean: 81% range 70% to 100%) Student B (Mean: 84.9% range 70% to 100%). Student C (Mean: 96.8%, range 90% to 100%). This showed an increasing trend in the percentage of active engagement behaviour for all students during the intervention phase showing that the preference-based teaching approach had an impact on student's participation and engagement during the lessons. Student A had 100% of active engagement on session 11 and 12, Student B had 100% active engagement from session eight to session 12, and Student C had 100% active engagement from session 10 to session 12. This 100% active engagement by all students showed that all students were raising hands, asking and answering questions posed by the teacher and giving full attentiveness during these lessons.

To test the effectiveness of the preference-based teaching approach on the active engagement duration, the second baseline phase was implemented for three weeks after the nine weeks of the intervention phase. All students showed low levels of active engagement during the last three weeks of the second baseline phase. The active engagement decreased for Student A from 10% to 9% and 7%, Student B from 15% to 10% and remained at 10% and for Student C it decreased from 20% to 15% to 10%. All the students started to lose attentiveness gradually during the last three weeks of the second baseline phase as the topics taught during the lesson were not according to the student's preferences. Hence students started showing off-task behaviours which lead to disengagement during the lesson.

The on-task behaviour in Figure 1a, 1b and 1c were related to the active engagement duration in Figure 1d, 1e and 1f. The significant increase in on-task behaviour influenced the active engagement behaviour for all the students in the study. This study showed that when a student was interested in the topic of the lesson, the students were on-task and indirectly this has an impact on the active engagement of the students during the lesson (Parson and Reid, 1999).

The results of the active engagement duration for all three students in figure 1d, 1e and 1f showed that the intervention phase has been effective in keeping students with dyslexia and challenging behaviours on-task and increased the duration of their active engagement during the lessons.

This study further indicates that there is a need for a multimodal intervention as noted by Lovett et al., (1994). The multimodal intervention (Lovett et al., 1994) consists of two or more approaches to help students with dyslexia and challenging behaviours increased on-task and active engagement during the lessons (Sahoo et al., 2016). However, it should be noted that students with a diagnosis of dyslexia and ADHD may need other types of tools to keep them actively engaged in conjunction with the preference-based

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teaching approach. Some students with dyslexia and ADHD need a trampoline to release their energy, and this can be tied in together with the OG approach and the preference-based teaching approach in a learning process to keep them on-task and actively engaged (Muligan, 2009).

3. EVALUATION OF THE QUESTIONNAIRE

Research Question 1: What are the effects of the preference-based teaching approach on students diagnosed with dyslexia?

In respect of the research question on the effects of the preference-based teaching approach on students diagnosed with dyslexia, it should be noted that all participants responded to both sections of the questionnaires. The questionnaires consisted of two sections. The first section is a participant's questionnaire - rating scale which consists of five questions (Slattery,2013). The second part of the questionnaire was an open-ended questionnaire to understand further the experience the participants went through during the intervention phase. However, there was insufficient information to conduct the coding analysis. Therefore the participant's evaluation of the open-ended questionnaire was not included under the results section. The focus of the questionnaire was to assess their thoughts on the effectiveness of the preference-based teaching approach during the nine weeks' intervention phase. The five questions presented in the participant's questionnaire are shown below:

Question 1: I think the preference-based teaching approach was beneficial and helped me stay on-task.
Question 2: The preference-based teaching approach had easy instructions to follow
Question 3: The preference-based teaching approach was easy to understand.
Question 4: I would be willing to use the preference-based teaching approach in other settings such as school
Question 5: I would recommend the preference-based teaching approach to other students.

The preference-based teaching approach appeared to be an accepted approach for all three participants in the study. All the participants rated 'strongly agree' for all five of the questions; the preference-based teaching approach was beneficial and helped them to stay on-task, has easy instructions to follow, they would be willing to use the approach of instruction in other settings such as school, it was easy to understand and they would recommend the approach to other students. Overall the ratings received were high for each participant's evaluation, and this shows that all participants enjoyed the preference -based teaching approach during the intervention phase.

This study further indicates that the preference-based teaching approach would benefit teachers in completing their lesson plan and having students motivated and actively

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engaged during the lesson can help decrease challenging behaviour (Slattery, 2013).

The challenging behaviours discussed in this study by the three students caused teachers to spend more time managing behavioural issues which lead to the incomplete lesson. Challenging behaviours such as running around in the classroom, screaming out loud during the lesson and talking about a topic that is out of context can be very disruptive in class. These types of disruptive behaviours lead to teachers spending more time in behavioural management and consequently, an incomplete lesson.

There can be a range of reasons for students diagnosed with dyslexia showing disruptive behaviour in the classroom. One of the main reasons is their reading difficulties. In this study, Student B and C showed disruptive behaviours during both the baseline phases for the on-task behaviours and active engagement. In a study conducted by Shaywitz et al., 2003, it stated that a student diagnosed with dyslexia often puts in extra effort in reading a word and this affects their attentiveness level

(Shaywitz et al., 2004, Shaywitz et al., 2008) resulting in them showing disruptive behaviours in an attempt to avoid the task assigned. Students with dyslexia face reading difficulties and this may trigger frustration, agitation, acting out avoidance, and withdrawal from learning tasks (Fleming et al., 2004, Kellam et al., 1998, Walker et al., 1995)

At the same time, students with a diagnosis of dyslexia have high chances of co-morbidities. Co-morbidities may include internalising and externalising behaviours (Caroll et al., 2005; Maughan & Caroll, 2006). Cheung et al., (2012) research study demonstrated that dyslexia and ADHD often co-occur as genetic influences and familial correlations overlap. There is a 53% - 72% chance of overlaps between ADHD and dyslexia; this study also shows that the majority of students with dyslexia may have co-morbidity with ADHD which explains their externalising behaviours. In this study, Student A is diagnosed with dyslexia and ADHD, and disruptive behaviours were displayed in both the baseline phases for on-task behaviour and active engagement. For students with dyslexia and ADHD, it may be the symptoms of ADHD that cause the child to have reading problems, which then leads to off-task behaviours and disengagements (Corie,1996; Ialongo et al., 1999, Kellam et al., 1991; Reid et al., 1999; Walker et al., 1995). To counter this issue, besides the option of medications to control the hyperactivity, teachers can always plan and adjust the lesson to correspond to the needs of the child and target an intervention that focuses on both reading and behavioural deficits (Mc Gee et al., 1986).

At DAS, there is a gap between the practical teaching of the DAS Main Literary Programme lessons and the theories of behavioural problems that students with the diagnosis of dyslexia experience in the classroom setting. It is important to note that a student with the diagnosis of dyslexia encounters behavioural problems, both with or without any co-morbidity. Lessons that are delivered to the DAS student need to take into

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consideration these aspects of on-task behaviours and active engagement so that the disruptive behaviour in students decreases and active learning can take place.

Students displaying disruptive behaviour are signs that students are often disengaged in the classroom. A study conducted by Christenson and Thurlow (2004) in schools in the United States, showed that more than 90% of students with learning disabilities that drop out of school do so due to disengagement. It is noted that students with learning disabilities are the students who have feelings of alienation, a poor sense of belonging and dislike for schools. Disliking school and lessons cause these students to have high disengagement in the classroom, and this can lead to dropouts.

At DAS, students display low levels of on-task behaviours, and low levels of engagement are evident in teachers not being able to complete their lesson. As an Educational Advisor working with teachers from different learning centres, it has come to the researcher's attention that this is an escalating issue at DAS that needs to be resolved. Teachers spend more time managing students' behavioural problems than teaching the necessary DAS Main Literacy Programme curriculum. It is important to take into consideration students preferences while planning a lesson to have more on-task behaviours and increase attentiveness during the lesson.

Applying the preference-based teaching approach gives students the intrinsic motivation to stay on-task and actively engaged during a lesson. The preference-based teaching approach is one way to promote and sustain active learning in the classroom (Pintrich, 1999) as it increases students' intrinsic motivation. However, there is a limitation to the intrinsic motivation as this effort need to come from the teacher in planning the lesson according to the students' preferences, if teachers do not plan the lesson according to the students' preferences, intrinsic motivation will be decreased, this may be one of the downsides of the preference-based teaching approach. It is evident, for example, that the effects of the preference-based approach have not generalised to student behaviour in this study, once the intervention has finished. Indeed, it can be seen that for all 3 participants, active engagement fell to the pre-intervention level. It would be interesting to adopt the ABAB design to maintain participants active engagement level and end the study with participants engagement level on the high side.

To achieve intrinsic motivation for students, the onus lies on the teachers in creating a lesson that corresponds to the preferences of the students. At DAS, teachers have a high quota of students, and this makes it difficult for teachers to plan a lesson according to each student's preference as it takes time and effort. However, this can be done in an Intensive Remediation (IR) setting where a one to one intervention takes place between the teacher and the students. The preference-based teaching approach also creates the opportunity for rapport building between teacher and students. The opportunity is created when teachers plan the lesson according to the students' needs and interest and the students will feel that the teachers make an effort in understanding their needs.

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This, in turn, will create and build bonds between teacher and students, which can be maintained and strengthened over time with continued use of the approach. The study by Klem and Connell, (2004) showed that it is important for teachers to support and create a well-structured learning environment for students, this indicates that teachers care about the students and brings positive changes in students behaviour and increases engagement in the classroom. Teacher's efforts in building rapport will create positive behaviours that result in increased students' engagement.

Nevertheless, the introduction of the preference-based teaching approach was effective for all the students in this study to stay on-task and at the same time increased their attentiveness during the lesson.

CONCLUSIONS

In terms of the first research question, the findings indicated that the three participants enjoyed the sessions and found the preference-based approach satisfying. All the five questions in the questionnaire were rated as strongly agree. The ratings were high, and this showed that the three participants enjoyed the preference-based teaching approach during the intervention phase. This also revealed that when the students enjoy the lesson and were on-task and actively engaged, it helps teachers to complete the lesson as the preference-based teaching approach contributes to decreasing challenging behaviour (Slattery, 2013).

The second finding of this research displayed that the two students diagnosed with dyslexia and one student diagnosed with dyslexia and ADHD showed a gradual increase in on-task behaviour during the nine weeks of the intervention phase. All three participants showed 100% of on-task behaviour in the period during session eight to session 12. It was important to note that the preference-based-teaching approach had an effect on the on-task behaviour for all the students diagnosed with dyslexia. The participants' targeted behaviour was achieved during the nine weeks of the intervention phase as the on-task behaviour increased. The findings from the second question suggest that students were willing to do the assigned task if the task corresponds to their preferences. This also showed that too little research has been done in the area of curriculum development for students with dyslexia and ADHD (Avramidis, Bayliss and Burden, 2000). Curriculum development may want to develop a curriculum that is in line with student's preferences to gain more on-task behaviour in the classroom and decrease challenging behaviour.

The third finding of this research confirmed that the two students diagnosed with dyslexia and one student diagnosed with dyslexia and ADHD showed a slow but gradual increase in their active engagement during the nine weeks of the intervention phase. All three participants showed increased attentiveness during session eight to session 12 of the intervention phase. This was important to note that the preference-based teaching

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approach had an effect on students' attentiveness level for all participating students diagnosed with dyslexia. This finding suggests that attentiveness is directly linked to the adoption of student's preferences in the classroom. This shows that the education system needs to take into account students preferences and adapt their day to day teaching concepts in line with such preferences. It also shows that the teachers have to move away from the practical topics that typically bore students to interesting topics that engaged them in the classroom setting. These findings illustrate the direction that the education system may want to adopt in future for students in the special needs support field to increase attentiveness in the classroom.

From the above findings, it can be concluded that the on-task behaviour of students diagnosed with dyslexia is directly linked to the active engagement level that the students display in the classroom. The findings showed that the gradual increase in on-task behaviour in session eight to session 12 was also evident in the active engagement increase for session eight to session 12. A conclusion that could be drawn from these findings is that teachers need to be trained to plan a lesson with the preferences of the students; this will create a more positive learning environment. This will provide an environment to increase on-task behaviours and active engagement in the classroom. With on-task behaviour and active engagement increased during the lesson, teachers will need to spend less time managing students challenging behaviours, and a complete lesson can be achieved. It is important that this research study is disseminated to teachers in DAS and beyond.

The study presented here will help teachers at DAS to solve pressing issues, including not being able to complete their planned lesson because students diagnosed with dyslexia lose engagement and interest in the classroom. This research will serve as a platform for the teachers to take into account students preferences when planning lessons with the goal of increasing students on-task and active engagement behaviour, hence making each and every lesson a meaningful one.

LIMITATIONS

This study contained some limiting conditions, some of which were related to the common critiques of qualitative research methodology and some of the limitations are related to the research design in this study.

The first limitation is the small sample size of three participants; the study focuses only on two participants with dyslexia and one participant with dyslexia and ADHD. This limited the generalisation of the study to other dyslexia groups, and this makes it more difficult to interpret and extend the results (Goodman, 1997). However, the small sample size was dictated by the criteria of the SDQ questionnaire, the participants selected for the study had to score in the range of six-10 for the component of 'hyperactivity'' and in the range of three-10 for the component of 'conduct problems' in the Strength and Difficulties

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Questionnaire (Goodman, 1997) and this falls under the categorisation of borderline to abnormal. The remaining nine participants that went through the pre-behavioural screening with the use of a Strength and Difficulties Questionnaire (Goodman, 1997) rated by the participant's parents on 'conduct problems' and 'hyperactivity' did not fall under the categorisation of borderline to abnormal. With this criterion, only three participants out of 12 participants could join the study.

The next limitation lies on the reliability and validity of the participant's evaluation questionnaire and open-ended questionnaires; this may cause biases as participants may have expectancy effects of the intervention and this may skew the findings (Eccles et al., 1990). This may, for example, explain why the first baseline week was more positive for these students than the rest of the baseline weeks including the post-intervention baseline. Moreover, participants did not provide much information on the open-ended questionnaire, and hence it would not be reliable to perform coding on these brief responses. A better alternative to the participants' Evaluation Rating Scale and open-ended questionnaires would be a face to face interview. The interview could be transcribed, and the data analysed through the coding process. A face to face interview for both the questionnaires would allow the researcher to record the answers through a recorder, transcript and conduct a detailed coding analysis to facilitates better interpretation of the data(Eccles et al., 1990)

The next limitation lies in the ABA research design. The ABA design leaves the participant with no treatment at the end of the study, this might be seen as unethical. This practice is usually deemed unethical in a drug study, where the drug can promote recovery and the absence of drug can further aggregate the illness (Zhan and Ottenbacher,2001). However, in this study, there is no drug involved, and it is a treatment which can be applied in the daily lesson only if the teacher takes the time and effort to plan the lesson according to student's preferences. In this study, it is important to conduct the ABA design as the introduction and removal of the preference-based teaching approach created an opportunity to see the effectiveness of the approach during the intervention phase, and whether the effects persisted after the intervention.

The other limitation in the study was a reduced percentage of on-task behaviour and active engagement in the second baseline phase compared to the first baseline phase when traditional DAS support returned. This can be due to the relationship between interest and motivation (Ainley, 2012), when there is no interest in the subject, there is less motivation to complete a task, this can be linked back to the participants in this study. There was a further drop in percentage in the second baseline phase compared to the first baseline phase and this may be due to the loss of interest in the task assigned, and motivation to complete the task assigned was severely affected in the second baseline phase compared to the first baseline base resulting in the further drop in percentage in the second baseline phase.

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In future studies, it would be beneficial to measure the behaviour through direct observation, interval recording of students on-task behaviour and active engagement for all participants. (Gardon, 2012), it is important to adopt both qualitative and quantitative analysis of the results for future research to further understand on-task behaviour and active engagement.

The next limitation lies in the Inter-observer agreement (IOA), despite the fact that having the IOA as a secondary observer is an effective way to avoid observer bias (Silverman, 2013). The limitation in this study lies in the short training that the IOA went through to identify the targeted behaviour for the on-task and off-task behaviour for each participant. This may cause inaccurate judgement, therefore, a longer training for the Inter-observer would have made the identification process more accurate and precise.

The final limitation of the study was the short baseline and intervention phase. Due to limited time, the researcher was only able to conduct three weeks for each baseline phase, and nine weeks for the intervention phase. It would be useful to have the participants undergo a third round of the baseline phase and a second round of the intervention phase to gather more data and further evaluate the effects of on-task and off-task behaviour with the preference-based teaching. A control group would also strengthen the study. It might be deemed unethical to prevent students from undertaking an intervention which may benefit them in learning, but it should be possible to use a group that are waiting to undertake this intervention in the following semester. Eventually, it would be predicted that the intervention would impact on future learning so that even without the continued personalised approach, the student could continue to improve. However, the transfer of learning is one of the hardest to achieve, and it is likely that many more weeks would be needed before the gains in learning and self-esteem could in themselves fuel continued engagement. A direction for further research would be to evaluate the impact of longer personalised interventions of this type in comparison with a control group in a cross over study.

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APPENDIX A: CHILD PREFERENCE ASSESSMENT

Child's Name: ________________________

Date Completed: ________________________

FAVOURITES TANGIBLE ITEMS

Please tick your preferred activity

☐ Books

☐ Puzzles

☐ Video Games

☐ Stickers

☐ Toys specify: ________________________

☐ Pencils, markers, crayons

FAVOURITES ACTIVITIES

Please tick your preferred activity

☐ Arts and Crafts

☐ Listening to music

☐ Watching movies

☐ Playing video games

☐ Playing on the computer

(Slattery, 2013)

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APPENDIX B: REAL TIME RECORDING DATA SHEET

Participant: ______________________ Date: ____________________

Observer: ______________________ Phase: ____________________

Start Time: ______________________ End Time: ____________________

OCCURRENCE OF ON-TASK BEHAVIOUR

	On-task (real time)	Off-task (real time)	Total Time On-Task
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			

(Slattery, 2013)

APPENDIX C: EVALUATION RATING SCALE

Directions: Please read each statement and circle one of the five choices that best describe the extent to which you agree with each statement.

1. I think the preference-based teaching intervention was beneficial and helped me stay on-task.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	**2**	**3**	**4**	**5**

2. The preference-based teaching intervention had easy instructions to follow.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	**2**	**3**	**4**	**5**

3. The preference-based teaching intervention was easy to understand.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	**2**	**3**	**4**	**5**

4. I would be willing to use the preference-based teaching intervention in other settings such as school.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	**2**	**3**	**4**	**5**

5. I would recommend the preference-based teaching intervention to other students'.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	**2**	**3**	**4**	**5**

(Slattery, 2013)

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APPENDIX D: SEMI-STRUCTURED INTERVIEW FOR PARTICIPANTS

Directions: Please read each statement and answer verbally to the interviewer.

1. Did the preference-based teaching approach help me to stay on-task?

2. Did the preference-based teaching approach help me to stay attentive during the lesson?

3. Did I find switching between the preferred activity and on-task activity challenging?

4. Will I introduce the preference-based teaching approach to my peers?

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Perspectives of Mainstream Students with Special Educational Needs on Inclusion

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ABSTRACT

The increase in the number of students with special educational needs (SEN) studying in mainstream schools in Singapore has largely been influenced by international developments in inclusive education practices. This has led to strong advocacy towards the inclusion of these students in local mainstream schools. Despite increased support and resources to implement inclusion and inclusive education practices, there has not been substantial investigation into how these practices are perceived by local students with SEN. This research project seeks to examine the perspectives of students with SEN on the inclusion and inclusive education practices in their regular mainstream schools and classes. An in-depth qualitative approach was used to generate data through questionnaires and semi-structured interviews with three students with SEN who were attending literacy intervention lessons in a local SEN organisation. A thematic analysis coding system was employed in analysing the transcribed data. Students' perspectives were organized in the results according to a framework based on three guiding questions: (1) To what extent do students with SEN feel included (or excluded) in their schools and classrooms, i.e. during both academic and social situations?; and (2) What academic or social-emotional barriers do they face that may affect their perspectives of the inclusion or inclusive education practices in their mainstream schools and classrooms; and (3) How can these barriers be overcome? The findings indicate that students had both positive and negative perspectives on the following themes that emerged: Teachers' attitudes, the school system, academic support and peer support. Barriers related to the themes were also identified with recommendations as to how these can be overcome. These recommendations include a need to develop teachers' attitudes further, to explore later school start times, to regulate homework assignment and to promote a culture of respect in the classroom. Future research could look at expanding the criteria and numbers of the sample group and supplementing questionnaires and semi-structured interviews with field observations.

Keywords: Inclusion; Inclusive practice; SEN

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INTRODUCTION

The idea of inclusion and inclusive educational practices constitute both a rhetoric and reality which has largely neglected the opinions of students with SEN. On the other hand, the perspectives of teachers, teacher assistants and parents have been sought over countless studies (Hwang and Evans, 2011; Yeo, Chong, Neihart and Huan, 2014). However, the need to listen to those who are directly involved and experiencing the practices first-hand is inherent for successful progress for inclusion and inclusive education practices.

Few studies have investigated the perspectives of students with SEN within the local context in Singapore. Moreover, these studies have mainly focused on students with visual impairments and autism (West, Houghton, Taylor and Phua, 2004; Poon et al., 2012). The majority of students with SEN have been overlooked, especially those with learning difficulties such as dyslexia, which actually make up the greatest percentage of local students with SEN (Lim, 2016).

The main objective of the current research project is therefore based on the principle that the perspectives of students with SEN matter. Although many studies on inclusion and inclusive education practices have been undertaken worldwide, their findings cannot be directly transferred to the local context. This is because Singapore's inclusion and inclusive education practices are still at the infancy stage, while most of the research mentioned below was undertaken in countries with a more established inclusion and inclusive education system. Therefore, listening to the perspectives of students with SEN in Singapore and understanding their experiences in local mainstream schools and classrooms is central to the current research project in order to ensure appropriate provision for students with SEN is in place. The findings of the current research project could be used as points of recommendations for existing teacher preparatory programmes, schoolwide programmes or SEN support guidelines in mainstream schools to be reviewed.

Definitions used in the current research project

For the purposes of the current research project,the following descriptions of terms will apply:

Inclusion

According to Humphrey and Lewis (2008), inclusion is part of a much larger picture than simply being placed in a class within the mainstream school setting. They note that this involves four main domains - presence, participation, acceptance and achievement. The first domain, presence, refers to attendance and the use of withdrawal and segregation. Participation, on the other hand, refers to the quality of the learning experience and

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engagement in activities. The third domain, acceptance, refers to being accepted by peers and staff, with diversity valued. Finally, achievement refers to students in the mainstream schools achieving in the academic, social, personal and emotional aspects. 'Inclusion' in this case, therefore refers to being included physically, emotionally, socially and academically in all aspects of school life.

Inclusive education

'Inclusive educational practices' will be used to refer to a set of practices that promotes inclusion as described above. For the purposes of the current research project, the terms 'inclusion' and 'inclusive education' will be used interchangeably.

Students with Special Educational Needs (SEN)

Students with 'Special Educational Needs' (SEN) will refer to children and young people who have special educational needs, referring to those who have learning difficulties or disabilities that make it harder for them to learn than most peers of the same age. These students could be physically, mentally, socially, emotionally or cognitively delayed, which places them behind their peers in terms of development. These delays could be in the form of learning difficulties, specific learning impairments, sensory or physical disabilities, communication disorders and medical or health conditions (Hampshire County Council, 2016). Their needs cannot be met within the regular classroom setting of a mainstream school and thus, they require specialised instructions to meet their unique needs.

However, considering that the SEN population is very diverse and different populations have different needs, each population might end up with very different perspectives. Hence, this research project will only focus on a similar population - students with dyslexia. While the studies in the literature review look at students with various mild to moderate SEN, the current research project is therefore targeted at only students with dyslexia.

This research project considers the various academic and social-emotional aspects, as well as barriers that may affect the perspectives of these students. In the past, students with special needs tended to be educated separately from their typically developing peers. They were either home-schooled or attended special schools (McLeskey, Landers, Williamson and Hoppey, 2012; Sailor, 2014). As a result, there was very little interaction between students with SEN and other students. However, changes in special educational policies have paved the way for students with SEN to be given the same opportunity as typically developing students to be educated in regular mainstream schools and classes (Forlin and Lian, 2008). This then gives them the chance to have 'mainstream' academic and social-emotional experiences.

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LITERATURE REVIEW

I. Physical Inclusion: Policy Changes

In recent years, the policy of enrolling students with SEN in mainstream schools has largely been influenced by international developments leading to changes in national legislation. For example, ever since the Salamanca Statement (UNESCO, 1994; Gibb et al., 2007), governments around the world have slowly adopted the principle of inclusive education to inform policy and practice. As a result, the number of students with SEN in mainstream schools has grown steadily over recent years (Paton, 2009; Forlin, 2006).

Similarly, in the local scene, ever since Singapore's Prime Minister Lee Hsien Loong made the call for an inclusive society (Lim et al., 2013), changes were made to the educational policy in a bid to foster inclusion and create an inclusive education system for all students, especially those with SEN. For example, there was a significant increase in funding allocation for the redevelopment of school infrastructure and professional development of mainstream teachers to better support students with SEN in mainstream schools (Poon, Musti-Ra and Wettasinghe, 2013). Allied educators were also introduced in mainstream schools to provide remediation for students with SEN (Poon et al., 2013). As a result of these changes, more students with SEN are being educated in mainstream schools with their typically developing peers. In fact, since 2015, 18,000 students with mild SEN are studying in mainstream schools, compared to only 13,000 students in 2013. This constitutes about four per cent of the total student population, with students with dyslexia forming the largest group (Lim, 2016). More emphasis is also being placed on supporting these students. For example, all primary schools have recently introduced the school-based dyslexia remediation programme (Siau, 2015) and are now staffed with at least one Learning Support Coordinator for both literacy and mathematics remediation (Ministry of Education, 2004; 2007). Questions arise however, as to how the enrolment of students with SEN is being managed in the mainstream schools and whether the inclusion of these students has resulted in satisfactory outcomes on their part.

II. Academic Inclusion Practices: Perspectives and Barriers

There is in fact, a body of research internationally that focuses on the perspectives of students with SEN as a result of being educated alongside their typically developing peers in regular mainstream schools and classes. Several studies in the literature have discussed these perspectives with regards to their academic experiences in these settings. For example, students with SEN also have academic aspirations similar to their typically developing peers. According to Kurth and Mastergeorge (2010), students with SEN placed in an inclusive education setting had increased learning expectations and in fact outperformed their peers in special education settings. This therefore suggests that these students also aspire to achieve a certain level of academic success in their respective regular mainstream schools, despite their SEN.

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However, research evidence on academic performance of students with SEN in inclusive settings has shown mixed results. Most of the research findings are from comparative studies that compare student outcomes in inclusive and non-inclusive settings. These outcomes, whether positive or negative, might suggest how these students would perceive and evaluate inclusion and inclusive education.

Inclusive Classrooms

For example, a study by Cole, Waldron and Majd (2004) found that students with SEN in inclusive classrooms have a stronger academic performance than students in non-inclusive classrooms. Similarly, Rea, McLaughlan and Walther-Thomas (2002) also found that students with SEN experience better academic success when placed in inclusive settings. The students in the inclusive classrooms obtained higher grades in various subjects in comparison to their peers in the pullout classes.

In addition to progressing academically, students with SEN who attended inclusive classrooms have also been found to receive better support as compared to their peers in non-inclusive classrooms. For example, Kurth, Lyon and Shogren (2015) found that a high level of support was given to students with SEN through non-traditional co-teaching arrangements to support student engagement and self-reliance as well as collaboration with other staff to discuss students' progress. Their findings were based on classroom activities in six US schools that were structured and organised to include students with SEN, utilising a co-teaching model. This approach included diverse elements of instruction through self-determination and student direction, frequent feedback and teaching as well as multiple means of representation, expression, engagement and technology.

Students with SEN felt supported by their teachers' efforts in helping them to develop self-direction and self- determination. They also appreciated the fact that teachers went over content several times and that they were always available for help (Shogren et al., 2015). This positive feedback may be indicative of greater student satisfaction with the programs in the inclusive settings, hence in turn, might translate into a positive perception by the students on the inclusion and inclusive educational practices in their mainstream schools. However, it should be noted that the six schools were exemplars of successful inclusive school reform in the United States. Hence, the findings of this study would not necessarily translate to other schools in the region or beyond.

Moreover, despite these positive outcomes, there have also been studies that have indicated placement in an inclusive academic environment did not inevitably result in better self-concept for students with SEN. This in turn, might therefore not translate to positive perspectives of the inclusion and inclusive educational practices in their respective schools and classes. According to Bear, Kortering and Braziel (2006), a typical characteristic of students with SEN is poor academic performance, regardless of

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educational setting. This then suggests that they may be predicted to have a lower academic self- concept compared to their typically developing peers. In fact, Lindsay (2007) found that some students with SEN, despite being in inclusive classrooms, reported negative self-concepts, and hence negative perspectives on the inclusion and inclusive educational practices in their schools and classrooms. This could be because they recognised that their typically developing peers succeed with less effort, yet they need to work harder, to achieve the same results.

Furthermore, Lackaye and Margalit (2006) found that feelings of academic competence play an important role in students' self-concepts. In their study, students with SEN had lower grades, and seemed to invest less effort, leading to a lower level of academic self-concept, a level similar to students without SEN who had failed in their academic achievement. Consequently, they held higher negative perspectives on the inclusive academic structure in their respective mainstream schools.

III. Special Groups and Pull-out Classes

In addition to inclusive classrooms, students with SEN also attended special groups and pull-out classes. According to Hurt (2012), pull-out classes involve taking students with SEN out of their regular mainstream classes to receive some form of individualized or small group instruction. The aim of such instruction is to target the student's individual learning needs, those that might not be effectively addressed in the regular mainstream classroom.

Some studies have found that the perspectives of these students on special groups and pull-out classes were quite positive. For example, Vaughn and Klingner (1998) found that some students with SEN preferred to receive instructions from special groups or pull-out classes for the majority of the day, rather than in their regular mainstream classes, as they felt that the work was easier and fun, and that they received the help that they needed in order to complete their work.

However, in contrast to the findings previously discussed, other studies have found that not all students with SEN had positive perspectives on pull-out classrooms. For example, Heimdahl-Mattson and Roll-Pettersson (2007) examined the perspectives of 12 students with reading and writing difficulties on the support that they received in pull-out classrooms. They found that the students felt some ambivalence towards leaving their regular classrooms to attend these small group lessons.

IV. Teacher Assistant

Teacher assistants have been found to be one source of support for students with SEN in regular mainstream schools and classes (Wren, 2017). They assist in providing instruction in academic subjects and supporting students with challenging behaviours (Tews and

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Lupart, 2008). Despite their roles in assisting students with SEN in inclusive settings, there is limited research on their impact on the academic outcomes of students with SEN (Blatchford, Bassett, Brown and Webster, 2009).

Despite that, the perspectives of students with SEN on the support provided by teacher assistants have been well-documented. For example, the students in Chmiliar's (2009) study still spent time in the learning assistance lessons. As a result of attending these learning assistance lessons, two of them mentioned that they experienced teasing. Similarly, based on Cooney, Jahoda, Gumley and Knott's study (2006), a majority of the students with SEN studying in pull-out classrooms in the mainstream school setting also experienced bullying and teasing. They had indicated that they were treated in a stigmatized manner by their typically developing peers because of the 'different' support they received. In fact, Rose et al., (2015a) and Rose et al., (2015b) found that support from teachers and school staff served as a predictor for increased victimisation in bullying. It seemed that when students were viewed as dependent on adult support, these students tended to be victimized and bullied more than those who were more independent.

O'Rourke and Houghton (2008) also found that even though the participants in their study found teacher assistant support to be most helpful, there was still the issue of potential social stigma, where they were viewed less favourably by their peers because of this one-to-one support. This was also expressed by students with SEN in Tews and Lupart's (2008) study. It was observed that some of the students felt that the existence of a teacher assistant, although intended to facilitate inclusion, had instead created inadvertent effects on the autonomy of these students. In fact, it made students feel even more different from their peers and thus excluded from the group.

V. Homework

Homework was also perceived to be a negative experience for students with SEN in McCray, Vaughn and Neal's (2001) study. They found homework to be a difficult, frustrating and laborious task and felt that it would be better if they were given the opportunity to complete it at school with the help of their teachers. In a more recent study conducted by Wilson and Rhodes (2010), although about sixty-five percent of the students felt that homework was meaningful and reinforced concepts learnt in class, a significant eighty-seven percent of students felt that they were assigned too much homework each night and that the homework was boring and repetitive.

VI. Social-Emotional Inclusion Practices: Perspectives and Barriers

Research has also focused on the social-emotional experiences of students with SEN in inclusive and non-inclusive settings. Some studies have found that there are students with SEN who experience difficulties in social skills and therefore, lower social self-

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perspectives compared to their typically developing peers in mainstream schools (Luciano and Savage, 2007). This is because these students feel that they do not belong within their class, and are often lonely or isolated (Tavares, 2011). In fact, according to Canadian statistics, the majority of students with SEN who attend regular mainstream classes are at an increased risk for social exclusion (Lindsay and McPherson, 2012; Vreeman and Carroll, 2007). On the other hand, several other studies have found positive social results for students with SEN (Frederickson, Simmonds, Evans and Soulsby, 2007; Chmiliar, 2009).

VII. Student-Teacher and Peer Relationships

Chmiliar (2009), for example, found that a majority of students with SEN who were placed in mainstream schools and classes reported positive experiences. They reported strong student-teacher relationships, with the teacher playing a major role in supporting them and positively affirming them. Another study conducted by Loreman et al., (2008) found that students with SEN who were studying in a regional school division in Canada generally had positive perspectives about school. They enjoyed going to school and felt that the school gave them sufficient opportunities for self-efficacy and social interaction. These students felt satisfied with the expectations that their teacher placed on them and this resulted in strong self-esteem.

Besides teacher-student relationships and a positive school culture, positive peer relationships also steered students with SEN towards forming positive perspectives of the inclusion and inclusive educational practices in their regular mainstream schools and classes. According to Avramidis (2010), the social participation of students with SEN in regular mainstream schools and classes does result in positive social situations for them. For example, Chmiliar (2009) found that students with SEN enjoyed the fact that they were able to have friends from the mainstream school settings, something that was also found in Estell et al., study (2008) where some students with SEN developed friendships and acquired membership in a peer group. In fact, it seems that more inclusive classrooms can indeed aid some aspects of social acceptance, such as reciprocal friendships.

As mentioned above, some students with SEN had strong student-teacher relationships, and this might certainly contribute to them having positive perspectives on the inclusion and inclusive educational practices in their mainstream schools. However, not all students with SEN enjoy such relationships with their teachers. Gibb et al., (2007) found that inflexible staff attitudes contributed to students with SEN having negative perspectives on the inclusion and inclusive education practices in their regular mainstream schools and classes. For example, teachers had difficulty changing their perspectives of adequate progress and in general, had an unwillingness to adapt their teaching styles to fit the needs of the students with SEN. They were also unwilling to adapt behaviour expectations and they merely saw a student as 'naughty' instead of

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recognising the SEN viewpoint. This shows that the characteristics of teachers also played a part in students with SEN forming negative perspectives of the inclusion and inclusive educational practices of their regular mainstream schools and classes.

VIII. Bullying

As previously mentioned, teasing was perceived as a negative experience for some students with SEN. This however, was not the only negative experience reported. The study by Monchy, Pijl and Zandberg (2004) illustrates a common theme, bullying, that is often one of the reasons for students with SEN to have negative perspectives on the inclusion and inclusive educational practices in their mainstream schools and classes. According to Kokkinos and Antoniadou (2013), bullying is the infliction of psychological distress upon victims, which is repetitive and intentional in nature with a perceived imbalance of power between the bully and the victim. Bullying has in fact been found to be one of the barriers to successful inclusion and inclusive education practices in regular mainstream schools. Bullying includes isolation, physical bullying or even emotional bullying (Gibb et al.,2007). Emotional bullying was found to be the most frequent form of bullying, where students with SEN were called names, received derogatory remarks and even condescending attitudes, not only from peers, but also from teaching staff.

Social exclusion has also been found to negatively contribute to the perspectives of students with SEN on the inclusion and inclusive education practices in their mainstream schools and classes. For example, a study conducted by Monchy et al., (2004) found that some students with SEN, who were placed in full-time regular education settings, were socially included less than their typically developing peers. This was exacerbated by teachers not facilitating inclusion, because they themselves had too positive a view of the situation. The teachers had also underestimated the frequency of bullying of students with SEN or of them bullying others. This is consistent with the findings of Swearer et al., (2012) study, where teachers in Hong Kong tended to overrate the social position of their students with SEN and thus, underestimate the degree of bullying. In fact, Bradshaw, Sawyer and O'Brennan (2007) found that 71.4% of the teachers in their study believed that only 15% or less of their students were bullied, whereas their students indicated that 40.6% were bullied. This clearly reiterates the point made by Swearer et al., (2012) where teachers underestimate the degree of bullying that takes place in school.

IX. Social Participation

Despite Avramidis' (2010) findings that there is positive social participation of students with SEN in the regular mainstream schools and classes, this is not always the case. For example, Estell et al., (2008) found that some students with SEN do have difficulties with peer social functioning. They tended to have higher rates of social isolation due to low social competence and rejection by their typically developing peers. Both Pijl and Frostad (2010) and Rujis and Peetsma (2009) also found that on average, students with

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SEN have fewer friends than their typically developing peers and that they interacted less with their peers. The fact that students with SEN are less accepted and have lesser social relationships (Garrote, Dessemontet and Opitz, 2017) makes it hardly surprising that students with SEN in regular mainstream schools and classes reported higher levels of loneliness and thus negative perspectives of the inclusion and inclusive education practices in their respective schools (Pijl, Skaalvik and Skaalvik, 2010; Rubin, Fredstrom and Bowker, 2008; Bossaert, Colpin, Pijl and Petry, 2012).

Despite the negative findings as discussed above, it appears that social acceptance also depends very much on acceptable social behaviour. Some studies have found that despite having SEN, some of these students were still accepted by their peers due to their own positive social behaviour (Koster, Pijl, Nakken and Van Houten, 2010). According to Tsang (2013), apart from social interaction ability, another critical factor in positive social relationships in the regular mainstream school settings is acceptable social behaviour. While students with SEN who exhibit low levels of positive social behaviour, such as inappropriate assertiveness and impulsiveness (Poulou, 2010) are rejected, those who exhibit low levels of negative social behaviour are well accepted (Koster et al., 2010). In this case, these low levels of negative social behaviour were largely due to good social skills and participation. The consequent successful social inclusion of these students, would engender a more positive perspective on the inclusion and inclusive education practices in their mainstream schools and classes.

In order to address the lack of evidence for SEN students in Singapore, a qualitative study was undertaken.

METHOD

The current research project aimed to gather data relating to the perspectives of three students with SEN on the inclusion and inclusive practices in their regular mainstream schools and classes. It also examined how included these students with SEN are in their mainstream schools and whether they face any barriers to inclusion and inclusive education. The guiding questions for the research project were as follows:

1. To what extent do students with SEN feel included (or excluded) in their schools and classrooms, i.e. during both academic and social situations?

2. What academic or social-emotional barriers do they face that may affect their perspectives on the inclusion or inclusive education practices in their mainstream schools and classrooms?

3. How can these barriers be overcome?

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The current research project therefore involved two methods of data collection; (a) collating responses from questionnaires, and (b) follow-up semi-structured interviews.

In the first phase, questionnaires were given out to the participants. The second phase, which was the main data collection method, utilized the semi-structured interview method. A letter containing information about the current research project and parental consent forms was firstly sent to parents of potential participants by hand or via email. Potential participants were selected based on their age (10 years old) and that they have been receiving literacy intervention at the Dyslexia Association of Singapore (DAS), for at least a term. DAS offers several programmes for students who are diagnosed with dyslexia. The Main Literacy Programme (MLP), which covers phonics instruction, grammar and writing components as well as reading comprehension support, is catered for students from 7 years old to 17 years old. Potential participants selected were all attending the MLP at the time of the research project.

Participants

Five parents of children attending DAS agreed to their child's participation in the current research project. They returned the signed consent forms and were then given a time schedule indicating when their child needed to come for the questionnaire session. These sessions were held either before or after their child's existing classes at the learning centre (Note: Out of these five participants, two participants had to be dropped from the research project as they withdrew from the literacy intervention programme before the data collection process.)

Table 1: Gender and mean age of participants

GENDER	N	MEAN AGE
Female	2	10.42
Male	1	10.16
(Total)	3	10.19

During the questionnaire session, the researcher went through the details of the current research project with the participants and addressed any questions that they had with regards to the research project. The researcher then asked for the participants' written and verbal consent to participate in the current research project, emphasising that there were no right or wrong answers and that they did not need to answer a question if they felt uncomfortable doing so. The researcher also explained that participation in the current research project was entirely voluntary and that the participants could withdraw from it at any point.

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The researcher then proceeded with the questionnaire. The questionnaire, which had sixteen questions in all, related to inclusion and inclusive education practices in regular mainstream schools. Questions ranged from the things participants liked or disliked about school, the extra support they receive in school to whether there were any changes they would like to see in school (Refer to Appendix 1 for the full questionnaire).

Once all participants had completed the questionnaire session, a different time schedule was then sent to their parents to inform them when their child needed to come for the follow-up session: a semi-structured interview session. Again, these sessions were either before or after their child's existing classes at the learning centre.

At the start of each interview session, the researcher sat down with participants and established rapport before commencing the interview. The researcher also reminded them of the previous questionnaire session they had. The researcher informed the participants that the interview session was to allow the researcher to get a better understanding of their responses on the questionnaire that they had completed previously. Participants were also reminded that the interviews would be audio-recorded and assurance was given that their identities would not be known to anyone except the researcher.

During the interview session, the researcher's mobile phone was used to audio-record the conversation between the researcher and the participants. On average, each interview took about twenty-five minutes.

When all interviews were completed, the responses were transcribed for qualitative analysis purposes. After the transcripts were completed, participants were given a copy each to check if the transcripts presented were fair and accurate.

Interview transcripts were then analysed manually. The transcripts were read repeatedly and key phrases and statements relating to the guiding questions were identified and their meanings were interpreted. These were then examined further and statements related to participants' perspectives on the inclusion and inclusive education practices in their respective mainstream schools were developed.

The initial key phrases and statements identified, in relation to the guiding questions, were then used to see what categories and themes would emerge from the data. The data gathered was then grouped according to the themes related to the research questions.

Initially, several codes were identified and they were reviewed a number of times to find links among them. Themes were then recognised and reviewed. Finally, four themes were finalised and defined in Table 2.

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Table 2: Themes categories and codes emerging

THEMES	CATEGORIES	CODES
Teachers' Attitudes	i) Positive perspectives of their teachers	- understanding, kind - fierce, strict
	ii) Negative perspectives of their teachers	- no time, self-absorbed in own work - reprimanded and humiliated for not being able to read
School System	i) Negative perspectives of school hours	- too early - too long
	ii) Negative perspectives of school structure	- classroom on the seventh floor
Academic Support	i) Positive perspectives of extra academic support	- extra time - completing tests and examinations in a separate room, less distractions - having a buddy may be helpful
	ii) Negative perspectives of extra academic support	- not necessary to have a buddy - teacher assistant
	iii) Negative perspectives of homework	- too much homework - same type of homework every day - to be given on alternate days
	iv) Negative perspectives of teaching styles	- teaching styles (no variety to teaching approaches, teacher-centred)
Support from Peers	i) Positive perspectives from their peers	- peers understanding their learning difficulties and extra academic support - peers helping them in their school work - get along well with friends and classmates
	ii) Negative perspectives from their peers	- peers thinking that they are not clever, and not able to read or spell because of dyslexia

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RESULTS

Two types of data will be discussed in this section. The first part is the qualitative findings where the data takes on the framework of a case study analysis with each part beginning with a brief description of each participant's experiences and perspectives. These were extracted from the data drawn from the questionnaire responses and interview transcripts. Secondly, these findings were organized into categories and themes.

Student 1
Student 1 indicated that he likes school because of his friends and Physical Education classes, but is quite neutral when it comes to the work he does in school and his teachers. He has not received any form of formal extra support in school for his difficulties.

Student 2
Student 2 indicated that she does not particularly enjoy school due to its long hours. Nevertheless, she mentioned that she receives extra help at school, which she has found beneficial. Student 2 also mentioned that she is alright with telling her classmates that she has dyslexia.

Student 3
Student 3 indicated that in general she enjoys school, though at times she does not feel like going to school because of the early hours. She also reported that she does not receive any form of extra support. The structure of the school is also something Student 3 does not like.

Theme 1: Teachers' Attitudes

Two categories were found to be related to one another and they were grouped together under this theme. Students' perspectives on their teachers attitudes towards themselves and their needs were identified from data from the transcripts.

1. Positive perspectives of their teachers

Students had a more positive perspective of lessons when teachers were understanding and kind. Student 1 expressed how his teacher would willingly re-explain a particular question for him if he does not understand and asks the teacher. Student 1 also mentioned that his teacher is sometimes understanding and treats the majority of the students well, though he did not elaborate much on this.

As for Student 3, she enjoys Art lessons as the teacher is nice and allows them some flexibility during lessons. Student 2 also finds her Science teacher understanding when

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she has a problem. She is able to approach her Science teacher even with personal problems - "when I fight with 'Jane' then after that I go to my Science teacher, then my Science teacher go and talk to 'Jane'... then after that now she is okay".

2. Negative perspectives of their teachers

Students had a more negative perspective of lessons when teachers were strict and fierce. For example, Student 3 does not like her English Language teacher because she finds that she is very "strict" and "OCD". According to Student 3, things need to go the teacher's way and sometimes, the teacher punishes students for simple reasons like 'yawning'.

Student 2 also does not like her Mother Tongue teacher because "the teacher is so fierce". Interestingly, although she also finds the Science teacher assistant "fierce", she does admit that the teacher assistant does her job well. Nevertheless, she hopes that her teacher can be "not fierce" and "a little kind". Besides that, Student 2 does not find that her English and Math teacher are understanding or approachable as "he only do his own work", "sometimes she got no time" and "if you talk so much later she will get very angry... after that she will [switch off] the aircon and the light". She also thinks that her Math teacher knows about her learning difficulty but is not doing anything about it.

Theme 2: School System

The way the school functions was also discussed during the interview session. In general, there were no positive perspectives. Two categories (both negative: school hours and school structure) were identified.

1. Negative perspectives of school hours

Both Student 2 and Student 3 expressed that school started too early. Student 3 mentioned that she sometimes finds it hard to wake up so early to go to school and hopes that school can start later. Student 2 expressed the same desire for school to start later. However, for Student 2, she also feels that school hours are too long, and as a result affects her focus towards the end of the school day. She also indicated that if school starts later, students can have more rest and will be more focused in school.

2 Negative perspectives of school structure

Student 3 expressed her dislike towards the fact that her classroom is located on the 7th floor. She mentioned that it is tiring having to climb up and down the stairs a few times a day. Besides that, she felt that it takes time away from lessons which is "hateful and loathful".

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Theme 3: Academic Support

Extra academic support during or after school hours, as well as for examinations and tests may be taken as a measure to see how well-supported students with SEN in a regular mainstream school are. This would then affect how students perceive the inclusion and inclusive education practices in their respective mainstream schools. Under this theme, a total of four categories (positive perspectives of extra academic support; negative perspectives of extra academic support; negative perspectives of homework; negative perspectives of teaching styles) were identified.

1. Positive perspectives of extra academic support

During the interviews, students were asked about the extra support they receive (or do not receive) in schools. Only Student 2 receives extra time and the opportunity to complete her examinations and tests in a separate room, presumably because she holds a diagnosis of dyslexia. She is also the only participant who receives extra help for her school work in the form of a teacher aide. Student 2 expressed that she has found this extra support helpful. However, although Student 2 does not have a study buddy, she thought that having a buddy would help her. She could then "ask them how to do" questions she needs help on.

Although Student 1 and Student 3 do not receive the opportunity to complete their tests or examinations in a separate room, both agree that this might be helpful for them as there would be fewer distractions.

2. Negative perspectives of extra academic support

All three participants had no extra support in the form of a buddy specifically assigned to them. Student 1 and Student 3 felt that there was no need for them to have a buddy. Student 3 noted "Why would I need a buddy in the first place? ... I'm fine by myself." Student 1 mentioned that "everybody [doesn't] have a buddy.." and that having a buddy would not really help him. He indicated that he can just ask for help from other classmates.

As for extra time, Student 1 noted that he does not feel that the extra time would be helpful to him because "when I complete the exam, I just literally lay there for like ten to twenty minutes". Student 1, in fact, finishes his tests or examinations much earlier than the allocated time (without the extra time).

Out of all three participants, only Student 2 receives extra support from a teacher assistant. Although Student 2 acknowledged that the teacher assistant is helpful, she still does not like the support as she feels that the teacher assistant "is not a real teacher" but rather just a "relief teacher".

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3. Negative perspectives of homework

In every school, homework is given. However, how students perceive homework is an entirely different matter. From the data collected, students had negative perspectives on homework. Student 3 noted that teachers "already gave me heaps of... we already get one Math worksheet everyday". In fact, Student 3 gets more than one Math worksheet every day. She is given an additional course book exercise on top of the Math worksheet every day. Student 2 also thought that homework should be given on alternate days, so that students can have a break.

4. Negative perspectives of teaching styles

All three participants indicated some form of ambivalence towards their teachers' teaching styles. Student 2 noted that she gets confused when the teacher tries to teach using a different method, in response to her classmates' questions. She also gets overwhelmed when the teacher gives her too much information. Student 1 also reported that for certain topics, even after his teacher has re-explained it to him, he still needs some help.

As for Student 3, she mentioned that learning Math now is not the same as how she learnt in P1 and P2, which was fun. She reported that her Math teacher hardly uses manipulatives now and most of the time, only goes through the work on the whiteboard or visualizer, accompanied with some handouts and an occasional video here and there.

Theme 4: Support from Peers

Peer support plays an important role in defining how students perceive themselves, and how they navigate through their school life, both academically and socially. Different areas of support were discussed and shared by the students during the interviews. Two categories were concluded from the data from the interview transcripts.

1. Positive perspectives from their peers

In general, all three participants reported that they got along well with their classmates and peers. They also expressed that they "ask my friend" and that they have friends to help them in their work. Student 2 also reported that her peers do ask why she receives extra support, and that when she explains her learning difficulty to them, they have been understanding and have accepted it positively.

2 Negative perspectives from their peers

Only one participant, Student 2, specifically mentioned that some of her classmates and peers know about her learning difficulty - dyslexia. Although in general, she is alright with

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the idea that they know, she talked about some possible negative perspectives - that her peers think of her as 'not clever' and not being able 'to read or spell'.

DISCUSSION

The first theme that emerged was the teachers' attitudes towards the students.
From the research findings, it was seen that different teachers had different attitudes towards the students. How the teachers "interacted" with the students clearly had an impact on how the students perceived the teachers. These findings are certainly in line with previous literature where teachers' attitudes towards the students play a part in influencing the perspectives of students with SEN (Chmiliar, 2009; Loreman et al., 2008; Gibb et al., 2007). Moreover, Spencer and Boon (2006) also found that the two most frequently used adjectives to describe teachers in classrooms where positive learning experiences take place were 'fun' and 'nice'. This is in line with the findings of the current research project where all three participants used the words 'understanding' and 'kind' to describe teachers of particular subjects they had positive learning experiences with, whereas they used the words 'fierce' and 'strict' for teachers of subjects they had negative learning experiences with. This therefore again reiterates the point that the teachers' attitudes towards the students, as well as how the students view their teachers, may affect their perspectives on the lessons, their classroom learning experiences and eventually the school's overall practice of inclusion and inclusive education.

The importance of teacher attitudes and characteristics, when practicing inclusion and inclusive education practices in schools, cannot be over emphasized (Adu, Galloway and Olaoye, 2014). The findings of previous literature and that of the current research project indicate that teachers' actions and words contributed to students' attitudes towards them. This might then affect their student-teacher interpersonal relationships, which in turn determines their perspectives on school and its inclusion and inclusive education practices (Cohen, McCabe, Michelli and Pickeral, 2009). In fact, students consistently identify teacher characteristics that they view as being important and perceive student-teacher relationships to be critical aspects of their academic and social experiences in school (Groves and Welsh, 2010). For example, a high quality student-teacher relationship, characterized by high levels of closeness and low levels of conflict, have been found to positively contribute to students' social-emotional, behavioural and academic adjustment (Roorda, Koomen, Spilt and Oort, 2011). These students are able to regulate their own academic behaviour and develop positive beliefs and attitudes about themselves (Baker, 2006). On the other hand, student-teacher relationships can also be characterized by greater conflict and lower levels of closeness (Murray and Murray, 2004). These students are then more likely to have poor academic, motivational and behavioural outcomes (McCormick, O'Connor, Cappella and McClowry, 2013). No doubt the nature and extent of such relationships may not always be the same for different groups of students and teachers; however, clearly, many students still perceive the student-teacher relationship as a highly influential factor affecting their perspectives on

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the school's practices.

The second theme that emerged was how the school system affected the perspectives of the students with SEN. One issue raised by the participants of the current research project was the school hours. The participants felt that school hours were too long and that school started too early in the morning.

It seems that the argument for a later school day is not new. According to the American Academy of Sleep Medicine (AASM), middle and high school should start no earlier than 8.30am (Watson et al., 2017). In Singapore, this translates to students aged between 11 and 18. It is noted however, that the participants of the current study are only 10 years old, one year short of the minimum age of 11. Nevertheless, it might be fair to say that even at 10 years old, students are already feeling the dreariness of early school hours, and hence the reason for such a perspective. In fact, studies have suggested that starting school earlier in the morning prevents children from getting a full night's sleep, which can then affect not only their academic performance, but also their health. According to the Journal of Clinical Sleep Medicine, if students are given the opportunity to wake up later in the morning, they will be more focused during the day (Watson et al., 2017). For example, research has found that students in Hong Kong who had their school start times delayed by just 15 minutes, slept a little longer and this actually resulted in better mental health and focus (Chan et al., 2017). However, because many schools in Singapore start before 8 a.m., students are falling short of their sleep targets and in the long term, this has been associated with poor school performance (Bowers and Moyer, 2017)

Despite this, it needs to be taken into consideration firstly, that the students who participated in the studies above did not have SEN. Nevertheless, if typically developing students have such perspectives on school start times and school hours; it is highly likely that this would also apply to students with SEN, considering that they have to work harder than their typically developing peers. Secondly, according to Price (2017), students in America, on average, start school at about 8.10am and spend about 6 to 7 hours (National Center of Education Statistics, 2018) in school. Similarly in Hong Kong, students on average spend 7 hours in school, from 8am in the morning. In Singapore, students on average start school at 7.30am, and similarly spend about 7 hours in school just like their American and Hong Kong counterparts. However, although these students spend the same amount of time in schools, the fact that school starts much earlier in Singapore than in Hong Kong and America is a concern for the majority of the participants in the current research project

Another issue that was raised by Student 3 in the current research project was the physical structure of her school. More specifically, it was the placement of her classroom on the seventh floor of the school building, such that students have to walk up and down seven floors each day, sometimes with heavy school bags. To be fair, there are several

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studies that have investigated how the physical structure of a school affects the learning and participation of students, but these studies mostly discuss the effects on and the perspectives of students with physical disabilities (Egilson and Traustadottir, 2009; Eriksson, Welander and Granlund, 2007; Hemmingsson, Gustavsson and Townsend, 2007). To date however, there are very few studies on how the physical structure of a school affects the perspectives of students with SEN, not limited to those with physical disabilities. It seems plausible to suggest that the extra efforts SEN children need to put in to their academic work, will affect their tiredness levels adversely, impacting on their energy for climbing stairs.

The third theme that emerged was the academic support that students received. This is in line with several studies discussed in the literature review that show that academic support is an important factor in the way students perceive inclusion and inclusive education practices in their school (Kurth et al., 2015; O'Rourke and Houghton, 2008; Shogren et al., 2015). For example, students in O'Rourke and Houghton's study (2008) found that the additional support they received from a teacher assistant was especially beneficial. Moreover, the high levels of support students with SEN received in Kurth et al., (2015) study, in terms of co-teaching arrangements and staff collaboration towards students' progress, also helped to support these students' engagement and self-reliance. In fact, according to Martinez (2006), employing a co-teaching instructional model, where there are two teachers in a classroom, increases the likelihood that students will feel supported academically. With better support, these students would therefore have positive experiences of school, and this would probably translate to positive perspectives on the school's inclusion and inclusive education practices.

Besides this co-teaching arrangement, special groups and pull-out classes are also a form of academic support that students with SEN receive. Based on the literature review, students with SEN who received these forms of academic support had mixed perspectives on them (Heimdahl-Mattson and Roll-Pettersson, 2007; Vaughn and Klingner, 1998). However, these findings cannot be replicated in the current research project as none of the participants attended any form of special groups and pull-out classes, apart from Student 2 who received teacher assistant support at the back of the classroom during lessons.

Besides academic support from school staff, peer support arrangements can also be made by engaging the help of one or more peers without SEN to provide academic support to their classmates with SEN (Carter, Sisco, Melekoglu and Kurkowski, 2007; Carter, Cushing, Clark and Kennedy, 2009). Academically, working alongside peers may increase the amount of individualized support.

However, despite the benefits of peer support arrangements for academic purposes (Carter et al., 2007; Carter et al., 2009), the findings of the current research project indicated that the participants did not receive or have never received any form of official

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peer support. They do not have a specific buddy assigned to each of them to help them in their academic work. Interestingly, the majority of them also felt that although having a buddy might be helpful, there was no real need to have a buddy.

Homework was also an issue raised by the participants of the current research project. Not only did they feel that there was too much homework, they also felt it was too repetitive. Student 3 felt she was given the same type of homework every day. This finding is certainly in line with previous literature where students with SEN felt that homework was a laborious and negative experience (McCray et al., 2001; Spencer and Boon, 2006; Rhodes and Wilson, 2010). In fact, the sentiments shared by the participants of the current research project echo those of Spencer and Boon's (2006) study where they found that students felt they had an overwhelming workload in some of their classes and usually spend hours on homework every night. Some students also reported feeling stressed by the volume of homework collectively assigned by all their subject teachers (Kohn, 2007). This resulted in the students being burdened and overworked, and hence they would appreciate the 'homework to be given on alternate days' suggestion from Student 2 in the current research project.

Apart from the homework load, similar to Student 3's sentiments, students do not enjoy homework assignments which they feel are boring, routine and repetitious (Pasi, 2006). This is further supported by Groves and Welsh (2010), where students felt that repetitive class work is disengaging and unmotivating. When students feel that their homework assignments are not meaningful (Darling-Hammond and Olivia, 2006), they have a more negative perspective, which can in turn lead to an overall negative perspective on the school's practices.

The last theme that emerged was peer support. This is different from the peer support arrangements previously discussed under academic support. The peer support referred to here, involves one or more peers without SEN providing social support to students with SEN (Carter et al., 2009). This includes reciprocal friendships, being understanding and supportive as well as having tolerant perspectives on their peers with SEN.

From the research findings, the participants of the current research project had indicated good reciprocal friendships with their peers and that their peers were mostly understanding and helped them whenever they needed it. These findings are in line with previous literature where students with SEN were socially accepted and had reciprocal friendships (Chmiliar, 2009; Estell et al., 2008). None of the participants of the current research project indicated any negative peer relationships such as those reported in Garrote et al., (2017) and Pijl et al., (2011) studies. As such, the participants of the current research project may therefore have positive social experiences in school and in turn, this may translate to positive perspectives on their school's inclusion and inclusive education practices.

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With regards to peer perceptions on their SEN, the findings of the current research project are somewhat in line with that of the Smith-D'Arezzo and Moore-Thomas' (2010) study. In their study, it was found that typically developing fifth graders largely viewed learning disabilities as a negative construct. More specifically, they saw children with learning disabilities as having a limited mental capacity, amongst others. Some of the comments made by the participants of this study were that they were 'below proficient' and ' not as fast as others'. In this current research project, Student 2 had mentioned that although she was alright with the idea of her peers knowing she has dyslexia, her close friend, who coincidentally also has dyslexia, preferred that they not tell their peers about their learning needs for fear that they may be perceived as 'not clever'.

Another issue raised was the lack of peer support for Student 2 when she was humiliated by her teachers in front of her peers for not being able to read. According to Student 2, she had cried and her peers had laughed at her. There was no mention of any peer that comforted her or gave her any form of support. This highlights an important issue on how peer support begins with children observing how adults around them act towards students with SEN (Diamond and Hong, 2010). Typically developing students who learn and observe empathy and acceptance of students with SEN from an early age will demonstrate positive peer support for their peers with SEN (Novak and Bartelheim, 2012). This prevents any form of negative social experience for students with SEN in mainstream schools and classrooms, and therefore avoids negative perspectives on the school's inclusion and inclusive education practices.

Bullying is also another form of negative social experience previously identified in the literature review. Interestingly, however, the findings of this research project did not match the findings of Rose et al., (2015a) and Rose et al., (2015b), where students with SEN had higher rates of victimisation in inclusive settings. Only student 3 had mentioned that she had been bullied when she was much younger. However, she did not wish to elaborate much on it. It is therefore unclear whether or not this bullying was a result of her SEN.

RECOMMENDATIONS BASED ON THE FINDINGS OF THE CURRENT RESEARCH PROJECT

While the findings of the current research project should be considered preliminary and caution should be exercised when interpreting and generalizing the results, they do make several contributions to the understanding of perspectives of students with SEN on the inclusion and inclusive education practices in local mainstream settings. The findings of the current research project suggest that barriers affecting the perspectives of these students do still exist in local mainstream schools.

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Barrier 1: Teachers' attitudes

The findings of the current research project showed that not all teachers demonstrate positive attitudes towards students with SEN. This suggests that there is a need to work on teachers' attitudes and their understanding of students with SEN. In fact, research has found that for inclusion and inclusive education practices to be successfully implemented, systemic changes in the attitudes and perspectives of school professionals need to be made (Singal, 2008). For example, the beliefs of the principals on inclusion and on the roles and responsibilities of teachers in carrying out inclusive practices affect how teachers view and support their students with SEN (Jordan, Schwartz and McGhie-Richmond, 2009).

Teachers' attitudes and understanding of students with SEN are also affected by lack of training in the specialized skills they need. Most teachers do support the concept of inclusion and inclusive education, but are faced with time constraints and limited resources (Buford and Casey, 2012).

Perhaps, changes need to occur both in individual schools' practices and teacher preparation programs to ensure better understanding and attitudes towards students with SEN, as well as more effective teaching practices. Promoting positive teachers' attitudes for inclusion and inclusive education as well as diversity in teacher preparation programs (Sharma, Forlin and Loreman, 2008) is an important issue to consider in ensuring that the concept of inclusion and inclusive education is fully understood and accepted.

Barrier 2: School System

School hours were interestingly found to be a barrier that affected the perspectives of participants. Based on the findings of the current research project, the majority of the participants actually felt that school started too early and this affected their focus towards the end of the day. Later school start times, have in fact been found to have a positive correlation with academic performance (Edwards, 2012; Hinrichs, 2011), concentration and attention problems (Lufi, Tzichinksy and Hadar, 2011). It is possible that with delayed start times and therefore, increased sleep, students would be better prepared to focus on tasks (Barnes et al., 2016).

A local study (Lo et.al, 2018) similarly found that a delay of school start times resulted in the students being more energetic and focused throughout the school day. However, the study was conducted with students from only one school as other schools were concerned with transport and logistical provisions, traffic conditions and effects on dismissal times. Nevertheless, delaying school start times is something worth considering for these schools as the long-term benefits on the students may outweigh the difficulties.

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Barrier 3: Academic Support

Homework was also found to be a barrier to academic support that affected the perspectives of the participants. They felt that homework could either be reduced, be given on alternative days or made less repetitive.

According to Cooper (Bembenutty, 2011), homework should be given in amounts that are consistent with the student's developmental stage and take into consideration what the students are capable of, as well as their unique needs and circumstances. It should be meaningful and avoid draining students of their motivation to learn. A study by Trautwein, Ludtke, Schnyder and Niggli (2006) found that students were more willing to put in greater effort on their homework when they had a more favourable perception of the quality of the homework assigned to them. For example, homework which has been carefully prepared and selected to reinforce the concepts learnt in class, as well as identify each student's learning progress and difficulties (Trautwein and Ludtke, 2007).

The quality of homework should also take precedence over quantity. A study conducted by the Organisation for Economic Cooperation and Development (OECD) found that Singapore ranked third globally in the amount of time middle school students spent on homework (Teng, 2014). These students spent an average of 9.4 hours of homework each week, and this translates to an average of 1.8 hours of homework each weekday. This exceeds the ten-minute homework guidelines suggested by Cooper, Robinson and Patall (2006). Based on these guidelines, 10 year olds should at the most only be spending an hour on homework each night.

Perhaps, schools could look into the homework policies they currently have in place and better regulate the assignment of homework. Clearly, the quality of homework, and not the amount of time spent on homework, should be the main factor in student learning.

Barrier 4: Support from Peers

Contrary to the literature review, where students with SEN were teased, called names and even bullied (Monchy et al.,2004; Luciano and Savage, 2007), the findings of the current research project indicated otherwise. Participants here had not experienced any form of teasing or bullying from their peers. In fact, it was found that their peers were rather helpful, from the academic support they provided to the positive peer relationships they had.

However, Student 2 had faced instances of lack of peer support when she was younger. As previously described above, when she was humiliated by the teacher, her peers had laughed at her, instead of comforting her. This could be due to several factors, for example, lack of awareness and respect on both the teacher's and the students' part. Clearly, developing a respectful sense of community within a class is vitally important.

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This can only happen when teachers themselves demonstrate respect for students, regardless of differences. Teachers must be unbiased in how they respond to the various skills and abilities displayed by their students (Lumpkin, 2008). As teachers lead by example, their actions and words will show the students how to interact with, accept and respond to their peers with SEN. Therefore, teachers should model positive support for students with SEN. Students are likely to replicate this, promoting a culture of respect in the classroom.

However, while teachers can be a role model for positive support for students with SEN , positive peer support should also be concurrently encouraged. Research has found that teaching students coping strategies may be one way of promoting peer support against negative peer behaviours such as bullying or teasing (Frydenberg, 2004). This could be done through universal school programs that guides students on skills for effective communication, effective problem-solving, decision-making as well as eliminating unhelpful strategies and finding alternative strategies (Frydenberg and Brandon, 2002 as cited in Lodge and Frydenberg, 2005). Introducing such programs may help students to use a more productive style of coping and hence be more inclined to display positive peer support.

LIMITATIONS

As with any research project, there are limitations. The limitations for the current research project are as follows:

1) The current research project was a small-scale study and confined to only one learning centre of one organization. The findings of this research project might not necessarily represent the perspectives of other students in that learning centre, in other learning centres, or even in other literacy intervention organisations in Singapore. Besides that, the sample size of the current research project was very small. Only three students were interviewed out of the three hundred students in the learning centre. The data is therefore not sufficient to generalise to the larger population of students with SEN studying in local mainstream schools and classes.

2) Social desirability bias affects the information that participants disclose, especially when talking about sensitive, highly personal issues. When talking about these issues, participants tend to be unwilling to disclose much information or do not answer honestly (Davis, Thake and Vilhena, 2010). This seemed to be at play with the participants of the current research project. For example, Student 1 had a tendency to answer questions with one or two word answers such as 'Yeah', 'No' or 'Kind of' without wanting to elaborate. He also answered some questions with 'I don't know' and when prompted further, he would answer with 'I really don't know' or 'I don't really remember'. Student 3, on the other hand, had a tendency to veer off-topic, either before or after answering the questions asked. Similar to Student 1,

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she also answered certain questions with one or two word answers such as 'Because' or 'Just because' without elaborating.

These perhaps suggest that participants are limited in what they are prepared to reveal about their perspectives on events and opinions. They recognise that their responses are being recorded, and that they might be evaluated or judged. Therefore, it is in the participants' best interest to try to present themselves more favourably, either by not elaborating on the answer or veering off-topic (Al-Yateem, 2012). However, it is to be noted that one participant was more forthcoming with her answers, and this may relate to a greater self-awareness based on her understanding of her own needs.

3) Acting both as a researcher and an educational therapist providing intervention for some of these students might have reduced the capacity to remain objective. In fact, the process of recruiting participants is often influenced by the researcher's own background, location and connections (DiCicco-Bloom and Crabtree, 2006). Besides that, the majority of the participants were actually the researcher's own students. Although consent forms had been sent out to other students of the other educational therapists at East Coast Learning Centre, most of those who agreed to the current research project were the researcher's own students. This therefore indicated that perhaps parents of the other students, as well as the students themselves, may not have been comfortable with the idea of someone they barely know interviewing their child as part of a research project.

4) It might well be argued that there were differences within the participants, with 2 students who had not been formally diagnosed with dyslexia, in comparison with one who held a diagnosis. It might also be suggested that there were differences in intelligence between the participants. This would be supported by, for example student 1 who was unable to benefit from extra time, because he had not enough material to contribute, was exhausted by the effort and completed the tests early.

RECOMMENDATIONS FOR FUTURE RESEARCH

Based on these limitations, one recommendation for future research would be to consider the appropriateness of using questionnaires and interviews as the only means of eliciting data. Perhaps, these methods of data collection could go hand-in-hand with other methods to provide a more in-depth and accurate information about participants' perspectives. For example, field observations could also be undertaken to supplement questionnaires and interviews as this would allow researchers to gain a better and less biased understanding of participants' academic and social-emotional experiences in school that could in turn, affect their perspectives.

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Moreover, widening the scope to include more students with SEN, and not limiting it to only those attending literacy intervention classes within one organization, might produce more significant findings. Because of the guidance they receive, these students may have developed certain expectations on the inclusion and inclusive education practices that would be beneficial for them, and hence use these as benchmarks to compare the support they receive in their respective schools. However, students who have had no prior intervention for their SEN might have no such expectations and therefore may have differing perspectives. It would be worth investigating whether there would be significant differences in perspectives between students with SEN who receive intervention and those who do not. The current definition of SEN would still be applicable in this case as it would still include students who have learning difficulties or disabilities that make it harder for them to learn than most peers of the same age (Hampshire County Council, 2016). Further research could not just be limited to those who might justify a diagnosis of dyslexia, as there are students who have contributions to make with other diagnoses as well, apart from dyslexia.

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APPENDIX 1: QUESTIONNAIRE FOR STUDENTS

1. Do you enjoy school?

☐ Yes

☐ No

2. List three things you like and three things you dislike about school.

LIKE	DON'T LIKE
1	1
2	2
3	3

3. Do you find the following subjects easy, okay or hard?

Leave blank any subjects you do not take.

SUBJECT	EASY	OKAY	HARD
English Language			
Mathematics			
Mother Tongue			
Science			
Art			
Social Studies			
Any others?:			

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4. Do you find the following areas easy, okay or hard?

AT SCHOOL	EASY	OKAY	HARD
Making friends			
Listening to instructions			
Learning new topics			
Following school rules			
Working in Groups			
Communicating Feelings			
Using Appropriate Behaviour			
Using Appropriate Social Skills			
Any Others			

5. Do you receive any extra help at school in the subjects you find hard?

☐ Yes ☐ No ☐ Used to

If no, do you think this would benefit you?

☐ Yes ☐ No

6. Do you get along with the other students in your class?

☐ Yes ☐ No ☐ Some

Please give reasons for your answers

____

____

____

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7. What do you usually do during recess?

8. Are you given the opportunity to complete your school tests/exams in a separate room from the rest of your class?

☐ Yes ☐ No

9a. If No, do you think you could achieve better results if you were allowed to complete your school tests/exams in a separate room from the rest of your class?

☐ Yes ☐ No

b. Would you like this opportunity?

☐ Yes ☐ No

10. Do the following things happen to you at school?

AT SCHOOL	OFTEN	SOMETIMES	NEVER
Being bullied/teased			
Arguing with classmates/friends			
Not understanding work			
In trouble with the teacher			
Not fitting in			
Any Others:			

11. Is there a place in school that you can go to if you feel upset or angry?

____

____

____

12a. Is your teacher understanding if you have a problem?

☐ Yes ☐ Sometimes ☐ No

b. Are the other students in your class understanding if you have a problem?

☐ Yes ☐ Sometimes ☐ No

13a. Do you have a buddy to help you in school?

☐ Yes ☐ No

b. If yes, how does this help you?

____

____

____

14a. Have you ever felt like not wanting to go to school?

☐ Yes ☐ No

b. If yes, why

____

____

____

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15a. Have you ever wanted to change school?

☐ Yes ☐ No

b. If yes, why?

____

____

____

16a. Are there any changes you would like to see in school that would help to make you happier and more settled?

☐ Yes ☐ No

b. If yes, what are they?

____

____

____

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An exploration of the impact of picture books on students with dyslexia.

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Abstract

Learners with dyslexia struggle with reading and comprehension. Many literacy programmes that are developed to help students overcome dyslexia and its related learning difficulties focus largely on phonics instruction. This study is an attempt to elicit the impact of picture books on the comprehension, verbal expression and engagement in reading of students with dyslexia. Research on this study centred on observing a group of six students aged 10 and 11 years old as they demonstrated their comprehension through retelling skills, their verbal expression of thoughts and ideas and their engagement in reading using picture books. This study adapted the Philosophy for Children (P4C) approach developed by Matthew Lipman and his colleagues at the Institute for the Advancement of Philosophy for Children (IAPC). The P4C approach which places emphasis on questioning skills, engaging in meaningful dialogue and reasoning was incorporated into post-reading discussions facilitated by the literacy therapist. The main findings indicated that the use of picture books helped the students recall details and sequence of events in the books as seen in the way they referred to these aspects in the post-reading discussions. They were also able to infer and make connections based on their learned prior knowledge and personal experiences. This study shows that picture books can be an alternative teaching tool to enhance a dyslexic's learning experience and that visual literacy can offer an instructional opportunity to be incorporated into the classroom.

Keywords: dyslexia, picture books, visual literacy, comprehension, retelling, engagement, philosophy for children

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OVERVIEW OF STUDY

Researchers in the past decade have established picture books to be an effective tool in fostering an aesthetic reading experience for all children (Carr et. al., 2001; Cianciolo, 1997; Nodelman and Reimer, 2003). This study aims to explore the same medium of instruction to engage learners with dyslexia by observing their comprehension through retelling skills, their verbal responses and engagement in reading through picture book reading followed by discussions on the books they have read.

LITERATURE REVIEW

Overview of developmental dyslexia

Dyslexia is a learning disability defined as a specific impairment in reading despite average or above average intelligence and adequate educational exposure (Chang, et al., 2007). According to Snowling (2000) and Ramus (2004), majority of children with dyslexia have a phonological processing deficit, which has an adverse effect on their word recognition system by interfering with the ability to associate spoken sounds and written letters. The International Dyslexia Association's operating definition is as follows: "Dyslexia is a specific learning disability (Lyon, 1995; Lyon, Fletcher, & Barnes, 2003) that has a neurobiological origin (Brown et al., 2001). It is characterised by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities (Shaywitz, 2003; Wolf, Bowers, & Biddle, 2001). These difficulties typically result from a deficit in the phonological component of the language (Morris et al., 1998) that is often linked to other cognitive abilities and the provision of effective classroom instruction. Secondary issues related to dyslexia may include reduced reading experience and problems in reading comprehension, which can impede vocabulary development and background knowledge (Lyon, Shaywitz, & Shaywitz, 2003, p. 2).

Effective reading instruction for dyslexics

Many educational researchers on dyslexia conclude that the most effective way to teach learners with dyslexia is by adopting a systematic, multisensory, sequential phonics-based program with explicit instruction in phonological awareness, sound-symbol correspondence, syllables, morphology, syntax and semantics (Joshi, Dahlgren & Boulware-Gooden, 2002; Manset-Williams & Nelson, 2005; Ritchey & Goeke, 2006; Shaywitz, 2003), such as the Orton-Gillingham (OG) approach, a structured, sequential, multi-sensorial and phonics-based approach channelled to teach the basic concepts of reading, spelling and writing (Ritchey & Goeke, 2006; Rose & Zirkel, 2007). This is hierarchical in nature and focuses on the automaticity of specific sub-skills that follow a 'bottom-up approach'. The simultaneously multisensory nature of the OG, which consists of visual, auditory, kinesthetic and tactile elements, is fundamental to the teaching approach. Teaching using the OG approach involves intensive repetition, which is

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necessary in order for students with dyslexia to retain the components of phonological awareness as well as the various rules that need to be understood in order to achieve reading fluency (Shaywitz, 2003). The OG principles have provided a foundation for the DAS Main DAS Literacy Programme (MLP) that functions as a parallel literacy support to students from the mainstream schools, in a combined teaching approach firmly rooted in an Asian context to make learning more relatable to the students' experience. A huge portion of this remediation approach focuses on working knowledge of phonology, morphology and orthography through a multi-sensory approach to successfully transfer literacy knowledge to the student (Ram, 2012).

Need for a balanced literacy approach

Harper (2012) suggests that a teaching approach that is able to address different problems and difficulties, not restricted to remediating a single sub-disorder, might be the most efficient way to help children overcome dyslexia. Byers and Rose (1993) also believe that the key to helping children with specific learning disorders lies in accurate observation and in the identification of a specific difficulty, followed by giving appropriate assistance. Above and beyond the broad-based literacy approach, there is a need for a syllabus or structured teaching approach that equips students with the ability to think critically, enable them to express their thoughts, form opinions and express them clearly and fluently. Having the ability to communicate their ideas clearly and relate to their experiences creates meaningful learning experiences as it taps on their cognition and individual constructs (Harcombe, 2003 and Resiberg, 2001). More can be done to help students with dyslexia cope with their learning difficulties beyond aspects of reading, writing and spelling.

According to the International Association of Educational Therapists (AET) (2014), the main goal and purpose of educational therapy should 'optimise learning and school adjustment, with the recognition that emotional, behavioural and learning problems are intertwined'. With explicit phonics instruction, students with dyslexia may have attained reading skills that match their chronological age however they may not necessarily create meaning or comprehend what they are reading. They may also have difficulty explaining and conveying their ideas verbally and in writing, due to a lack of understanding. This is exactly where the need for critical thinking and communication skills are highly required. Therefore, in order for a literacy remediation programme, like that of MLP, to be effective and holistic, it should also equip students with cognitive tools to aid their construction of knowledge.

Jonassen (1999) defines these cognitive tools as mental and computational devices that "supports, guides and extends" the thinking processes of learners. Cognitive development promotes students' thinking skills, encourages autonomous learning and optimises intellectual and academic learning (Skuy, 1996 and Harcombe, 2003). As students develop metacognitive strategies, the process of "thinking about thinking", they

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are indirectly acquiring problem-solving skills and the ability to monitor themselves (Leaf, 2005, p.108). Having awareness in monitoring and regulating their thinking is highly useful in reading, comprehending and writing (Bower, 1983). Extensive developmental research has proven that 'effective mastery of cognitive, social and emotional competencies is associated with greater well-being and better school performance whereas failure to achieve competence in these areas' may lead to personal, social and academic difficulties (Eisenberg, 2006; Guerra & Bradshaw, 2008; Masten & Coatsworth, 1998; Weissberg & Greenberg, 1998).

As such, in order for the DAS to achieve its vision to 'help shape the lives of dyslexic children who can achieve their true potential in life when given the right guidance and support' (Dyslexia Association of Singapore, 2014), it needs to acknowledge the importance of equipping its students with learning that draws on aspects of emotions, cognition, communication and behaviour. Therefore, this research seeks to explore the use of children's literature as an avenue to explore these affective domains of learning among children with dyslexia and other co-morbids of learning difficulties. Based on a framework that incorporates picture books, dialogue, conversations and questions, a reading intervention programme was developed as part of this research to promote literacy learning in the dyslexic classroom.

What are picture books?

Picture books are known to be cognitively stimulating because they cover a broad range of topics, consist of delightful words, illustrations, interesting cultural variations and dense information (Nodelman and Reimer, 2003). Several researchers believe that many students respond positively to picture books because they are visual learners (Carr et. al., 2001). Moreover, students in today's modern societies live in a world that has reached unprecedented levels of visual stimulation (Burke & Peterson, 2007). Thus, the interplay between text and illustrations may appeal to students who enjoy the same kind of experience when working on a computer or playing a computer game. Picture books also play a role in creating a safe learning environment for students because they offer a medium in which all students, regardless of background knowledge or level, can succeed.

According to Montgomery (2007) and Muter (2005), the number of children experiencing difficulty acquiring literacy skills is on the rise and this creates a challenging situation for educators, especially those supporting students with dyslexia. Despite the different approaches devised to provide educators with adequate tools and resources, there is a need to explore alternative ways to aid students with dyslexia in acquiring aspects of literacy skills. This research will, therefore, seek to explore picture books as an alternative teaching tool to enhance a dyslexic's learning experience.

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Relationship between text and images

Sipe (1998, p.97) describes the essence of picture books in "the way the text and the illustrations relate to each other; this relationship between the two kinds of text - the verbal and the visual texts – is complicated and subtle". However, it is the complex and subtle relationship embedded in picture books, that motivates readers to analyse the pictures, sentences and statements and encourages them to stay on point by observing, "focusing on relevant factors, striving for consistency and constructing inferences and explanations" (Splitter & Sharp, 1995). The narrative effect of picture books is created through the synthesising effect of text and images along with the layout and the turning of pages.

Picture books can also be also defined as an 'iconotext' which means "an inseparable entity of word and image" which work together to convey a message (Nikolajeva & Scott, 2001, p. 185). Picture books can also be described as multimodal texts as they contain two semiotic modes, image and writing (Kress, 2003) that are used and combined in multiple ways. The images and words put together, convey a message that is essential for constructing meaning. In other words, the illustrations and text can be described as having a synergistic relationship in picture books. Sipe (1998) identified the reciprocity between these two elements where 'we adjust our interpretation of the pictures in terms of the words and our interpretation of the words in terms of the pictures.'

Picture books in reference to this study do not refer to those illustrations found in school text books and readers, but to those found in commercially produced books. Apart from bringing out what is being said in the written text, the picture and illustrations in these books convey additional meanings that could not have been derived from the verbal narrative alone (Cianciolo, 1997).

Benefits of using picture books

Illustrations and images are closely associated with the initial stages of acquiring reading skills and one of their functions is to help children understand that print carries meaning before they can actually read (Harms, 1998; Landers, 1987; Manning, 2004). Thus, the basic function of illustrations in a picture book is to illuminate the text (Heins, 1987) because without illustrations, emergent readers may have a more challenging time in learning the processes of decoding a text, developing recall of details, vocabulary acquisition and comprehension skills. The text and images in picture books are inherently interlinked so that it would be difficult to imagine one without the other. Emergent readers who are exposed to one aspect without the other may be missing an essential step in learning how to read.

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Some research in the past, has rejected the relevance and importance of images and illustrations in the reading process (Samuels, 1970 and Peeck, 1974). However, current research in recent years affirms that pictures and illustrations support the facilitation of reading and comprehension when the pictures overlap the process of learning how to read (through common characteristics in relation to the written print) (Harms, 1998; Hibbing & Ranckin-Erickson, 2003; Manning, 2004; Walsh, 2003). These researchers have discovered that illustrations have impacts on comprehension, recall of stories, critical thinking skills and mental imagery. Additionally, characters portrayed in picture books help students make connections with themselves, their experience and their daily lives. Furthermore, by asking open-ended questions during class discussions, valuing responses from students and involving them in various activities as an extension to the stories, teachers are able to nurture emotional regulation in a non-authoritarian way (Hart & Damon, 1988). Cianciolo (1997) defines the pictures' ability to represent additional means of communication and expression as "visual expression".

What is visual literacy?

Visual literacy is defined as a set of acquired skills that when developed, enables the viewer to comprehend, interpret, create as well as form visible images and messages in order for them to communicate their ideas effectively to others (Arizpe & Styles, 2003; Considine, 1986; Debes, 1969; Debes, 1968). Arizpe and Styles (2003) suggest that visual literacy encompasses thinking about what images and objects mean, how these images and objects are put together, how readers respond to and interpret them, how they are used as modes of thinking and how societies gave rise to them. Aanstoos (2003) described visual literacy as having the ability to identify and comprehend ideas portrayed through visible actions, images and the ability to convey ideas through imagery.

As described in the literature above, reading picture books employ the active engagement of both text and images. This process of actively and meaningfully engaging in meanings and messages portrayed through print and pictures is only possible if the reader is equipped with visual literacy. Decoding, enunciation and reading fluency can be remediated through a multi-pronged phonological instruction as discussed earlier in this literature. However, developing visual literacy and visual communication skills to connect effective reading with visuals might be lacking in educational programmes like that of DAS MAP literacy remediation classes. Baggette (1998) argues that visual competence (in reference to basic non-verbal and visual communication skills) is largely untaught and gained only through experience and personal development because verbal communication is the primary focus of educational settings

It is not enough for students to simply comprehend and understand books on a literal level alone. They should be able to 'read' beyond the text and be encouraged to think

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deeply and creatively and know how to interpret information presented to them in visual means so that they would be able to understand the learning processes and situations they find themselves in (Arizpe and Styles, 2003). Arnheim (1993) believes that visual learning strategies enhance children's cognitive understanding of abstract ideas and concepts where visual examples can be used to enrich their perceptions.

Picture books as a tool for a balanced literacy approach

As discussed earlier, a holistic literacy intervention programme should promote aspects of cognitive development such as thinking skills and the importance of the construction of meaning through text and visuals. With this objective in place, this research will study the responses of dyslexic students to picture books to discover the impacts and potential aspects of learning that they promote. As evident in some studies, Walsh (2003) explains that, "children's responses reveal that the impact of images can have a holistic effect... multi-varied responses demonstrate the activation of a range of cognitive and affective processes so that the act of reading a pictorial text is paralleled with... reading words".

A study conducted by Arizpe and Styles (2003) on the ability of young children to see and understand the pictures they were looking at as a means of multi-modal reading discovered that students who are given a significant amount of time to analyse and discuss picture books produce "outstanding" results. They also found that through "reading" pictures the students made improvements in cognitive abilities; development of 'visible thinking' at higher cognitive levels during discussions was evident and connections made between text and pictures gave rise to the development of higher order reading skills.

Walsh (2003) found in his study on the effects of young children's oral responses and re-examination of illustrations of visual texts, that pictures significantly influenced their responses. All of them made reference to the pictures accompanying the text in story books in order to get a better understanding of the questions asked. The study also showed that both the younger and older students were dependent on the illustrations to include additional information that was not portrayed in the actual text, as part of their responses and individual retelling. Walsh (2003) also indicated that the process as reading pictures is not just a different process from reading words but can be one that is equally complex. Therefore, using illustrations as a reading tool is beneficial as it promotes the development of the ability to identify and observe details, the ability to make critical interpretations and predictions and the development of the ability to formulate affective and evaluative comments about what they have read.

Another study by Haring and Fry (1979) on the effects of inclusion and omission of pictures on children's comprehension of the written text showed that the recall of story ideas was supported by the inclusion of pictures with the text. The study also discovered that pictures need not be elaborate in order for students to recall details of the stories

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they had read. The findings of this study highlighted the need for educators to be aware and precise of the inclusion and quality of illustrations in their teaching materials.
Since the literature on the use of picture books have demonstrated its highly positive impact on typically developing children, this study will evaluate the use of picture books on children with dyslexia.

Pairing Philosophy for Children & Picture Books

In exploring the value and impact that picture books will have on students with dyslexia, this research will be incorporating and adapting an approach developed by Professor Matthew Lipman and his colleagues at the Institute for the Advancement of Philosophy for Children (IAPC). The Philosophy for Children (P4C) approach places emphasis on questioning skills, engaging in meaningful dialogue and reasoning as part of learning. Murris (2010) explains that the objective of P4C is to improve students' ability to think critically, creatively and collaboratively through guided discussions. The main principle behind P4C is to encourage students to extend and improve their thinking. P4C centralises oracy skills, narrative voice where children are encouraged to exercise freedom of speech and express their thoughts in an environment where they feel safe and secure. These features provide opportunities for children to actively listen to their peers, share experiences and discover new knowledge (Haynes, 2007).

METHODOLOGY

With picture books as the main medium of instruction, the reading intervention programme developed as part of this research will tap on the P4C approach in the post-reading discussions conducted during each session. The reading of picture books will be followed by a discussion, where students are encouraged to express their comments and views on any aspect of the images or text they have read, raise questions, concerns and observations. In other words, the students are urged to practice freedom of expression and engage in dialogue by responding to their peers.

Research Design

The research design focused on six participants using a qualitative method and some quantitative measurements in the form of scaled questionnaires (Appendix A – B) for parents and educational therapists of the student participants. It is important to note that concerns regarding internal validity may persist, therefore the quantitative measures were included to contribute to the validity of this explorative study rather than exclusively from the researcher's perspective. Amongst other processes involved in this study, methods drawn from collaborative participatory research were used whereby this study involved only the researcher and the six participants. Thus, this study is viewed as a 'narrow participatory research' and not a 'wide participatory research' (Cornwall and Jewkes, 1995, p. 1668). Furthermore, the participants in this research were only involved

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in the data collection process and had no involvement in addressing issues of setting, agenda, ownership of results, power and control. Hence, their expressions, thoughts, and interactions were analysed and formed the foundation of this research but they were not involved in the data analysis of this study as this was done by the researcher cum remediation therapist.

Research Sample

The sample used for this study was a convenience sample, as the participants were selected based on their availability and willingness to respond as a participant. The sample size of this study consisted of 6 students diagnosed with dyslexia, aged 10 and 11 years old. The sample comprised of 3 boys and 3 girls. The sample used for this study was students aged 10 to 11 year olds, and were in Primary 4 and 5 at the time of the study. They were selected based on their word reading accuracy scores of the bi-annual curriculum based assessment (CBA) scores at the DAS. The 6 students are banded as B4 in the previous year which therefore demonstrated that they are at the same level of reading proficiency. Based on the DAS curriculum matrix, students who are reading at B4 have been exposed to basic syllabication rules to decode multi-syllabic words. The study targeted only students in Band B because a student sample with lower than average reading proficiency, would not be able to engage meaningfully in the reading components of the picture book sessions.

Table A: Profile of students and word reading accuracy scores

Student	Age	Gender	Word Reading Accuracy (out of 20 marks)	Word Accuracy Banding	No. of years in DAS
A	11	Female	12	B4	4
B	11	Female	14	B4	3
C	10	Female	12	B4	4
D	11	Male	16	B5	5
E	11	Male	14	B4	3
F	10	Male	14	B4	4
			Mean 13.66 (st.dev.1.5)		

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Table A shows the word reading accuracy scores of the 6 students during their most recent bi-annual CBA. A student who progresses from Band B4 to B5, needs to achieve at least 16 marks for each level of word reading accuracy test. As seen in the table, only Student D was able to progress to B5 as he achieved 16 marks, which is the progress criteria set by the CBA.

All the students selected were attending literacy remediation sessions at the DAS when the study was piloted and were recommended by educational therapists who felt that these students would benefit from the reading intervention programme. During the study that spanned over 10 weeks, the participants continued attending their regular two-hour weekly literacy remediation. Full ethics permission was granted by the researcher's university's ethics review board followed by informed consent from parents and students participating in the research study. Research participants also have the right to withdraw from the study, guaranteed anonymity and access to research findings.

Questionnaire for parents and educational therapists

On a scale of 0 to 10 (0 = extremely difficult and 10 = extremely easy) parents and educational therapists of each child had to rate their abilities on a range of aspects (Appendix A and B). The rationale of the questionnaires was to understand the students better in six different aspects; their interest in reading, ability to select their own reading material, ability to engage in independent work, their social and communication skills, ability to express themselves in whole sentences and their ability to focus and concentrate when working on tasks. The information gathered from the questionnaires provided the researcher and the educational therapist insight into their learning profile and capacity in coping with the skills attributed to learning at home and in the classroom. The scores across all six questions have been tabulated and their mean values presented in Tables B and C. The responses and mean values from both parents and therapists demonstrated that the strengths of the six students are largely in their ability to interact and communicate with other and their ability to express their thoughts and ideas clearly in complete sentences. These two attributes would allow them to engage more meaningfully in the post-reading discussions when they are encouraged to ask questions and express their thoughts and opinions about the story they have read.

Selection criteria for picture books

With the use of picture books as a central phenomenon of this research, there was a need for a rigorous process in selecting books that would align closely to the research. The selection of picture books was guided a set of 4 criteria adapted from Nicholas' (2007) study on studying the impact of picture book illustrations on the comprehension and vocabulary development. The checklist for the selection of picture books is included in Appendix C.

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Table B. Mean values of questionnaire responses by parents

QUESTIONS	MEAN VALUES OF RESPONSES FROM PARENTS
1. How easy is it for you to get your child to read?	6.33
2. How easy is it for you to get your child to select his/her own reading material?	6.16
3. How easy is it for your child to complete his/her school assignments independently?	5.16
4. How easy is it for your child to participate in social settings and interact/communicate with others?	7.5
5. How easy is it for your child to express himself/herself in whole sentences?	7.5
6. How easy is it for your child to pay attention and concentrate on various tasks and activities?	6.16

Table C. Mean values of questionnaire responses by educational therapists

QUESTIONS	MEAN VALUES OF RESPONSES FROM EDUCATIONAL THERAPISTS
1. How easy is it for you to get your student to read?	6.83
2. How easy is it for you to get your student to select his/her own reading material?	7
3. How easy is it for your student to complete his/her school assignments independently?	6.66
4. How easy is it for your student interact/communicate with others?	7.33
5. How easy is it for your student to express himself/herself in whole sentences?	7.33
6. How easy is it for your student to pay attention and concentrate on various tasks and activities?	6

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RESULTS

Based on the questionnaires to parents and teachers, the students participating in the study showed their strongest skills in interacting and communicating verbally. In the results below, their engagement with the picture books and the ongoing discussion is evaluated in a number of emerging themes. In order to maintain the confidentiality of the research participants, their names have been coded according to letters. Therefore, in in the description of findings, analysis and discussion, they will be identified as Student A, B, C, D, E and F.

Theme of positive engagement and improved self-esteem

The theme of improved self-esteem and positive attitude towards engagement was evident for all six participants. These attributes were noticed over the course of the ten weeks of intervention. Over the weeks, the students gradually became more confident and expressive in their reading, despite having difficulty enunciating some words, and had more questions and comments to contribute during the post-reading discussions. Positive engagement was also observed in the way they shifted their bodies to better see the book, furrowed or raised their eyebrows at different junctures of the stories. At various stages and as the plots developed, the students laughed and gasped while some blurted out verbal responses. Also, as the reading progressed towards the end of the books, the students become noticeably quiet and still.

During Session 1 of the intervention, the students' interaction was limited to the post-reading discussion and they maintained eye contact mostly with the therapist, not with the other students in the reading circle. These are presumably due to them being unfamiliar with each other and were getting used to the nature and structure of the reading session. However, as the weeks went by, their body language changed from slouching in the first two sessions to sitting up straight and maintaining good eye contact when addressing another participant's question or comment. These traits of positive engagement were noted in my diary entry after Session 4: "I have realised that the students are much more confident in speaking up and speaking to one another during discussions. They are excited to answer and respond to questions and comments posed by their peers as seen by how quickly they raise and wave their signal cards."

The level of positivity and engagement portrayed by the students could possibly be the result of feeling empowered to be able to decide and choose which questions they would like to ask or discuss after reading the picture books. Due to the nature of the intervention which did not involve any form of marking or assessment of their writing or spelling skills, they might have felt less pressure to be participating in the reading and discussions. The therapist's presence to guide and prompt each of them when they encountered difficulty to pronounce words or correct them when a word was omitted or read wrongly also helped to create a non-threatening and non-evasive environment right

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from the beginning of the intervention. Furthermore, in Session 1 and 2, some questions and statements were provided for them (in a box) at the centre of the reading circle as an option or alternative if they could not think of any to contribute to the floor. As they were still new to the structure of the intervention and might have felt uncertain or hesitant about making an accurate statement or asking the 'right' question, most of them preferred to pick something from the box instead of generating their own. This was another contributory factor that eased them into the structure of the reading sessions.

From Session 3 onwards, the therapist did not provide any box with questions and statements as they were encouraged to generate at least one of their own based on their understanding of the book. After the five minutes given was up, Students A, B and E asked for a few more minutes as they had more questions to write on their papers. It was evident from Session 3 onwards that all the participants were eager and enthusiastic about sharing their thoughts during the picture book discussions. There was no emphasis on them to ask the 'right' questions or be accurate in their sentence structures and they were allowed to comfortably express their own thoughts, feelings and opinions about the books and relate them to their own experiences. These consequently, created opportunities for the students to engage in creativity, critical thinking and to listen to their peers' ideas and perceptions.

Another factor that accounted for the students' positive response to the reading intervention was the regular attendance for most of them. As seen in Table D A, four out of the six participants achieved at least 80% attendance. Participation for the research was on a voluntary basis and on top of that it was non-payable, therefore the participants were not obliged to attend if they had compulsory school curricular commitments that coincide with the fixed timing for the intervention. In spite of this, Student C and Student D were late for two out of ten sessions as they had ended school slightly later on those days but according to their parents, both of them insisted that they did not want to miss the sessions. Even though they each missed out on the first few pages of the picture books by the time they arrived, C and D were able to keep up with the stories with a brief summary of details that they missed.

During the post-intervention questionnaires, Student A and Student F's therapists noticed that their self-esteem has improved. A's therapist stated: "In class, she used to get really anxious when she was asked to read a paragraph from a comprehension passage. Sometimes she asks if she could read the shorter and less lengthy ones instead… I can see that she is willing to try. She sounds more confident now as her voice is louder and clearer when she reads…" F's therapist shared similar sentiments about the progress she has made in the aspect of reading as well as comprehension activities: "F used to show task avoidance during the 'phrases to read component' of the lesson… she would sigh and ask if they could skip it and move on to spelling. I notice that she no longer makes any comments about having to read out the phrases individually. Previously, I had to make her repeat the wrongly pronounced word after I have corrected her. Now, she

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Table D. Attendance of picture book reading sessions

Student	A	B	C	D	E	F
Week 1	√	√	√	√		√
Week 2	√	√		√	√	√
Week 3	√	√	√ (Late)		√	√
Week 4	√	√	√	√ (Late)	√	√
Week 5	√	√	√		√	√
Week 6		√	√	√	√	√
Week 7	√	√	√ (Late)		√	√
Week 8		√	√	√ (Late)	√	√
Week 9	√	√	√			√
Week 10	√	√		√	√	

repeats after me without being told... She would also raise her hand to volunteer answers for verbal comprehension activities when I am checking their understanding using the 5W1H (who, what, where, when, why, how) strategy..."

The theme of positive engagement emerged from how the students' responded favourably to unstructured nature of the picture book discussions. They seemingly took pride in the questions and statements that they each had to contribute to the reading circle and were clearly happy when other participants were keen to respond to their ideas and views. These were noticeable during the five to ten minutes they were given post-reading to think of questions and statements. Even though this process required some aspects of critical thinking and brainstorming on their part, none of them showed any form of reluctance or avoidance to the task during all sessions. The unstructured approach created an opportunity for them to express themselves in a different way whereby they did not have to abide or subscribe to a set of requirements (in a typical writing assignment) or to respond to a set of questions during a comprehension activity. In fact, the picture books sessions allowed them to do the exact opposite of what they do in a conventional mainstream classroom. The reading circle gave them a platform to ask questions, seek clarification and give their opinions about subject matters that they could relate to. During the post-intervention interviews with the students, they spoke

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about how they enjoyed the expressive aspects of the sessions: "I like that we did more speaking than writing." "I think it was very fun because it helps me think and listening to my friends was also interesting…" "I had a lot of fun because there was very little writing." These responses from the students show that the expressive aspect of the intervention was valuable to them as it did not emphasise the challenges and difficulties they have in the aspect of writing.

The use of signal cards during the discussion also had a positive impact on the students' engagement in the reading circle as it incorporated and inculcated habits of active listening and practising mutual respect. The signal cards provided them with a structure to give their peers a chance to speak before they could raise a question or give a comment. This is supported by two of my diary entries: "The students are still getting used to using the signal cards. Today (Session 3), B raised his hand while E was speaking. I had to remind him to wait for E to complete his sentence and that he had to use the cards instead of raising his hand." and another entry that was recorded after Session 5, "The students are taking turns and using the signal cards. Their enthusiasm and excitability is seen in them waving their cards wildly to get a turn to speak." This process of turn-taking, through the use of signal cards, not only eased the flow of discussion among the six students but regulated their behaviour as well because without a structure for them to take turns, it would be difficult to listen to what each of them had to share.

Theme of developing language skills

Improving the students' language and literacy skills is the main aim of the intervention programme provided at the DAS and this study sets out to explore if picture books can enhance and complement the existing curriculum used by therapists. For the purpose of this study and in relation to learners with dyslexia, language skills refer specifically to vocabulary and comprehension. Therefore, the theme of development of language skills can be extended into two aspects - the expansion of vocabulary knowledge and how pictures enhance the readers' comprehension of the story.

Expanding vocabulary knowledge

During Session 2 ('The Lost Lake'), Student E raised a question for discussion based on a quote from the book: "A wise man never leaves home without a compass." He asked the group what they had understood by this quote and captured below were the responses to his question.

> Because if you don't bring a compass, you'll get yourself lost then you don't know where is the city… (Student D)
>
> Because if it's a very long place… or it might be the North so the compass will show North, so you go North. (Student E)

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When you're lost, the compass helps you guide your way. (Student C)

The discussion above portrayed that the three students were describing the functions of a compass in three different ways. Student T explains the function of compass by describing the consequence of not having a compass as seen in 'you'll get yourself lost then you don't know where is the city" whereas Student J explains the context of using the compass in an unfamiliar and huge place so that the compass will 'show' the user which direction leads him to the 'North'. Lastly, Student N accurately describes the function of a compass as an instrument that will help you 'guide your way'. The above example suggests how a single quote from the picture book could develop into a discussion and exploration of meaning among the students whereby each of them had the opportunity to contribute their understanding of a subject matter and build upon each other's knowledge.

During Session 3 ('Fox'), the participants were discussing a comment made by Student E about how Magpie had left Dog, the friend who was by her side when she needed help, to pursue her dreams of flying with a new-found friend, Fox. The use of the word 'betray' by Student E triggered a discussion of its definition and some students were able to relate their own personal experience after gaining an understanding of what it means.

Student E: Sometimes friends that we trust betray us and we feel disappointed. I think the dog, when he woke up, he must have felt this way. He was disappointed to find Magpie missing."

Student A: It's true because some friends feel like you're trusted but instead you betray them so now nobody will trust you anymore. Like "The Boy Who Cried Wolf"...

Student B: That's like some of my friends... betrayed me.

Student E: But how did your friend betray you? Like how?

Student B: ...But I'm not really disappointed because I have many friends.

Student F: What's betray?
Therapist: Betray means you kind of like, leave them.

Student F: Yes, my friends always leave me behind. In the [school] canteen.

The discussion among four participants and the therapist as described above clearly captured the exploration of the definition of 'betrayal' from a few aspects. Firstly, Student E described the feeling of disappointment that arises from being betrayed by a friend and drew a parallel of this situation to that of the characters in the book. Secondly,

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Student A made a link of the concept of betraying someone to another classic children's picture book, 'The Boy Who Cried Wolf', wherein the main character had betrayed the feelings of his villagers more than once. They eventually lost their trust in him so when he sincerely needed their help no one came to his rescue. Taking the discussion further, Student B claimed that he had been betrayed by his friends. In the midst of the discussion, Student F (who had been listening attentively) seeks clarification for the definition of 'betray' and then cited her personal experience of being betrayed by her school mates when they left her behind in the school canteen. Later in Session 5 ('Cat & Rat) Student F proved that she understood the definition of 'betray' or the idea of betrayal when she raised the question: "Why did Rat betray the cat?" She was also able to reason that rat's intention was "to win first place without anybody with him".

In Session 6 ('The Little Match Girl'), another vocabulary expansion opportunity was evident when Student J was unable to recall a word that he wanted to use to describe a character but he stated its definition so that the therapist was able to help him. The participants were discussing and making inferences to reasons as to why Grandma had sewn a scarf for the girl.

> Student E: But the grandma is not responsible of (for) the money.
>
> Therapist: Grandmas... will give you something that is practical to you.
>
> Student E: How to say like... 'always see things'?
>
> Researcher: Observant?
>
> Student E: Yes, very observant.

The dialogues extracted from three different sessions, as elaborated earlier, portrays that the post picture book reading discussions gave opportunities for the participants to engage in conversations that explore meanings of words through questioning techniques, relating to their own experience or explaining using their prior knowledge about the word or subject matter.

Pictures enhance comprehension

It was evident through the detailed analysis of the students' responses and interaction during the post-reading discussions that the illustrations stood out to them. Given that the pictures enhance the information in the text and expand the narratives in some way, the students seemed to question and analyse what the illustrations are portraying that the written word does not. These were clearly seen in Session 1, 3, 6 and 7 where the students made references to exact scenes, illustrations and pages in the books.

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Session 1: 'Where The Wild Things Are'

Student B: Can we turn back to the page where he was sitting in the tent?

Student A: Which one -the first or second picture?

Student B: It kind of looks like he was pretending or trying to eat him up.

Student D: Where's the fourth monster?

Session 3: 'Fox'

But in one of the pictures, the fox said now you and dog will feel (lonely) how I felt. (Student A)

Session 6: 'The Little Match Girl'

Student D: How come on the book cover, everybody is looking straight but this woman is looking up?

Student F: Actually the only person looking the other direction is the Little Match Girl. I think it is very sad because nobody saw her suffering although everybody is looking at her.

Student E: Because some of the people are suffering but we don't even care and don't even know and don't even bother.

Session 7: 'The Olive Tree'

Student B: But Sameer gave her the olives already... Sameer felt that he should do it and see whether Muna felt sad.

Therapist: Whether she actually felt sorry about it?

Student B: Yes, because he was smiling at first.

As seen from the examples quoted above, the visual elements in picture books work together with words to communicate messages and it is the unique combination of visual as well as verbal elements, through characters' dialogue, that students construct meaning. The process of meaning making and comprehension ties in very closely with the students' ability to refer their peers to specific parts of the book as seen in "front of the book", "turn back to the page", "the first or second picture" and one of the students questioning the illustration of the book cover when he asked "How come on the book

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cover, everybody is looking straight but this woman is looking up?" The use of rich imagery offer valuable extensions for discussion and exploration of subject content among readers and as seen in the students' responses, go beyond the basic information portrayed in print.

Theme of developing critical thinking skills

Critical thinking happens when students present the ability to analyse and evaluate content, evidence, claims and beliefs. By allowing students to be creative, inquiring and questioning topics that interest them, we are fostering critical thinking habits among them. These are skills which are inherently embedded in the nature of the picture book sessions. By encouraging discussions and incorporating open-ended questions, students learn how to interpret information, make judgments based on others' points of view, and draw conclusions based on their understanding of the stories. The development of critical thinking skills among the students in this study can be described in their ability to make inferences, draw connections between characters and evaluating the characters' values through their speech and actions.

Inferential skills

Inference making is a foundational skill and a pre-requisite for higher-order thinking skills (Marzano, 2010). During the process of data evaluation, one of the elements that stood out was the students' ability to make inferences and make associations between the characters in the books. Their ability to infer emerged from being able to draw conclusions and make predictions based on information that is implied or not directly and clearly stated. They were able to give probable causes and reasons to explain why the characters were portrayed in a certain manner or why their reactions were as such.

In Session 1, in response to the question "Did Max give up being king because he was lonely?" Student A's response was "He gave up being king because he wanted to be loved not lonely". Subsequently, Student B reasoned that "he (Max) misses his mother" therefore he denounced his role and wanted to go home instead. The picture book used in Session 2 centralised on a father-son relationship so one of the students questioned the absence of a mother figure in the story and the students inferred a few reasons for this - that he could have been adopted, his parents were separated or divorced, his mother was too occupied with work to spend time with them or that she had passed on. In Session 3, the picture book began with the setting of a forest on fire and the animals were running for their lives. Student B formulated the question "Why was the forest of fire?" and the predictions in his peers' responses showed their application of their prior knowledge as seen in "people want to use the place for landscape to build stuff", "war", "burn to get crops" and "to make the soil fertile". These responses show that the students have sound awareness on the subject matter of deforestation and Man's reasons for burning forests which made them draw the link to the story. While discussing

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reasons why The Little Match Girl (Session 6) died on the streets while most people are enjoying their Christmas feasts, Student C shared that "The highest rate of suicide is during Christmas.." as told by his church pastor. He added that "They don't have a family to celebrate so they might as well be a dead soul". In response to this statement, Student E drew a parallel to The Little Match Girl who had a family but they were poor, she had no presents for Christmas and so it drove her to end her life.

The process of making inferences and teaching the skill of inference itself can be difficult as it involves the process of active reading and making meaning as readers go along. This is especially challenging for students with dyslexia as some of them still struggle enunciation. However, a shared reading session where of reading is facilitated and guided by the therapist, indirectly allow students to channel their thoughts and ideas into an inferring and meaning-making mode as they bounce questions and ideas during the post-discussions. As seen in the examples above, in order to infer meaning, the students must combine the information that the author has written and illustrated with their own reading experiences and life experiences.

Making connections between characters in picture books

Student B was able to point out that in the 'Where The Wild Things Are' (Session 1) the line, "I am going to eat you up" was repeated in the book but said by two separate characters in two separate settings. This showed that he paid attention to the dialogue or speech used in the picture book and appreciates the juxtaposition used by the author when the same dialogue was used by different characters.

The story was funny. It was funny when Max said – "I want to eat you up." (to his mother). Then the wild things said the same thing to him. Max being his mother and the monster being him. The similarity between what the characters said to each other when they were punished was funny. (Student B)

Going further into the discussion, the students discussed how the main character's (Max) behaviour was influenced by the animal costume that he had put on. They inferred that Max was playing up the role of a wolf because he was wearing a wolf suit and wanted to 'eat up' his mother and the monsters.

Student F: Did the wolf suit that Max wore influence his behaviour?

Student B: This question is kind of realistic.

Student A: Yes, because wolves are carnivorous. So he wanted to behave like them.

Student D: I wanted to say exactly the same thing as M!

Student M: But how can the wolf influence the monsters? Shouldn't it be the other way around?

The above discussion captures how at the participant's were able to make a link between two separate factors- behaviour and child's play but they did not specifically rationalise if he was behaving as such because he was having fun playing up the role of the animal or he was purely up to childish mischief.

The students were also able to recognise and discuss the nature and dynamics of family relationships in two of the picture books used in the study – 'The Lost Lake' (Session 2) and 'The Little Match Girl' (Session 6). In 'The Lost Lake', the father-son relationship was described in the line "There isn't a sign of people anywhere. It really seemed as of dad and I were all alone in the world. I liked it just fine." When asked why the author felt this way, Student A responded that "it feels wonderful and peaceful" for the father and son to be spending time alone on their own. Subsequently, Student C added that it gave "the father and him… some time to bond". Later in the discussion, Student B reinforced the nature of the father-son relationship with his statement that "Dad and the author shared a special relationship…" because "Dad gave him coffee even though he was too young…"

On the other hand, the relationship between the grandmother and her granddaughter was presented in "The Little Match Girl". Student E inferred that "there was a smile on the little match girl's lips when she passed away" because "she's happy she wants to go [to be reunited] with her grandma [who had passed on]". Student D felt that the closeness between both characters was "Maybe because the grandma is the person who truly cares and loves her the most, more than anyone else" and the reason why the little match girl was the favourite grandchild, even though she had siblings, was because she (the Little Match Girl) "was very wise and quiet and very 'peacemaker' like that… everybody likes peacemakers".

Apart from making connections between characters in a picture book, as depicted by the previous examples, an interesting observation was made by two of the students in the study. Student B and E drew a parallel between two female child characters from two different books- 'Sallamah' (Session 4) and 'The Little Match Girl' (Session 6) both of whom were faced with emotionally challenging life situations. Sallamah was despondent to find out that she was adopted and wanted to find out who her real parents were. The Little Match Girl was desperately trying to sell the matches to provide some income for her poor family to survive and make it through winter. Student B identified that both characters were searching for things that would complete their lives – family, identity and money. This is seen in the following exchange of responses between them:

Student B: It [The Little Match Girl] is linked to the other one. The book about the adopted one [girl].

Therapist: What Sallamah Didn't Know? How can you link this story to that?

Student B: The girl sitting outside the door could be like her [Sallamah] sitting at the tree [on the front cover of the book].

Student E: Because the Match Girl is always thinking why is her life so bad and why didn't she earn any money? Just like the 'kampong' [village] girl... [she could not understand] why her name was different.

Therapist: So how would you compare the two girls? What is similar about them?

Student B: They are curious. This story is linked back to Sallamah because they [both girls] want something. They are searching for something. This one [the little match girl] is searching for two things—the grandmother and money. The other one [Sallamah] is searching her identity and parents.

Evaluating characters through speech and actions

Another aspect of being able to think critically stems from the students' ability to question and evaluate the characters' intentions and motives in a story.

In Session 3, Student A questioned why the main character, Fox, was alone and do not move around in a pack. The other students had varied responses to this question. Firstly, they questioned if his "bossy character and attitude" left him without any companion. He wanted a companion but did not know how to befriend others. Secondly, they rationalised that Fox might have been betrayed by his own pack, therefore he was all alone. Following this, other students raised the fact that Fox was alone by choice. He might have been a victim of betrayal therefore he chose to be alone for his own benefit and to make others feel the pain of being betrayed.

> Maybe he wants to be lonely. He feels lonely but he wants to be lonely. So he doesn't have to share his food and die. (Student D)

> ...He was betrayed before, so now he's doing the same thing (to Magpie)... (Student J)

'What Sallamah Didn't Know' (Session 4), raised questions about reasons for giving the child up for adoption, racial identities and racial disparities because the main character Sallamah, born a Chinese, was adopted by a Malay family at birth and how she struggled with her identity when she found out the truth. Four out of the six students though of a similar question for discussion- they each questioned why Sallamah was

given away by her biological family. They inferred from prior knowledge that since the story took place in a village during the pre-modernity period, the most possible reason for the adoption was because the Chinese family had "too many mouths to feed", "too poor to afford another baby" and "there was no (insufficient) food for the baby". Student E also questioned why there was a need for the adopted family to change her original Chinese name (as stated in her birth certificate which was kept a secret from her) to a Malay one.

In Session 5 ('Cat and Rat'), Student B questioned Rat's moral capacity as he had cheated in the race and therefore should not deserve to be part of the twelve months of the lunar calendar. Following that, Student F also formed a moral judgment about Cat who "lost because she cheated" in the race. She also inferred that Rat had "betrayed" Cat "because Rat wanted to win first place without anybody with him". F's use of the term "betray" is significant here as it clearly demonstrated her understanding of the word and her ability to use it accurately in this context after the discussion in Session 3 ('Fox') where she sought clarification for its meaning.

The students' interest to seek inquiry into the characters' motives, actions and reasons prove how the post-reading discussion creates opportunities for them to engage in a discourse that stimulates in-depth thinking about the stories they have read, analyse, reflect and integrate meaningful associations between characters.

Theme of relating to prior knowledge and personal experience

Another theme that emerged during the data evaluation process was the students' ability to connect and relate to prior knowledge and to tap on their own learned experiences. Although this was not obvious in all the ten sessions, there were instances in which the picture books stimulated connections to what they already know and this had a positive impact on their comprehension.

During the discussion of 'The Lost Lake' Student E mentioned that the formation of a lake and canyon can take up to thousands of years and that there is "a famous canyon in America... called the Grand Canyon". Other instances of the students connecting their general knowledge were seen in their sharing of information that the "smallest country on Earth has 66 people and they are all men", their discussion of the possible causes of forest fires (Session 3), that dogs too have "cataract" like human beings do (Session 3), the highest rates of suicide recorded worldwide is usually during Christmas time (Session 6) and that "some magazines are restricted to children" because their content is meant for adults only (Session 2). Although students' prior knowledge may be incomplete with some gaps and misconceptions, their ability to see relationships between what they are reading and what they already know is significant.

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Apart from relating to prior knowledge, the students also drew relevance from the stories to their own real-life experiences and their openness in speaking about their personal and familial issues became apparent too. For example, when they were discussing the subject of 'family' after reading 'The Little Match Girl', Student D said "I don't have a father... He ran away when I was a baby". The rest of the students did not show any visible reaction to her comment. In fact, the discussion continued with Student E redefining 'family'- that everyone comes from a family, with a mother and a father, "but some families do not live together". Afterwards, Student D spoke about her family again, "I don't have a father because he ran away and married a different woman". Once again, none of the students had any visible or verbal response to the insight D gave about her family background and upon analysis, their 'silence' could suggest two things. Firstly, the students were aware of how personal and emotionally-sensitive the subject matter was and secondly, they were not sure how to respond to D, therefore, they chose to remain silent. This situation illustrates an aspect of social and emotional competence among the students in the study, as seen in their ability to exercise sensitivity, by not reacting, when their peer spoke about a topic that could possibly trigger some negative or uncomfortable sentiments.

The implicit characteristics of the students' social and emotional competence was also apparent in the discussion of author Hans Christian Andersen's purpose and underlying message of 'The Little Match Girl'. Their responses to the author's are captured below:

Student E: Because some of the people are suffering but we don't even care and don't even know and don't even bother... [This story is meant] to tell people to help [poor] people if we see any.

Student C: This story shows what she has been through and it's quite sad because she can't live until she's an adult and had to die at a young age. If somebody had bought some matches, she could have gone home and go have some food and warmth. The Match Girl tried her best but it was no use and she died.

Student D: Maybe the writer is trying to write that poor people don't have what they actually want to have. So we have to appreciate whatever we are given. We are not like the poor and we get whatever we want. But the poor don't. They [The author] are [is] trying to say appreciate whatever we have.

Student E: ... Everybody have what they wanted but we didn't even think about people that don't have what they wanted and when we see people begging, sometimes people just walk away.

Student F: Sometimes I feel sad about them [beggars]. But I don't have money.

These responses demonstrate the students' social awareness about the less fortunate that exist within their society and that they ought to receive help but some people are ignorant because they "don't even care and don't even know and don't even bother... to help" and "when we see people begging, sometimes people just walk away". Student C reasoned that the Little Match Girl's life could have been saved if someone made a difference to reach out to her but because no one did, "she can't live until she's an adult and had to die at a young age". On top of that Student D explained how the message of Hans Christian Andersen's book served as a reminder to "appreciate whatever we have". Their ability to analyse the situation, recognise the author's purpose and describe the effect it brings about to readers is evident of their social and emotional capacity.

DISCUSSION

Research Question 1: How was the students' comprehension through the retelling of details influenced by the illustrations of picture books?

The research findings showed that the students' process of meaning-making and comprehension tied in very closely with their ability to formulate questions and responses that relate to the pictures portrayed in the books. The students' references to specific pages and scenes showed that the pictures helped them remember the sequence of events in the story. They were also able to recognise the changes in facial expressions and body language of the characters and were able to explain how these changes drove the characters' motive or actions. The students' responses tell us a great deal about their precision in paying attention to details and what Walsh (2003) described as the ability to make critical interpretations and developing the ability to formulate affective and evaluative comments on what they have read.

In some instances, some students actually questioned if there was a reason why the illustrations were portrayed in a certain way. They were also able to infer and make connections between the characters within the same book and across different books when they recognised similarities or drew parallels between the images. These observations are in line with the importance of visual literacy as prescribed by Arizpe and Styles (2003) where students are encouraged to read beyond the literal meanings portrayed, to reflect deeply and creatively on the visual representations and interpret the information or underlying ideas. Gyselinck and Tardieu (1999) proposed that the effect of pictures on reading comprehension largely depended on the repetitive effect they portrayed. This means that when the information depicted in the picture also appears in the text, it helps to reduce readers' cognitive load.

When the pictures provide information that is difficult to understand through the text, it promotes readers' reading comprehension especially for students with dyslexia who struggle with reading skills. Pan and Pan (2009) confirmed the proposition of Gyselinck and Tardieu (1999) by suggesting that a picture which closely reflected the structure and

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complexity of the text had a more facilitative effect. This, therefore, means that on one hand, the integration of information between the text and the picture can improve the reading performance of readers. On the other hand, the facilitative function of the picture diminishes or disappears when it does not positively match with the linguistic complexities of the reading text. These therefore closely support this study's findings that pictures when matched appropriately with the text help readers understand its content and help them make meaningful connections.

Research Question 2: How do picture books encourage students to express their thoughts and opinions verbally?

The second research question seeks to find out the students' ability to respond to the picture books through verbal response by sharing their thoughts and opinions. One of the significant aspects that surfaced was instances in which the picture books stimulated the students to make connections to their prior knowledge. According to Bower, Lobdell & Swenson (1994), when children are able to link new information to their prior knowledge, their interest and curiosity are activated and the instruction becomes purposeful. This was evident in the quality of their responses as they were observed to infer and make connections based on their learned prior knowledge and personal experiences. Being able to draw from their prior knowledge certainly gave them substance to incorporate into the post-reading discussions and offer new information to their peers.

The structure of the discussions that promote active listening and turn-taking, through the use of signal cards, have also provided a safe space for the students to share not only their experiences but their deepest thoughts and feelings too. This is reinforced by Hansen and Zambo (2005) and Zambo (2006) that when students can relate to a character's feelings they would be more open to talk openly about their own and be receptive to ideas that are placed in the context of the character's life. Furthermore, there were no judgements projected on their feelings that they were experiencing, therefore, the students could bring their own life experiences into the picture book sharing making it more personal and meaningful.

Research Question 3: How did picture books impact, if at all, the interest and level of engagement in reading?

The research findings showed that student interest and engagement was the most impacted area in the study. The level of student engagement gradually increased as the weeks went by and in some weeks, student engagement was heightened when the content of picture books piqued on their interest and curiosity. The observation of their body language, described as relaxed, happy, calm and at ease and the quantity of responses suggest their enjoyment and engagement level of the picture book experience. Splitter and Sharp (1995) postulated that the complex and subtle

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relationship between text and images in picture books keep readers engaged through the analysis of pictures, sentences and statements because these enable them to focus on features and factors that would lead to their construction of inferences, evaluations and explanations. The students' high level of engagement is indirectly supported by findings discussed in research questions 1 and 2, because their ability to comprehend, remember specific details and images and expressing their thoughts and opinions can only stem from how connected they are with the picture books and content. This research has also shown that the read-aloud sessions heightens students' engagement and fosters a positive classroom experience because the students seemingly disconnect the idea of learning conventionally, from an enriching picture book experience that could offer them a form of enjoyment and pleasure.

Other aspects of student learning

Apart from their ability to comprehend stories with the inclusion of pictures and how responsive and engaged the students were, one of the driving factors of this project was the selection and use of appropriate picture books as the main instrument that stimulates learning. Costello and Kolodziei's (2006) guidelines as used in Nicholas (2007) study was useful in the selection of picture books to be used in this study. Criteria such as the students' cultural relevance, rich vocabulary, colourful and attractive illustrations and thematic-appropriateness to the students' level were identified and taken into consideration in the selection process. Also, understanding the student's abilities through their educational therapists and parents were just as important to effective instruction, of read-aloud and discussions, as selecting the appropriate instructional materials

CONCLUSION

Implications for teaching children with dyslexia

This study has shown that there is potential in using picture books as part of providing dyslexia literacy remediation such as the integration of text and images to promote comprehension and make meaningful comprehension, stimulating students to make connections to prior knowledge and regulating their interest and engagement towards a reading task. Contrary to what many educators and parents believe, picture books can be used as teaching tools beyond kindergarten or first and second-grade emergent readers. Apart from teaching them to read using a single-model approach, dyslexia remediation therapists should explore using pictures to teach dyslexic students aspects of visual literacy such as how to see and examine what they are looking at in the layout and illustrations. Going beyond the literal meaning of the illustrations, it is important for students to be able to understand and grasp the many layers of subtle and non-literal meanings that could be associated with the pictures.

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LIMITATIONS OF THE STUDY

This study did not include a control group to be used as a benchmark to compare the effectiveness of using books with and without pictures. The inclusion of a control group would provide a broader and comprehensive understanding to measure the aspects of interest, engagement, thoughts and expressiveness of the students. The participants in the study were also limited to one DAS learning centre located in a district where the students' parents are middle to high-income earners and the majority of them live in private housing. The social and economic measures of the students' background may influence their ability to relate the picture books in terms of vocabulary, knowledge and experiences. According to Aikens & Barbarin (2008), children's initial reading competence is correlated with the home literacy environment, the number of books owned and parent distress. Families from lower social and economic statuses are less likely to have the financial resources or time availability to provide their children with academic support. They may be unable to afford resources such as books, computers, or tutors to create a positive literacy environment (Orr, 1992). Therefore, it would add value to include students from different demographic locations as this will ensure that the data will comprise of students who have different social and economic profiles, lived realities and experiences.

Conclusion

A method for incorporating picture books into the classroom effectively is to have educators trained to teach visual literacy skills. Literacy remediation therapists can be offered specialised training on methods to teach their learners the aspects and elements of understanding and appreciating visual literacy and how it can be applied into their learning. As emphasised by Arizpe and Styles (2003) in their study on the influence of illustrations in picture books, incorporating associated graphics and images only adds to an advantage for both typically developing learners and learners with dyslexia. In today's modern world, children in society are exposed to images through different platforms of mass media and are more graphically oriented than past generations. Thus, combining visual and verbal aspects, through picture books and discussions respectively, in the teaching approach can help students with dyslexia understand their existing world, absorb the meaning of what is around them and learn how to critically reflect on what they read, listen and observe.

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APPENDIX A:

QUESTIONNAIRE FOR PARENT OF RESEARCH PARTICIPANT

Name of Child: ________________________________

On a scale of 0 to 10 (0 = extremely difficult and 10 = extremely easy) please rate your child's abilities based on the following questions. Circle the number that best describes your child.

Please elaborate your choices in more detail by explaining or giving examples in the lines provided. Thank you!

Question 1: How easy is it for you to get your child to read?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 2: How easy is it for you to get your child to select his/her own reading material?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 3: How easy is it for your child to complete his/her school assignments independently?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

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Question 4: How easy is it for your child to participate in social settings and interact/ communicate with others?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 5: How easy is it for your child to express himself/herself in whole sentences?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 6: How easy is it for your child to pay attention and concentrate on various tasks and activities?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

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APPENDIX B:

QUESTIONNAIRE FOR EDUCATIONAL THERAPIST OF RESEARCH PARTICIPANT

Name of Student: ______________________________

On a scale of 1 to 10 (1 = extremely difficult and 10 = extremely easy) please rate your student's abilities based on the following questions. Circle the number that best describes your student.

Please elaborate your choices in more detail by explaining or giving examples in the lines provided. Thank you!

Question 1: How easy is it for you to get your student to read?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 2: How easy is it for you to get your student to select his/her own reading material?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 3: How easy is it for your student to complete his/her class assignments independently?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

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Question 4: How easy is it for your student to participate in class activities and interact/ communicate with others?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 5: How easy is it for your student to express himself/herself in whole sentences?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

Question 6: How easy is it for your student to pay attention and concentrate on various tasks and activities?

0_____1_____2_____3_____4_____5_____6_____7_____8_____9_____10

Explain: ____

____

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APPENDIX C:

CRITERIA CHECKLIST FOR SELECTING PICTURE BOOKS
adapted from Nicholas J. L. (2007)

Book Title: ____________________________________

Evaluator's Name: ______________________________

Child appropriateness:

- Children are the primary intended audience for the book.
- The book displays respect for a child's understandings, abilities and appreciations.

Visual appropriateness:

- The book provides the child with a visual experience.
- Story-line and theme developed through the pictures is apparent.
- Pictorial interpretation of the story and theme is apparent.
- Delineation of plot, theme, characters, mood and setting through the illustrations is apparent.

Text appropriateness:

- The text demonstrates uniqueness in the use of language and style.
- The book offers engaging pictures and writing that invites a child's response.
- The text provides stimulating presentation of facts and ideas.

Overall value:

- The book has been given a local or international award. (e.g. Caldecott Medal, Parents' Choice Award etc.)
- Clarity and accuracy of presentation in text and illustrations
- The book is rich in imagery and language

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Negotiating the Challenges of Social Work Training and Being Diagnosed With Dyslexia: A Narrative Account.

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Abstract

This paper explores the impact of having dyslexia, noting the features of the specific learning difficulty and how this affects aspects of Social Work training and practice. This research uses the life history method to explore some of the professional and personal challenges of managing a dyslexia diagnosis whilst training on a professional accredited university programme to become a Social Worker.

The correlation between dyslexia and mental ill-health is discussed as the participant explains the difficulties she had negotiating the academic demands of the course, alongside the challenges associated with completing a practical placement.

This significance of this work is the original qualitative perspective, and although based on a singular life narrative, it offers reflections for individuals and institutions beyond the singular case study to generalised practice. Moreover, significance explores the balance between accommodating those with dyslexia and maintaining professional standards as a way of 'gatekeeping' the profession.

Keywords: Dyslexia, Depression, Narrative, Social Work Practice, Professional Standards.

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INTRODUCTION AND CONTEXT

The Equality Act (2010) in United Kingdom (UK) defines a person as being disabled, if an individual has a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on their ability to perform normal daily activities. This legislation makes it illegal in England for educational institutions to discriminate - either directly or indirectly - against individuals with disabilities. It places a duty on educational institutions, including schools, colleges and universities, to make 'reasonable adjustments' to educational provision to ensure that people with 'protected characteristics' are given the same opportunities as others to achieve their full educational potential.

Those with disabilities constitute a protected group and the terms dyslexia and Specific Learning Difficulties (SpLDs) are specifically mentioned in the Equality Act. However, the term 'reasonable adjustments' is subjective, inadequately defined within this legislation and left open to interpretation, often resulting in differential provision for individuals who require additional support and resources to enjoy equality of opportunities.

As dyslexia is recognised as a disability within the Equality Act, those who disclose that they have an official diagnosis are protected against discrimination by law in England. Higher Education (HE) providers are therefore required by law to create academic programmes that are inclusive in relation to curriculum design, teaching and assessment. However, specific professional courses in England are regulated by external standards which are specified by a relevant professional body. This includes teaching, nursing and social work. Thus, students who study on courses which lead to professional qualifications are required to meet both academic and professional body standards before they can pass the course. These difficulties can make it more challenging for those with dyslexia to meet both the academic and professional body standards than other students and this often places them at a disadvantage.

The key dilemma is the extent to which educational provision can be adjusted to address the needs of those with dyslexia, through providing additional support to meet the standards, whilst also protecting the credibility of the professional qualification by ensuring that those who do not meet the standards do not gain qualification to practice within the discipline.

DEFINING DYSLEXIA

Dyslexia is derived from the Greek origin meaning 'difficulty with words.' The Rose Report (2009:29) offers a widely accepted definition:

- Dyslexia is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling.

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- Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed.
- Dyslexia occurs across the range of intellectual abilities.
- It is best thought of as a continuum, not a distinct category, and there are no clear cut-off points.
- 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.
- A good indication of the severity and persistence of dyslexic difficulties can be gained by examining how the individual responds or has responded to well-founded intervention.

Dyslexia affects individuals differently and to differing degrees. Equally, not all the characteristics presented here affect all people with dyslexia. Some of the most common difficulties experienced by those with dyslexia include:

Information Processing
This can present learners with problems internalising information and responding to a task in written or verbal form (Irlen, 2010). Specifically, the retention of information, which is not broken down into stages, can be problematic for those with dyslexia, due to memory difficulties, specifically the short-term memory. People with dyslexia may experience difficulties with short term memory and information processing - holding information, retaining the order of events or remembering what has been asked of them (Thompson, 2013). On professional placements or during lectures, students may miss key pieces of information or may delay fulfilling tasks, due to forgetting information and specific requests. In addition, they may struggle during placements to complete essential tasks which relate to the professional standards. These difficulties may result in them being unable to complete the task or to fulfil it in a sufficient or timely way.

Memory
Those with dyslexia can also experience difficulties with memory, Succinctly, 'short term memory is a temporary storage system' (Quin and Macauslan, 1991, p. 104). Individuals with dyslexia are likely to demonstrate poor short-term memory for information, such as facts, times, dates locations, coming events and so forth. Weak working memory (problems retaining various pieces of information whilst undertaking an activity) can be significant when seeking to retain and recall information. For example, students may find it difficult to take notes whilst listening, and may experience problems with understanding complex questions or following multiple instructions (Hall, 2009). During a placement, the mentor or supervisor should be aware that retaining instructions in the short-term memory can be difficult for students with dyslexia. Strategies which may be useful include breaking instructions into manageable steps, avoiding multiple-part questions and allowing a staged answering process, which uses prompts to remind the

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student of the next part of the question. This avoids the stress of having to memorise a full question and allows the individual to focus upon how they will answer it.

Concentration

Dyslexic learners may have weak listening skills, their attention span may be limited, and they may find it difficult to maintain a structured focus (Janover, 2004). This can make working, focussing and completing lengthier tasks difficult. Within a placement or university environment, the mentor needs to be aware of this by planning in brief periods away from the task, before re-focussing upon it.

Hannell (2016) suggests that it is important to be aware of the concentration difficulties that students with dyslexia may experience and to be patient with them. In some individuals, compensatory approaches, including over-learning and sustained concentration, can lead to mental ill health (Alexander- Passe, 2015).

Communication Skills

It is possible that some individuals with dyslexia may misunderstand oral or written information. Difficulties in being unable to ascertain the consequences of their speech and/or actions may mean they can fail to understand body language, when engaging in oral exchanges. Moreover, missing the implications of what a conversation is about or incorrectly interpreting information is common (Reid, 2011). This might present difficulties in university settings when given specific tasks to do within a timescale. Additionally, on placements, ascertaining a service user's wishes when working with a vulnerable client who may not wish to continue a dialogue could be damaging to a positive working relationship. Understanding the needs of a dyslexic learner is vital to ensure that effective verbal and non-verbal exchanges are made and information is transferred correctly.

Sequencing, Organisation and Time Management

Dyslexia can affect the clarity and coherence of presenting a sequence of events in a logical, structured way, which is organised, clear and chronological. Consequently, in written tasks, not only incorrect sequencing of number and letter strings, but also muddled sequences of ideas can occur. Pumfrey and Reason (2013, p. 81) argue that 'sequencing difficulties are associated with traditional notions of dyslexia.' Within a practice placement, responding to sequencing items chronologically, in a specific way or order, or within a time-limit, can be difficult skills to acquire. Therefore, understanding potential deficits in these areas is essential to helping those with dyslexia.

General organisation, time management and chronology can be addressed by creating small, manageable, achievable, realistic and time orientated (SMART) targets, which are written in consultation with the individual.

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Speed of Processing in Thought and Execution of Literacy-based Tasks
One understanding of dyslexia, applying the medical model of disability, is that it is a neurobiological disorder which affects reading, writing and articulation of a range of activities (Lyon, Shaywitz and Shaywitz, 2003). The term 'dyslexia'is derived from the Greek, 'dys' – difficulty, 'lexis' – word and 'lexia' – 'reading' (Roos, 2018). Dyslexic learners often need longer to read information and may have some difficulties in summarising the content of what they have read. Moreover, opportunities for students to have part or whole texts read to them, or to use assistive technology, such as 'dragon' or 'claro read' computerised software, can provide a useful way of helping to make sense of academic texts.

Due to difficulties in perception, processing information and general reading of words, students may find it takes them significantly longer to read information and may need to re-read words and phrases multiple times to elicit meaning. The interlocking difficulties associated with the nature of reading and the application of literacy-based tasks difficulties may become apparent when completing assignments in an academic format, compliant with the institution's requirements. Peer and Reid (2012) underline the importance of providing additional time and showing consideration when marking the work of dyslexic students, due to the time it takes a learner to decode the text, read the question, formulate ideas and compose answers.

Moreover, educational institutions and associated placements need to be aware of the time it takes students to read, and complete tasks associated with readings, making allowances for dyslexic learners to access literature in a way which promotes their success. On placement, practice educators and supervisors may need to consider supporting the student with reading and understanding key terms. This is specifically poignant as they may have to articulate or write an appropriate response if asked to action something by a service user or member of staff when working within the organisation, or inter-professionally.

Sensory Sensitivity and Visual Stress
Stein and Kapoula (2012, p. 95) explain that 'one of the many consequences of dyslexia could be that it makes the person more sensitive to the types of stimuli that can stimulate stress of the visual cortex, triggered by hypersensitivity to contrast or pattern glare, i.e. increasing susceptibility to visual stress.' Meares Irlen Syndrome or visual stress is the difficulty the brain has in reading and processing information (Irlen, 1991). Visual stress, Scotopic Sensitivity Syndrome (SSS) / Meares Irlen Syndrome, can be described as difficulties related to reading due to the appearance of text. Namely, this is where the reader experiences the appearance of rivers of water flowing through the text or words which seem to blur, move or jump. Nijakowska (2010, p.53) states that '[those with dyslexia] ... often complain about vision-related symptoms such as 'jumping letters', 'dancing lines' or 'blurred text.'

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The correlation which exists between visual discrepancies and literacy problems is not difficult to see and problems with reading can be transferred to writing and spelling.

Literacy

Some learners will have delayed development of academic reading and writing skills. Broomfield and Combley (2009, p.11) argue that 'the dyslexic learner's most observable difficulty is in learning to read'. Where achieved, lifelong, residual problems can make spelling, writing and reading stressful experiences due to the imbalance between perceived demand and response capacity (Lawrence, 2009). These include difficulty tracking words, letter rotations and 'bizarre inconsistent spelling errors and untidiness of penmanship' (Snowling, 1996, p. 3).

Complications often exist in extracting the nuances of textual information and spelling unfamiliar words is often reported among those with dyslexia (Martin, 2013). Brunswick (2012, p. 95) writes: *[participants experienced]* 'decoding difficulties, would re-read information once or several times, and need strategies to support their understanding or recall of the text.' Therefore, during university lectures and seminars and on placements, adjustments to allow the student to experience success, despite the significant literacy difficulties, need to be carefully considered.

THE IMPACT OF DYSLEXIA AT UNIVERSITY AND ON PLACEMENT

On professional registration programmes, those with dyslexia may find working on paperwork or electronic portfolios difficult alongside balancing the challenges of the practical aspects of placement. Awkward sentence construction and difficulties with spelling, punctuation and grammar make writing assignments harder work for students with dyslexia compared to their non-dyslexic peers. Some universities recognise the additional workload of social work students with dyslexia and request that markers ignore the syntax, spelling or structuring errors and focus instead on marking positively the content of the paper. This recognises the significant additional workload of those who have dyslexia (Social Work and Dyslexia, 2004; Universities of Reading and Hull).

In social work, being the 'case-holder' or the 'named person' for several 'cases' can be difficult because this requires careful organisation and time-management. Sequencing cases by organising them into alphabetical order can also be challenging for some dyslexics. In addition, memorising and recalling the underpinning theory which relates to the assessment of a service user can also be challenging. Some dyslexic students may find it difficult to recall specific theoretical approaches which should be applied to specific real-life cases. Those with dyslexia could miss indicators of well-being, thus making it difficult to 'intervene with authority' in a service user's life.

From reviewing the literature, gaps exist in relation to the impact dyslexia has upon those on professional registration courses (Caplain, 2018). Equally, the provision for those with

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SpLDs varies across institutions (Abel, 2013). At present, there does not appear to be a uniformly accepted approach and higher education establishments appear to interpret dyslexia and inclusive practice in different ways which creates confusion and inconsistency.

There is a need to recognise that dyslexia and the comorbidity of the condition does not occur within a vacuum and professional registration courses should be adapted to cater for the needs of students with dyslexia. Treating everyone 'equally' is not synonymous with inclusion. As Warnock noted, putting every individual under one roof, teaching and assessing them in exactly the same way, regardless of needs is not inclusive education (Warnock, 2005). Inclusive education necessitates differential pedagogical approaches in order to ensure equality of opportunity for students with specific needs.

MENTORING PRACTICE: DEALING WITH THE COMPLEXITIES OF DYSLEXIA ON PROFESSIONAL REGISTRATION PROGRAMMES

A specific challenge relates to the tension which can exist when implementing the duties of the Equality Act and serving as a 'gate-keeper' of the profession (Bernard, Fairtlough, Fletcher and Ahmet, 2011). Institutions are required to provide reasonable adjustments to ensure equality of opportunity but, at the same time, filter out those who are unsuitable for the professions. The role of the mentor is fundamentally one of supporting the student in balancing the demands of an academic and professional course and ensuring they are meeting the required standards to practice their profession. In England, social work students are assessed against The National Occupational Standards for Social Work (TOPSS).

Speed (2014) suggests that despite the existence of these national standards, at present there is no universal practice among higher education institutions about how to implement inclusion whilst maintaining academic and professional standards. According to Speed (2014), efforts to act in a way to mediate support for students is dependent upon the institution and can be subjective. Therefore, it is possible that a student with dyslexia may have a greater chance of graduating successfully in a vocation if they were at a university which is more inclusive of the needs of those with SpLDs. For example, from an internet search on higher education providers in England, some universities appear to take a much more serious- minded approach to optimum provision for those with Special Educational Needs (SEN).

One University has a *'Best Practice Guide'* for disabled social work students. It outlines how important it is for students to feel safe in disclosing a disability and the adjustments that should be implemented to ensure that they have a successful placement (University of Hull).

Equally, another university has a well-established Student Enabling Centre, in which an empathetic approach to differentiated marking exists (through the use of stickers for the non-penalisation of marks for errors indicative of SPLDs when marking written assignments) and differentiated assessment if on placement (through allowances made for the difficulties caused by dyslexia) (University of Southampton). This raises interesting questions. Are these universities acting as beacons and the individuals within them as bastions of best practice in relation to the Equality Act? Or are they allowing unsafe practitioners to enter the professions? It is questionable whether universities should make reasonable adjustments to teaching and assessment given that this could result in unsafe professional practices. Conversely, meeting the professional standards is the indicator that a student is safe to practice. If reasonable adjustments are made prior to the end-point assessment to enable students with dyslexia to meet the standards, it might be argued that the standards have been met and that the student is safe to practice.

It is also important to emphasise that in the UK, the Equality Act places a duty on employers to make reasonable adjustments to support employees with dyslexia. The key to assessing professional competency is whether practitioners with disabilities are able to meet the standards after reasonable adjustments have been provided. The quest for inclusive practice can therefore become blurred. Sapley, Turner and Orton (2004, p. 30) state that:

> *'the way in which the standard is applied must not discriminate ... Qualification bodies need to show that the application of any standard does not count as direct discrimination and that the standard can be objectively justified.'*

The question may be asked: what constitutes as reasonable adjustments? The fine balance between ensuring professional competence through completion of The National Occupational Standards for Social Work (TOPSS), and creating inclusive practice, needs to be evaluated with judicial caution – should the trainee be helped with assignments on account of them having dyslexia? Or, should the individual be treated in the same way as others on the course, to ensure the same standards are being equally assessed across the training? Moreover, the mentor has the responsibility to act as a '*gate keeper*' of the profession, to ensure that those who meet the professional standards are permitted into the profession and that those who do not are barred from entering it. However, whilst in England, standards for professional-body registration are specified, judgements about whether or not these have been met are often subjective rather than evidence-based.

This study explored the experiences of one student who had studied on a professional social work course in England. A qualitative life history approach was used to collect data for this study and this is outlined in the subsequent section

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METHODOLOGY

This study uses a storying methodology known as life history. In relation to narrative research, it has been argued that:

> *'Quite possibly, it is the principal way of understanding the lived world. Story is central to human understanding - it makes life liveable, because without a story there is no identity, no self, no other.'*
>
> (Lewis, 2011, p. 505).

It has been suggested that life stories are 'lives interpreted and made textual. They represent a partial, selective commentary on lived experience' (Goodson, 2001, p. 138). Dhunpath (2000) has argued that 'the life history approach is probably the only authentic means of understanding how motives and practices reflect the intimate intersection of institutional and individual experience in the post-modern world' (p. 544).

Azzopardi (2009) has highlighted how life histories connect 'the individual and social dimension of the informant's experience' (p. 83). According to Lewis (2011) story is a 'principal way of understanding the lived world' (p. 505). The social world is complex, messy and contradictory and events may be unconnected. Life history approaches can potentially capture the complexity of human life by focussing on the ways in which narrators (informants) make sense of their personal experiences and narrate their own lives.

Goodson and Sikes (2001) emphasise that 'life history work is interested in the way people do narrate their lives, not in the way they *should*' (p. 16). A well-established theme in the literature on life history approaches relates to the notion of 'giving voice' to marginalised people (McLaughlin and Tierney, 1993; Dhunpath, 2000; Chase, 2005; Lewis, 2011).

McLaughlin and Tierney (1993) coined the phrase *Naming Silent Lives*. The potential of life history research to provide voice for oppressed and marginalised groups has made it a popular choice for those who believe in the power of research to advance social justice (Goodson and Sikes, 2001). Clough (2002) argues that research exists largely for the purpose of 'turning up the volume' (p. 67) on the voices of those who have been marginalised or silenced.

This study complied with university ethical standards and sought permission from the participant by way of a signed formal consent which explained the nature of the research.

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DATA COLLECTION

The participant for this study was a social work student with dyslexia. The sample selection was purposive in that she wished to share her experiences of studying on a pre-registration course whilst having dyslexia. We have used the pseudonym 'Suzanne' to refer to her throughout this paper. Data were collected using a semi-structured interview. Data were digitally recorded and transcribed. We asked Suzanne to describe her experiences of managing a 'dyslexic' identity whilst she studied on a professional registration course.

Key questions that we explored are listed below:

- As a student diagnosed with dyslexia what were your experiences of the social work curriculum, teaching and assessment in the university?
- How would you describe your experiences during periods of placement?
- To what extent were differentiated approaches used to support you?
- Evaluating your overall experience at the university, what was successful and what could be improved?

RESEARCH DATA

The demands faced by students on professional registration courses such as teaching and social work are challenging. Matthews, Simpson and Crawford (2013) write about the placement journey as challenging, informative, self-developing and normally, successful. However, having dyslexia and/or mental health issues can make being on placement a far more daunting experience, which does not always culminate in happiness or indeed success.

Universities are required to assess students on professional courses against their own set of professional standards and the standards specified by the Professional Regulatory Body. At the beginning of a social work placement a student is required to complete a *'declaration of fitness to practice'.* However, for those with dyslexia and those with identified mental health needs, the initial declaration of 'nothing to declare' can seem both fake and unethical.

Suzanne reported feeling that she was breaking the code of Social Work values, namely integrity, by ticking the 'nothing to declare' box and signing a 'fitness to practice' form. However, she also felt that this would allow her placement to commence. In contrast, declaring her disability would result in the convening of a 'fitness to practice board.' One of the possible outcomes of this could be the recommendation for suspension or the termination of her studies if Suzanne's disability meant that she was not fit to practice. Suzanne duly signed the fitness to practice papers and chose not to declare her disability so that she could progress with her studies in a timely way.

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From the first day Suzanne found herself with a portfolio to complete comprising of a word count totalling nearly 12,000 words. Additionally, she was required to undertake an intense placement in which she was responsible for meeting the needs of service users.

The academic component of the course was extremely challenging; writing three case studies, critical analyses, a review of duties and some critical stance perspective papers was overwhelming for Suzanne. Suzanne knew from the start that the university had no policy for differentiating the grading of work for students who had specific learning difficulties (SpLDs) and her work was graded in exactly the same way as her peers, despite the fact that they did not have dyslexia.

From previous grades Suzanne was aware that the lengthy policy meant that she would be heavily penalised, at least by one academic grade, for things which were indicative of dyslexia, such as awkward sentence structure, spelling, punctuation and grammatical difficulties and difficulties conveying ideas in academic language. Furthermore, the way in which her work was marked was often negative and subjective.

Suzanne reported she felt she received little support for her dyslexia diagnosis, despite disclosing she had dyslexia (a report obtained shortly before commencing the social work training course). One of the lecturers stated that in the social work profession she was required to write professional documents such as case notes and court reports and consequently there was no differential treatment or consideration when grading her work. Moreover, Riddell and Weedon (2006) found the quantity and quality of provision for dyslexia was inconsistent across Universities in England. Consequently, the support, was dependent upon which university it was and who the lecturers were.

An example of negative experiences of this are illustrated by Suzanne who felt let down by the university, a former polytechnic college, that they were prepared to allow her admittance on the course, yet did not cater for her needs in any effective way. She was further shocked at the attitude of some of the lecturers towards her difficulties caused by dyslexia. Suzanne stated:

> *'It's shocking, they are supposed to help and be empathetic, allowing me to be on the course and yet they have no regard for my difficulties and just suggest I 'get over them'. I find it degrading to suggest that I have been careless in proof-reading or not taken enough time with an assignment. One essay was marked by the Head of School stating that I had been downgraded because I had 'a number of careless errors which could have easily been avoided'.*

Suzanne expressed how she felt let down by a profession and university which prided itself on being inclusive and accommodating. The student Well-being Centre included student dyslexia support. Suzanne explained that they had been less than helpful in supporting her with the planning or proof-reading of assignments.

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During placement, Suzanne had to familiarise herself with a range of specific and generic procedures. Memorising complex systems proved difficult, as a key feature of dyslexia relates to difficulties with short-term memory. Suzanne stated she was made to feel 'silly' in front of her new colleagues when she was tested on what she had learnt from the company manual. Suzanne felt that the university should have made alternative arrangements for helping her with the challenges of the placement. Being asked to form interpretations based upon new information was also difficult. She expressed how she exhibited 'faking' behaviour, by trying to appear as if she had understood, but inwardly she felt *'fraudulent'* and *'out of her depth'*.

As the weeks progressed Suzanne, who was now, by her own admission, exhausted, felt her general mood declining. Her ability to cope with the now significant demands of quite complex cases, and academic work for the university, was declining. Suzanne recalled falling into a heap on her bed and crying. She off-loaded some of her stress and anxiety to those nearest to her, relationally. Some encouraged her to persevere. Others spoke of her need *to 'call it a day'*. Suzanne, totally exhausted, about halfway through the final placement, wondered what to do. Would her mental health decline if she continued this course until the end, or should she walk away forthwith, to preserve herself from spiralling into depression? As she pondered these things, and desperate to finish the course, she aimed to complete the placement, knowing that she would have to do this if she was to graduate as a Social Worker and Register with *The Health and Care Professions Council (HCPC)* [the Professional Regulatory Body in the UK].

Suzanne, determined to succeed and demonstrate resilience, despite adversity and setback, felt that had she received support from the university in the initial stages of pre-placement, during placement, and from the placement itself, she would have never been feeling so 'low' and despondent. She wondered whether to raise concerns with the placement provider and to make a complaint to the university. After reflecting, she sent an email expressing her disappointment with how she had been treated during the various stages of placement and her whole university experience to date.

She also raised apprehensions through a 'whistleblowing' policy, after she was asked to fabricate information by adding her signature to agree that she had received supervision on certain days, when this was not the case. Consequently, she raised a 'concerns meeting' about the placement with the help of her practice educator. Within a short space of time, the university had escalated the issues and involved the Head of Programme and module coordinators.

A 'concerns meeting' was raised and issues were brought forth. Suzanne recalled not having her opinions listened to at all, assuming an 'independent' enquiry would occur. However, the investigation was internally conducted with a view geared towards supporting the university and the placement. Moreover, the tutors argued that the system and the placement were acting within the Equality Act and even if some

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misconduct had occurred on placement, it would not be further investigated due to the scarcity of placements and it was recommended that Suzanne should seek to go back there with a more positive attitude and gain the most from the valuable learning opportunity that was being afforded to her.

Suzanne was given the option to continue her placement or begin another one. She indicated that beginning another one would be preferable. She had assumed that she would be able to begin with the days accrued (35 of 70). However, the module co-ordinator insisted she started the placement again. Suzanne felt utterly betrayed by the university and that her complaint had fallen on, not just 'deaf ears', but wilfully 'hostile lecturers', resulting in a deterrent to others who may also have been mis-treated.

After much soul-searching Suzanne decided to explore the options of whether financially and emotionally, terminating studies would be better. Through telephoning the National Health Service (NHS) student bursaries, she found out that a termination of a placement part-way through the course would result in her being liable to pay back around £1500 pounds including child care costs. Thus, she had no choice but to finish the course, given that she could not afford to pay back the funds.

Suzanne decided to start a new placement in a different setting. Taking into account the days she had already completed in the previous placement, Suzanne was now required to complete an additional 70 days during the summer holidays when all the other students were on vacation. Suzanne sought to *'keep her head down'* but working excessively long hours continued. The staff at the new placement setting were a little more understanding and allowed her time to complete some of her paperwork and helped her shape some of her ideas into appropriate academic language.

As with the initial placement Suzanne felt stressed and worn out, working through the summer, without a vacation and with, in her words, *'little meaningful contact'* with her children, which took its toll on her emotional health. Suzanne felt the spiralling, iterative nature of depression re-occurring. She recognised the symptoms from previous experiences. Suzanne, now a significant way through the placement, did not know where to turn. By admitting she felt depressed, she would have her placement suspended at best, or at worst, terminated. Taking a day off, Suzanne, decided to take regular breaks, away from the computer and service users. Despite having a lot of work to do, she felt that she may be able to see her way to the end of the placement.

Near the end of the placement, Suzanne suffered with declining mental health and this seemed to have been exacerbated by having to complete final evaluations, which involved complex theoretical analysis of the differing factors in theory, assessment and methods of analysing, intervening and reviewing action. Suzanne sought to fight the depression, explaining how some days she awoke with *'a fog around her'*, a *'black hand'*

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on her. However, Suzanne, determined not to be sent to a 'fitness' board, pushed through.
Finally, reaching her last day, and being signed off as 'completed', a hurdle was overcome. However, Suzanne suggested that she felt completely unsupported from start to finish. She stated:

> *'I felt as though they were all sitting around waiting for an issue to arise which they could jump on and have me off, or create some drama. Perhaps because they miss the action of the high-speed work of child protection, they want action?'*

DISCUSSION

Suzanne's account raises significant questions over the role of how supportive or not universities are to those with dyslexia and depression and, when concerns are raised, whether or not there is a robust system for dealing with them. Doel (2010, p. 8) writes, 'not all placements go well. However, this is not inevitable; there is usually a chain of events that leads to the breakdown of the placement ...'. This narrative highlights failings from the start: Suzanne was not given adequate support and appropriate differentiated assessment, which could have made all the difference to her. The placement provider should have been informed of her dyslexia and how to help her succeed. The repeat of the additional part of placement was unnecessary and unfair. Systems to seek support when she felt that her mental health was declining should have been in place rather than a reactive, unhelpful approach which forced Suzanne to take time off from her placement.

It could be argued that more should be done to acknowledge the hard work those with dyslexia have to do in order to meet the required academic and professional body. Grant (2010) notes that those with dyslexia have to work ten times harder than those who do not have dyslexia. This makes many aspects of academic and practical work most tiring. What seems clear is that a level playing field does not exist and the institution a student attends may affect their outcomes. Some universities are empathetic to the difficulties dyslexia brings and adopt a proactive approach, whereas others do not have sufficient provision to support those who may find aspects of university life difficult.

When analysing the United Kingdom (UK) and United States of America (USA) provision for twenty randomly-selected different universities for support for students with dyslexia, it was found that seven of them used differentiated marking policies and twelve had specialist centres for students to access support. Although all the twenty universities had some form of provision, this varied significantly from drop-in sessions, exam support and

access arrangement provisions to specialist tutors working with the British Dyslexia Association to help students to structure assignments and plan for examinations. Although it is important that courses such as Social Work and teaching have professional standards, and completing them whilst ill is unadvisable, universities should be supportive rather than destructive of their students.

Suzanne was failed on several accounts. Chiefly, adequate, tailored support was not employed for her benefit. Lomax, Jones, Leigh, and Gay (2010, p. 99) suggest that a way to reduce stress is to 'identify sources of support both within and outside your placement.' However, for Suzanne, as a single mother, her family were geographically distant and without university support Suzanne felt lonely and isolated. These feelings of loneliness can be a feature of placement (Bellinger and Ford, 2016) but in Suzanne's case were exacerbated by the feeling of lack of empathetic support for her holistic needs. According to Reardon:

> *Social work educators, including professionals serving as field instructors, confronted by a student with mental health difficulties face a complex dilemma. On one hand, social work education prides itself on being inclusive and recognizes that students with mental health challenges can become effective clinicians and advocates. On the other hand, educators have an ethical duty to ensure that students who graduate from their programs can deliver high-quality services that do not harm clients.*
>
> (Reardon 2012, p. 10).

One university encouraged students to disclose mental health issues with a view to supporting them but noted that once support was implemented, they still had to meet professional standards. After reasonable adjustments have been made the student must still meet the learning outcomes and course requirement of hours in practice of their course. Disabled students are not exempt from meeting academic or clinical requirements. This indicates the support for the individual, recognising equality of access and on-course provision to meet the student academic standards of a social work training course.

CONCLUSION

This work has provided original insights into dyslexia, how it may be viewed by some institutions and individuals within them. This research acknowledges that generalisability is not possible from this research and further research is needed to further validate the sentiments and extrapolations made.

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A research tool, such as a questionnaire, could be used to enhance the number involved in the study, thus improving validity and providing further participant experiences. Despite Suzanne making it clear that she had dyslexia to the university, one aspect of Suzanne's account which may have contributed as a factor for less support, particularly on placement, was she initially failed to identify how dyslexia affected her. Further research into the benefits or limitations of disclosing a dyslexia diagnosis, and its implications, may provide further lines of enquiry. Moreover, Bartlett, Moody and Kindersley (2010) suggest that obtaining a dyslexia diagnosis can put individuals in a dilemma of whether to disclose it or not due to perceived negative treatment they may receive – a key reason Suzanne chose, at first, not to say anything about how dyslexia affected her work on placement.

This research highlights a number of key lessons, which may help individuals to feel more confident in seeking a dyslexia assessment or disclosing they have dyslexia. Higher educational institutions may need to specifically consider and review - what are their policies for helping those with dyslexia? And, how are these implemented for pre-registration programmes (such as social work)?

Furthermore, it could be asked: what lessons can be learned from Suzanne's experience and what improvement should be made for social work training?

First, ensuring staff are aware of the specific needs of those with dyslexia is an important factor in ensuring students feel supported and their needs are catered for in a clear way. Second, whilst acknowledging the student needs to meet professional standards, reasonable adjustments to support students with dyslexia should be made. These should be negotiated between the student, placement provider and the university. Third, and finally, the development of continuing professional learning opportunities for university staff seems to be an important aspect of infusing a culture of accepting dyslexia and not discriminating against it.

In summary, there exists an inconsistency in provision for those with dyslexia at university. Not all universities recognise the implications of having dyslexia when completing a degree course; some institutions offer support for those with dyslexia, whereas other universities and academics within them are sceptical about making 'reasonable adjustments.' The assessment processes can leave individuals like Suzanne feeling despondent and struggling to complete the academic components of the course.

Suzanne's account illuminates the difficulties faced by universities when seeking to address the most effective ways of supporting students to achieve their potential. However, it also highlights a further aspect – how supportive is the institution of dyslexia? Suzanne, as a single parent and mature student, moving to the former polytechnic college, felt that her diagnosis of dyslexia would be seen sympathetically (in terms of

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access to provision) by any university she applied to. On reflection, she felt as though she wished that part of her investigation into various universities included looking at the level of support, and indeed attitudes of the head of school and their colleagues, into their understanding and support for those with dyslexia. Suzanne's experiences illustrate the importance of obtaining a diagnosis of dyslexia and securing a place at universities which offer study support and a sympathetic approach to working through the life-long challenges that dyslexia can bring.

It is clear that universities and placements have to protect service users from incompetent practice. At the same time they have a duty to support students who may be struggling to evidence the Professional-Body Regulatory Standards, due to difficulties related to having dyslexia, rather than lack of ability.

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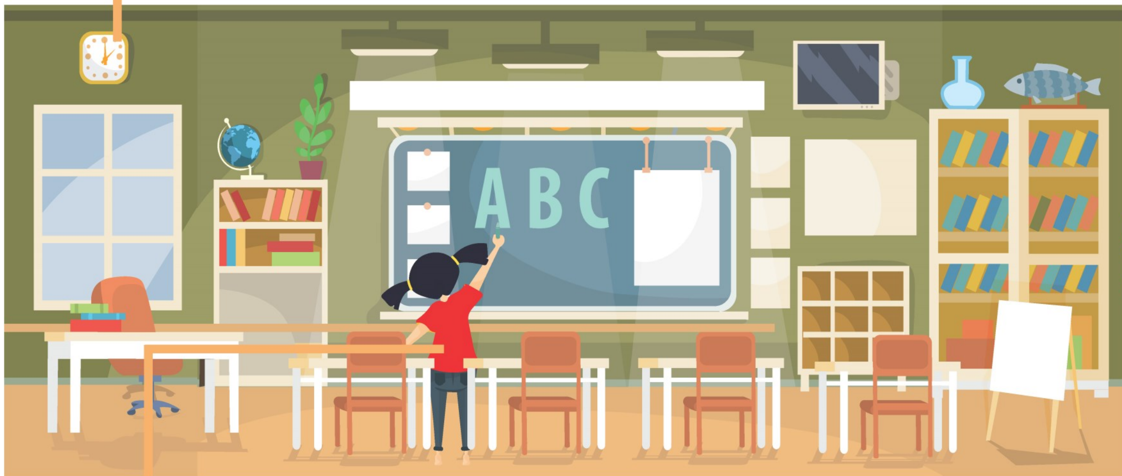

SIGNS OF SPEECH AND LANGUAGE DIFFICULTIES

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.

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Clinical Assessment of Phonological Awareness: Psychometric Properties

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Abstract

Purpose: The purpose of this study is to identify psychometric properties (item difficulty, item discrimination, reliability, and construct validity) in the Clinical Assessment of Phonological Awareness (CAPA) for Standard Indonesian.

Method: Participants in this study were 106 children. All participants were assessed using the Clinical Assessment of Phonological Awareness (CAPA). The assessment was administered by the teachers who have been trained to administer CAPA.

Result: After completing item analysis, it was found that some items have a low discrimination index (<0.3), so these items must be eliminated. After the items are eliminated, syllable blending has four items, syllable segmentation has eight items, phoneme blending has eight items, and phoneme segmentation has six items. Then, each subtest has varying item difficulty, ranging from medium to difficult/hard. In the split-half reliability test, it was identified that all subtests in CAPA have a sound reliability coefficient of .80 - .97.

Conclusion: This study reveals that CAPA has good quality items and has a good level of reliability.

Keywords: phonological awareness, dyslexia, speech therapist, Indonesia, Norm-referenced test

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INTRODUCTION

Using valid and reliable measuring instruments in clinical practice is very crucial and important for speech therapists in clinical decision-making. If clinical decision-making is based on invalid and unreliable measuring instrument, the clinical decision cannot be trusted (Urbina, 2004). Despite the high awareness of Indonesian speech therapists, and related institution and association including Indonesian Speech Therapist Association (ISTA) towards the importance of using a valid and reliable measuring instrument, nevertheless the standard test instrument to determine the phonological awareness of children suspected of having dyslexia have not been available thus far.

According to the International Dyslexia Association (Lyon, Shaywitch, & Shaywitz, 2003), dyslexia is characterized by problems with accurate and/or fluent word recognition, and poor spelling or decoding abilities. These difficulties are often "unexpected" in view of the child's other cognitive abilities and exist despite the provision of adequate formal classroom instruction. At the explanatory level, dyslexia typically results from a deficit in the phonological component of language (Lyon et al., 2003).

Based on IDA's definition, it is important to assess the ability of phonological awareness to establish the diagnosis of dyslexia, and phonological awareness deficit has been the consensus as a marker (or proximal cause) of dyslexia (Shaywitz, 2003; Snowling, 2000; Uhry, 2005). The purpose of this study is to identify psychometric properties (item difficulty, item discrimination, reliability, and construct validity) from Clinical Assessment of Phonological Awareness (CAPA).

PHONOLOGICAL AWARENESS AND READING

Previous studies have undoubtedly found a causal relationship between phonological awareness (or phonological sensitivity) and reading ability. Firstly, many children with dyslexia have phonological awareness problems before they learn to read (Hulme & Snowling, 2009). Secondly, phonological awareness becomes a powerful predictor for reading disorder at the preschool age (Bryant, MacLean, Bradley, & Crossland, 1990; Lundberg, Frost, & Petersen, 1988; Muter, Hulme, Snowling, & Taylor, 1998; Scanlon & Vellutino, 1996; Wagner et al., 1997). Thirdly, phonological awareness (or sensitivity) intervention can improve reading ability (NRP, 2000) in terms of accuracy

Indonesian Phonology

Indonesian (bahasa Indonesia [baˈhasa indoˈnesia]) is the official language of Indonesia. Most formal education is conducted in Indonesian. As verbal communication, language is a universal system. All languages in the world have phonemes (vocal, diphthong, consonant). Indonesian has five pure vowels (a, e, i, o, and u) and only three diphthongs written as "ai," "au," "oi" and few consonant clusters (Moeliono &

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Dardjowidjojo, 1988; Pusat Bahasa Departemen Pendidikan Nasional, 2003).

In the pronunciation of phoneme consonants, one phoneme can have several pronunciations (for example, phoneme [b]). The sound [b] would change to sound [p] if it placed as the last sound of the word. On the other hand, the sound [g] would also change to sound [k] or [ʔ] (depending on the dialect) if placed at the end.

Example:

sebab [səbap] – cause
tabib [tabip] – traditional doctor
kebab [kəbap] – kebab (Turkey food)
gudeg [gudək/gudəʔ] – gudeg (Yogyakarta's famous food)

Dyslexia and Phonological Awareness in Indonesia

Dyslexia has been a concern of many researchers and practitioners. Findings from many studies contain information with very important implications for our understanding of the importance of assessing phonological processing ability (phonological awareness, phonological memory, and rapid automatized naming) to identify children, as early as possible, who are at risk of reading disorders. In a study by Winksel and Widjaja, (2007) a positive correlation was identified between phonological awareness (rhyme detection, phoneme deletion, syllable deletion) with word reading, nonword reading, and letter knowledge in children in Indonesia.

More recently, the development of a reading assessment battery (Jap, Borleffs, & Maassen, 2017), had a significant positive impact on the management of children with dyslexia in Indonesia. According to Jap et al., (2017), the development of a reading assessment battery is a crucial first step in the management of reading problems in Indonesia as knowledge and awareness of dyslexia in Indonesia are dependent on the accurate identification and treatment of individuals with or at risk of dyslexia in Standard Indonesian (SI). Amongst the tests used in the study were phoneme deletion and rapid automatized naming (digit, letter, colour).

The study identified that there was a significant difference in the ability of phoneme deletion and rapid automatized naming between typical children and children at risk of dyslexia (Jap et al., 2017). In addition, there were no significant differences between phonological memory ability (forward digit span and backward digit span) in typical children compared to children at risk of dyslexia in Indonesia. By contrast, the research of Taruna and Syaf (2018) it was identified that children with dyslexia in Indonesia had problems on forward digit span

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Clinical Assessment of Phonological Awareness

Asesmen Klinis Kesadaran Fonologi ('Clinical Assessment of Phonological Awareness') (Taruna, 2019) is the first measuring instrument in Indonesia that aims to identify the precursors of phonological coding which is one of the bases of fluent-print word recognition skill (Pennington, 2009).

The theoretical basis used for CAPA construction was the theory of Pennington (2009) and Rathvon (2004). According to Pennington (2009), phonological awareness is the precursor of phonological coding that forms the basis of the development of fluent-print word recognition skills.

Furthermore, according to Rathvon (2004), phonological awareness measures can be classified into one of two broad categories, depending on the linguistic unit involved:

(1) Non-phonemic tasks, which measure global aspects of phonological awareness, such as syllable sensitivity; and

(2) phonemic awareness tasks, which measure the ability of blending or segmenting phonemes. Based on these theories, CAPA has four subtests, namely syllable blending, syllable segmentation, phoneme blending, and phoneme segmentation (Table 1).

Each subtest has 10 items. Items that are responded correctly will be given a score of 1, while the items that are responded incorrectly will be given a score of 0. All subtests in CAPA are Indonesian language items.

Table 1. Description of CAPA (Pre Item Analysis)

TEST	SUBTEST	ITEM TOTAL
Phonological Awareness	Syllable blending	10
	Syllable segmentation	10
	Phoneme blending	10
	Phoneme segmentation	10
	Total	40

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Table 2. Description of Phonological Awareness Task

<table>
<tr><th>CAPA</th><th>SUBTEST</th><th>DESCRIPTION</th></tr>
<tr><td rowspan="4">Phonological Awareness</td><td>Syllable blending</td><td>The child listens to segments of orally presented words and blends the syllable together to form a word.

Example: I'm going to say some syllable. When I'm finished, you say the word that the syllable make.

kal/ku/la/tor What's the word?

Kalkulator ('calculator')</td></tr>
<tr><td>Syllable segmentation</td><td>Syllable segmentation tasks require the child to indicate the number of syllables in spoken words, such as clapping or tapping.

Example: "Clap to show me how many syllables you hear in matahari ('sun')

(The child claps four times)</td></tr>
<tr><td>Phoneme blending</td><td>The child listens to segments of orally presented words and blends the sounds together to form a word.

Example: I'm going to say some sounds. When I'm finished, you say the word that the sounds make.

s/u/s/u What's the word?

Susu ('milk')</td></tr>
<tr><td>Phoneme segmentation</td><td>The child indicates the number of phonemes in spoken or pictured words by drawing marks, clapping, or tapping.

Example: "Clap to show me how many sounds you hear in

ibu ('mother')

(The child claps three times)</td></tr>
</table>

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METHODS

Participants

Participants in this study were 106 children. The characteristics of the sample in this study are presented as follows:

1. Male and female
2. Ages 5 years 0 months to 6 years 11 months
3. Studying in Pekanbaru Kindergarten.

Materials and Procedures

All participants were assessed using the Clinical Assessment of Phonological Awareness (CAPA). The assessment was administered by the teachers who have been trained to administer CAPA. After all the participants were assessed using CAPA, item analysis was then carried out to eliminate the items that were poor in quality. Furthermore, a reliability test (split-half reliability) was carried out on items that had a good index of item discrimination (>0.3). Finally, factor analysis was conducted to determine the construct validity.

Item Analysis

Item analysis is a process which examines student responses to individual test items in order to assess the quality of those items and of the test as a whole. Item analysis is especially valuable in improving items which will be used again in later tests, but it can also be used to eliminate ambiguous or misleading items in single test administration. Two principal measures used in item analysis are item difficulty and item discrimination. The difficulty of an item in a test is the percentage of the sample taking the test that answers that question correctly (Domino & Domino, 2006). Item discrimination refers to the ability of an item to correctly "discriminate" between those who are higher on the variable in question and those who are lower (Domino & Domino, 2006).

Reliability Test

Reliability refers to the consistency of the data or the results obtained (Domino & Domino, 2006). Any measuring instrument must first of all yield consistent measurements; the actual measurement should not change unless what we are measuring changes (Domino & Domino, 2006).

Factor Analysis

One way to deal with the huge number of constructs tapped by existing tests—and with the unwieldy number of correlations that can be obtained from their global scores, their subtest scores, and their item scores—is through a series of statistical procedures known collectively as factor analysis (FA) (Urbina, 2004). The principal goal of factor analysis is

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to reduce the number of dimensions needed to describe data derived from a large number of measures (Urbina, 2004). It is accomplished by a series of mathematical calculations, based on matrix algebra, designed to extract patterns of intercorrelation among a set of variables (Urbina, 2004).

RESULTS

Based on the item analysis, the results of item difficulty and item discrimination from syllable blending, syllable segmentation, phoneme blending, and phoneme segmentation were obtained. The items in each subtest which have a good discrimination index (> 0.3) will be used as the final item. Then, after the final item was determined, split-half reliability test was conducted to identify the reliability coefficient and factor analysis was conducted to determine the construct validity of CAPA.

Table 3. Characteristics of Participants

	AGE		
	4.0-4.11	**5.0-5.11**	**6.0-6.11**
Male	3	20	30
Female	3	23	27
Total	6	43	57

Item analysis results

Based on the item analysis, items 1, 2, 3, 4, 5, and 6 in the syllable blending subtest have a low discrimination index (<0.3) (Table 4). Therefore, 4 out of 10 items that were part of the syllable blending subtest (pre-item analysis) were determined as final items (post item analysis).

In the syllable segmentation subtest, there are eight items that have a good discrimination index (3, 4, 5, 6, 7, 8, 9, 10) (Table 6). Furthermore, in the phoneme blending, there are eight items that have a good discrimination index (1, 2, 3, 4, 5, 6, 7, 8) (Table 6). Lastly, in the phoneme segmentation, there are six items that have a good discrimination index (1, 2, 3, 5, 6, 7) (Table 7).

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Table 4. Item analysis of syllable blending

DISCRIMINATION	DIFFICULTY		
	HARD (0-50)	MEDIUM (51-85)	EASY (86-100)
Poor (<0.01)			1,2,3,5
Fair (0.1 – 0.3)			4,6
Good (>0.3)		7,8,9,10*	

*Final item: 7,8,9,10

Table 5. Item analysis of syllable segmentation

DISCRIMINATION	DIFFICULTY		
	HARD (0-50)	MEDIUM (51-85)	EASY (86-100)
Poor (<0.01)			
Fair (0.1 – 0.3)			1,2
Good (>0.3)	10*	3,4,5,6,7,8,9*	

*Final item: 3,4,5,6,7,8,9,10

Table 6. Item analysis of phoneme blending

DISCRIMINATION	DIFFICULTY		
	HARD (0-50)	MEDIUM (51-85)	EASY (86-100)
Poor (<0.01)			
Fair (0.1 – 0.3)	9,10		
Good (>0.3)	3,4,5,6,7,8*	1,2*	

*Final item: 1,2,3,4,5,6,7,8

Table 7. Item analysis of phoneme segmentation

DISCRIMINATION	DIFFICULTY		
	HARD (0-50)	MEDIUM (51-85)	EASY (86-100)
Poor (<0.01)			
Fair (0.1 – 0.3)	4,8,9,10		
Good (>0.3)	1,2,3,5,6,7*		

*Final item: 1,2,3,5,6,7

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Split-half reliability results

Based on the split-half reliability test, it has been identified that all CAPA subtests (syllable blending, syllable segmentation, phoneme blending, phoneme segmentation) have a reliability coefficient range from .80 - .97.

Table 8. Reliability Coefficient of CAPA

NO	SUBTEST	RELIABILITY COEFFICIENT
1	Syllable blending	.80
2	Syllable segmentation	.94
3	Phoneme blending	.97
4	Phoneme segmentation	.96

Factor analysis results

Based on the factor analysis, it is known that the CAPA has one factor (one-factor solution), which consists of syllable blending, syllable segmentation, phoneme blending, and phoneme segmentation (Table 9).

Table 9. Component Matrix of CAPA

	COMPONENT
	1
Syllable blending	.86
Syllable segmentation	.91
Phoneme blending	.93
Phoneme segmentation	.82

DISCUSSION

This study aimed to identify the psychometric properties of the Clinical Assessment of Phonological Awareness (CAPA). CAPA is a measuring instrument designed by Rexsy Taruna (first author). The aim of CAPA construction is to identify the phonological awareness ability of children in Indonesia.

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The presence of CAPA in Indonesia can help speech therapists to:

(1) identify the performance level of phonological awareness ability, and

(2) identify children at risk of reading disorders. During the initial CAPA construction, there are four subtests that consist of syllable blending, syllable segmentation, phoneme blending, and phoneme segmentation. Each subtest has 10 items, with a total of 40 items.

After performing item analysis, it was found that some items have a low discrimination index (<0.3), so these items must be eliminated. After the items were eliminated, syllable blending has four items, syllable segmentation has eight items, phoneme blending has eight items, and phoneme segmentation has six items. Moreover, each subtest has varying item difficulty, ranging from medium to difficult hard.

In the split-half reliability test, it was identified that all subtests in CAPA has a reliability coefficient of .80 - .97. Any measuring instrument must produce consistent measurements; the actual measurement must not change unless what we measure change. By convention, a correlation coefficient that reflects reliability should reach the value of .70 or above, so that the test can be considered as reliable (Domino & Domino, 2006).

According to Nunnally and Bernstein (1994), a reliability coefficient that is greater than .90 is a very good reliability to be used as the basis for decision making at the individual level. After performing the split-half reliability test, factor analysis is undertaken afterwards. Based on the factor analysis results, it has been identified that CAPA has one factor. Each subtest correlates, forming a factor called phonological awareness.

LIMITATIONS AND DIRECTIONS FOR FURTHER RESEARCH

Based on the results obtained, there is evidence that CAPA is a measuring instrument that has items with good quality. Moreover, the highest level of reliability makes CAPA a candidate that can be used as the standard test instrument which can be used in Indonesia. It should be noted that the current study has limitations in terms of the sample size which is not representative of the typical child population in Indonesia. Therefore, a representative sample which can represent the typical child population in Indonesia would be needed for further study in order to generalize these results.

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APPENDIX A

Gender : ______________________ Date of Birth : ______________________

Examiner : ______________________ Chronological Age : ______________________

SYLLABLE BLENDING—AGE: 4.0 – 6.11

NO	ITEM	RESPONSE	SCORING	
			CORRECT	INCORRECT
1	Ha – di – ah (*pres – ent*)		1	0
2	Kal – ku – la – tor (*cal – cu – la – tor*)		1	0
3	Per – sa – ma – an (*sim – i – lar – i – ty*)		1	0
4	Or – ga – ni – sa – si (*or – gan – i – za – tion*)		1	0
Total				

SYLLABLE SEGMENTATION—AGE: 4.0 – 6.11 TAHUN

NO	ITEM	RESPONSE	SCORING	
			CORRECT	INCORRECT
1	Lemari ('*cupboard*')		1	0
2	Misteri ('*mystery*')		1	0
3	Makanan ('*food;*)		1	0
4	Matahari ('*sun*')		1	0
5	Perbedaan ('*difference*')		1	0
6	Selamanya ('*forever*')		1	0
7	Diantara ('*between*')		1	0
8	Mempermasalahkan ('*problematic*')		1	0
Total				

PHONEME BLENDING—AGE: 4.0 – 6.11

NO	ITEM	RESPONSE	SCORING	
			CORRECT	INCORRECT
1	/m/ /a/ (*m-a*)*		1	0
2	/s/ /i/ (*s-i*)*		1	0
3	/b/ /au/ (*b-au*)*		1	0
4	/k/ /ai/ (*k-ai*)*		1	0
5	/a/ /p/ /i/ (*f-i-r-e*)		1	0
6	/s/ /u/ /s/ /u/ (*m-i-l-k*)		1	0
7	/m/ /a/ /t/ /a/ (*e-y-e*)		1	0
8	/l/ /a/ /m/ /p/ /u/ (*l-a-m-p*)		1	0
Total				

PHONEME SEGMENTATION—AGE: 4.0 – 6.11

NO	ITEM	RESPONSE	SCORING	
			CORRECT	INCORRECT
1	Api ('*fire*')		1	0
2	Ibu ('*mother*')		1	0
3	Apa ('*what*')		1	0
4	Suka ('*like*')		1	0
5	Ayam ('*chicken*')		1	0
6	Botol ('*bottle*')		1	0
Total				

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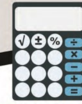

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ADHD: Current Research On the Contribution of Physical Exercise to Improvements in Cognitive Performance and Executive Functions (EF)

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Abstract

In this article, a commentary on the potential of physical exercise to ameliorate the deficits associated with ADHD is presented. The evidence suggests that this can be a useful tool for teachers in working with this group, and a range of alternative suggestions are presented. Implications for teaching generally are also considered.

Keywords: ADHD, Exercise, Cognitive Performance, Executive Function

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INTRODUCTION

The importance of Executive Functions has recently been recognised and defined as a group of inter-related mental processes including working memory and inhibitory control that is responsible for supporting skills including reasoning, problem-solving and planning, that underlie cognitive performance. This is itself defined as the ability to sustain or shift attention in response to different demands.

Interestingly, executive function typically includes aspects of motor control. However, historically motor development and cognitive performance have been studied as two separate areas, with an understanding that motor development precedes cognitive development, Diamond (2010). There is, however, a growing interest among academic researchers and the world of education into how different forms of physical exercise may influence the ways in which children learn, behave and achieve in school. This links to research into the interrelation of motor development and cognitive development, with a focus on the ways in which physical activity may potentially influence children's functioning across several domains (McLelland, Pitt & Stein, 2015; Crispiani, Mountstephen & Palmieri, 2019; Tomporowski & McCullick, 2018).

This research suggests that there is a general consensus among researchers that executive functioning is not a unitary process; it is a complex process that recognizes that teachers are 'uniquely positioned' to create the circumstances that foster effective development. This is related to a research-based understanding of the interaction between the cognitive, motor and affect domains of learning in terms of supporting all students, as well as those at risk of identification of ADHD.

Working from a perspective that seeks to combine research with its practical implications, the author has been studying in this field for several years, both working on a doctorate at the University of Reading (England) and as a specialist in learning differences. The work has focused on the role of interventions that are supported by research and that can guide training for those working with young students at risk of under-achievement, where their barriers to learning are not recognized early enough to prevent this, as well as the associated low self-esteem and longer term disaffection.

Schools are frequently targeted in terms of investing in commercial intervention programmes that are intended to address the links between exercise and classroom performance. However, as Bailey (2018) points out, the relationship between practical contexts and empirical science has been 'an uncomfortable one'. This is echoed by Goswami (2006), in terms of exercising caution in adopting 'brain-based' interventions that may be based on oversimplified, misunderstood or misapplied notions. In order for schools to invest time, and resources in 'innovative approaches', they need to be confident that their choices are based on thorough evaluations, where possible.

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A number of underlying issues emerge. Firstly, what is known about ADHD that might indicate that motor interventions have a role to play? Secondly, which activities show indications of potential benefit, and what is known about the most appropriate speed, duration and intensity?

ADHD AND MOTOR INTERVENTIONS

The terms 'movement 'and 'motor' are often used interchangeably, although the term 'movement' is used more in relation to observable behaviours in posture and locomotion. By contrast, the term 'motor' refers more to the non-observable neurological processes associated with the observable movement (Barnett and Peters,2004). Diamond (2000) proposed that motor coordination problems are common in children identified with ADHD, although this is not generally the focus for interventions. Moreover, she proposes that 'at least half' fit the diagnosis for developmental coordination disorder, citing many sources. In addition, Diamond (2000), notes these are also associated with students with Dyslexia, although the focus is not typically on this aspect of the learning differences.

Currently, it is estimated that there is a global prevalence of ADHD of around 6% and that boys are diagnosed with this more often than girls. Ludgya and colleagues (2018) stress that early interventions should be seen as a necessity to avoid longer-term negative impact of the condition. They go on to explain how ADHD related deficits might be attributed to aspects of brain function, structure and chemistry. Their research led them to consider whether physical exercise had potential as a complementary intervention for ADHD, drawing on the work of other researchers that had identified exercise-induced improvements on executive functioning and cognitive flexibility. Their conclusions indicated that physical exercise possessed 'great potential' as a complementary intervention for ADHD, although they exercise caution in drawing conclusions based on non-ADHD studies.

Ludgya et al., (2018), overview of the current state of research does, however, suggest that exercise can exert an influence on skills as well as leading to fewer anxiety and depression symptoms. They recognise that intensive research has taken place into the neurobiological aspects of ADHD, but the mechanisms by which exercise reduces the cognitive and behavioural impairments are less well developed. There is an understanding, nevertheless, that regular, daily, challenging exercise can contribute a complementary element in reducing impairments in executive functioning and control and behavioural deficits. The research does not, however, suggest that these should be a substitute for pharmacological or behavioural therapies.

Diamond and Lee (2011) has also written about the role that a range of interventions can play in improving children's executive functions. Those cited include aerobics, martial arts, yoga and mindfulness, in addition to computerised games and the school curricula. A key point Diamond and Lee (2011), also identifies is the need for these interventions to

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involve repeated practice that constantly challenges executive functions. In addition to the definition of executive functioning above, Diamond and Lee (2011)stresses the significance of creativity, flexibility, self-control and discipline as key qualities characteristic of executive functions, in addition to problem-solving, reasoning and planning. She also raises the issues of considering ways in which early years' support should best target interventions to improve school readiness. Diamond and Lee (2011) provides an overview of scientific evidence to support six approaches for improving executive functions in the early years.

In the context of this article, reference is made to those that are characterised as motor interventions as opposed to, for example, computerised training.

YOGA /TAI CHI/ MARTIAL ARTS/ FLOOR-BASED MOTOR PROGRAMMES

Many motor intervention programmes tend to focus on aerobic activity, where there is less focus on being mentally present and consciously aware of the ways in which the mind and body work together as they tend to place a greater emphasis on the healthy aspects of physical activity. There is now a growing research base to support the use of a wider range of movement interventions that combine different types of activities to address specific needs. Many yoga teachers would propose that their programmes develop flexibility of the mind as well as the body and that there are correlations between improved focus, executive function and yoga practice (Gothe et al., 2013). The practice of yoga has also found to be beneficial when combined with pharmacological interventions.

What distinguishes yoga and the martial arts is the mental focus, with links between improved focus and executive function. Some research has indicated that two 60-minute sessions of yoga over a 20-week period found improvements in ADHD related symptoms after six weeks (Harrison, Manochaa & Rubia, 2004). Tai Chi and martial arts programmes have been proposed as potential interventions for ADHD, based on their structured approach to combining cognitive and motor approaches to increasing attention, focus and control.

Diamond and Lee (2011) identified that gains across the dimensions of executive functioning were greatest for children in Grades 4 & 5, with the least impact for the youngest, with boys benefiting to a greater extent. However, there is a need to further explore the research into the comparative impact of various interventions in relation to the age of the students involved. This raises the question of whether particular types of interventions are more effective and appropriate specifically in the early years, primary and secondary sectors.

Floor-based motor programmes that focus on developmental immaturities such as retained primitive reflexes have also shown some potential to improve ADHD traits of

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inattentiveness and hyperactivity, although the evidence base is somewhat limited at this point in time. These programmes have some evidence of improving these skills, but may benefit from being applied in conjunction with more physically challenging interventions.

MODERATE AEROBIC ACTIVITY

Examples of this include tasks such as jumping on a trampoline for 5 minutes, 15 minutes jumping and running on the spot, and table tennis training.

There is evidence to suggest that this type of exercise can produce improvements in cognitive flexibility and working memory. However, researchers point out that there is insufficient data relating specifically to their impact on children with ADHD. At the same time, there are suggestions that aerobic exercise sessions have the potential to improve inhibitory control temporarily when the activity takes place close to the cognitive task. The implication is that schools could benefit all their learners by integrating more physical activity in short bursts throughout the day, (Hill et al., 2011).

Diamond and Lee (2011), cites research into aerobic exercise with students aged 7 and above, but there are no references to this type of intervention with younger students, although there are references to the evidence of physical activity and music training in relation to improving executive functions, as well as exerting a positive impact on the social and emotional domains of learning (Dumont et al., 2017).

IMPLICATIONS

Ludgya and colleagues claim that 'Exercise reduces the cognitive impairments and developmentally inappropriate behaviour in children and adolescents with ADHD... Children with ADHD should be encouraged to perform aerobic exercise for a temporary enhancement of capabilities in executive functioning'. (Ludgya et al., 2018).

Regular exercise is also considered to contribute to long-term benefits for cognitive performance and behaviour in children and adolescents with ADHD. There is a consensus that the relationship between physical activity and educational performance offers the potential to inform new practices. However, there is a concern that pseudoscience and neuromyths risk schools and parents being liable to the claims of various commercial interventions (Bailey et al., 2018). This implies that caution needs to be exercised when considering making financial investments in programmes that may lack credible evidence-based or peer-reviewed research.

The positive emotion of enjoyment is a strong motivation to practise physical activity. This can lead to enhancing cognitive processing when teachers understand the relevant teaching methodologies that integrate enjoyable activities based on research-led interventions. Students of all ages with ADHD and comorbid difficulties may benefit from

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daily physical activities to prime classroom performance.

The approach could prove a useful tool for schools generally. Research has shown that even a daily 10-minute programme had a positive impact on attention and on-task behaviour, particularly for children with difficulties in remaining on task with an improvement of 20% (Mahar et al., 2006).

Furthermore, research has indicated that even a short 4-minute daily exercise programme has beneficial effects for typically achieving children aged 9-11 (Ma et al., 2015). This suggests that even short exercise periods are beneficial for all children, particularly at a time when there is evidence for shortening of children's playtime and opportunities for physical play.

Table 1. Take Away Strategies for Parents/ Schools:

	EXERCISE STRATEGIES FOR PARENTS AND SCHOOLS
♦	Encourage daily exercise at 3+ intervals in the school day, that takes into account a variety of speed/duration/ intensity
♦	Sessions can be 10-15 minutes and include a wide range but balanced selection of activities.
♦	Devise a daily schedule that over the week balances out a combination of aerobic/yoga/floor-based activities.
♦	Children need to enjoy the activity they are doing, but it needs to be incrementally challenging to induce cognitive improvement
♦	It can be useful to include breathing exercises (often included in yoga programmes) as a part of daily routine and selecting a time when you think you, or your child/ student feel the greatest need to relax. This should ideally be at the same time every day.
♦	Use a more intensive activity (appropriate to the individual) prior to important tests requiring high cognitive control or competitions requiring tactical planning.
♦	Consider martial arts as a possible activity

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There is some research (e.g. Diamond and Lee, 2011) to suggest that the traditional forms of martial arts that combine mental and motor aspects with qualities such as respect, perseverance and self-control can exert an influence on aspects of ADHD weaknesses, whereas the modern equivalents, with an emphasis on the competitive elements, did not produce positive changes.

CONCLUSIONS

This is an interesting and potentially significant area of research, particularly in relation to interventions for students in the early years and primary sectors of education. If learning is framed in the widest sense, within motor, affective and cognitive domains, teachers would benefit from access to training that recognises this body, mind, spirit interplay.

When considering support in these phases, there may be more opportunities to integrate daily motor/ physical programmes into the school schedule and to assist those students who enter school lacking in appropriate 'school readiness 'skills. Whereas this is not the place for discussion about where the responsibility for school readiness lies (home/ pre-school/ school), the reality is that some children present with weaknesses that may present as symptomatic of ADHD/ SpLD, that can be addressed through approaches that recognise the motor and affective domains of learning, as well as the cognitive. Thus, there needs to be an understanding that students might, for example, benefit from exercise plus character development such as traditional martial arts or, regular exercise and mindfulness (Houseman & Solanto, 2016).

A key element appears to be the need for the students to be active, engaged and continuously challenged, based on schools having access to training in integrating the 3 domains of learning into their whole school ethos (Carpenter, 2018). The activities need to be cumulative and novel, rather than repetitive. operating in a spiral principle that enables activities to be revisited and reinforced, but with an element of challenge.

Although the main focus of this article has been on exploring the potential of interventions to address aspects of ADHD, there is an 'emerging consensus (Fawcett, 2017), in terms of the comorbidity in terms of ADHD, dyslexia, dyspraxia and SLI., linked to the importance of early intervention. This is an area of great interest when considering and evaluating programmes that include some of the elements outlined here.

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Teachers' perceptions on the Explicit Teaching of Reading Comprehension to Learners with dyslexia: The Importance of Teacher Training in Ensuring Quality Delivery and Instruction

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Abstract

In response to ensuring that the reading comprehension curriculum continues to support students with varying learning needs, profiles and age groups, including secondary students, an enhanced reading comprehension curriculum was introduced and subsequently evaluated in a qualitative and quantitative study. In this paper, the philosophy and methodology of the curriculum is outlined. The authors highlight the explicit and concrete teaching techniques of some essential reading skills and textual features such as cohesive devices and vocabulary, to help students understand texts with greater depth and clarity. A key feature in the success of any new or enhanced curriculum is the perceived competence of teachers' capacity to deliver it effectively. The teacher training provided to equip the teachers with the necessary skills and knowledge to deliver the enhanced reading comprehension curriculum will also be addressed. The following research questions are addressed: (1) investigating the effectiveness of the enhanced reading comprehension curriculum through teacher perceptions, (2) investigating the confidence of teachers in their delivery of the enhanced reading comprehension curriculum. The results yielded positive feedback and satisfaction with the enhanced reading comprehension curriculum and its potential in supporting learners with dyslexia although there is a need for further and ongoing training to ensure that teachers are comfortable and confident in delivering the more advanced reading comprehension skills.

Keywords: Explicit reading instruction, annotation, cohesive devices, referring expressions; conjunctions; motivation, vocabulary, metacognition, teacher training

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INTRODUCTION – THE NEED

The decision to develop and implement the enhanced reading comprehension curriculum was driven by the changing needs, profiles and demands of students on the Main Literacy Programme (MLP) at Dyslexia Association of Singapore. The increase in the number of secondary students coupled with the need to keep abreast with the mainstream curriculum were instrumental in the efforts made to enhance the reading comprehension curriculum. The enhanced curriculum includes not only the skills and concepts essential in supporting students with varying profiles and age groups (primary and secondary), it also includes techniques and methods to teach reading comprehension in a structured and explicit way that benefits students with dyslexia.

Following a review of the literature, this article draws special attention to the importance of critical textual details such as vocabulary and conjunctive expressions and annotation techniques as well as building the motivation to employ these techniques, all of which are paramount in helping students improve their reading comprehension skills. Finally, the significance of teacher knowledge and the capacity to provide effective and appropriate instructions through teacher training will be discussed in this article.

As a consequence of the growing number of students from the secondary levels needing support at the DAS as compared to previous years (where the demographic of students largely comprised students from the primary levels), the DAS's ELL prides itself on ensuring that the curriculum is continually enhanced to better cater to the growing needs of the students as they move on to secondary school and beyond and more importantly, keeping abreast with the changes and demands observed in mainstream schools.

In order to better support our students, DAS needed to develop a more explicit and concrete approach to teaching reading skills to help scaffold and guide the students to acquire not only the relevant and necessary reading comprehension skills, but also to empower them to apply the skills acquired to tackle reading comprehension questions with confidence.

The reading comprehension curriculum was thus enhanced to better tailor it to the learning needs of students with differing profiles and abilities, where the emphasis is on the linguistic skills required for them to cope with the growing demands of reading comprehension tasks and assessment formats in school, as prescribed in the English language syllabus for primary and secondary, the Ministry of Education (MOE, 2010). The enhanced curriculum also focuses on questioning interpretation skills, where learners are taught to interpret the various question patterns and their demands in terms of target skills to help them to answer questions correctly and appropriately.

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REVIEW OF LITERATURE

Dyslexia

Rose (2009) defined dyslexia as "a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling". Dyslexia is not related to a person's intelligence. "Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and processing speed" (Rose, 2009). The Dyslexia Association of Singapore (DAS, 2017) identified signs and symptoms of dyslexia which include a number of issues that impact reading comprehension. These include effortful reading, difficulty in understanding text passages, difficulty in extracting important points and poor memory for sequences and unfamiliar facts.

Rose (2009) also reported that "tailoring teaching and learning to the needs of the individual is being promoted to schools as a critical driver in helping pupils make the best possible progress, and achieve the best possible outcomes". DAS (2017) also highlighted that a literacy programme that is appropriate for learners with dyslexia should include components like phonemic awareness, phonics, fluency, vocabulary, reading comprehension and writing; where these components are also highly recommended in an effective literacy intervention and supported by evidence-based research and practice that includes the National Reading Panel (NRP), the Rose Report and the Professional Practice Guidelines (PPG) (NRP, 2000; Rose, 2009; PPG, 2011).

Dyslexia and Reading Comprehension

Reading comprehension is defined as the "process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (Snow, 2002). Apart from experiencing difficulty in reading, spelling and writing, learners with dyslexia also struggle significantly with comprehending texts that involve higher-order thinking processes which are critical to helping them make meaningful connections. Thus, a systematic and structured teaching approach through the employment of annotation was put in place to teach reading comprehension to students on the Main Literacy Programme (MLP) at the Dyslexia Association of Singapore (DAS), to ensure that they are well guided and supported to cope with the exacting demands of reading comprehension.

Reading Comprehension has traditionally been defined as a process of constructing meaning from written text based on a complex coordination of a number of interrelated sources of information (Anderson, Hiebert, Scott, & Wilkinson, 1985) to enable learners to effectively draw inferences, derive meanings from texts and answer comprehension questions. Therefore, it is arguably one of the most important academic skills taught in school and the expectations and requirements for reading comprehension increase significantly as learners progress through school (Deshler, Ellis, & Lenz, 1996). Reading

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comprehension is a complex task that involves various cognitive processes and reading skills. The difficulties learners with dyslexia face are further compounded as a result of their deficiencies which include (but are not limited to) difficulties in the following areas: processing information, interpreting and understanding texts and making inferences about the information presented.

Over the years, several different views of the nature of learning differences have influenced research and practice (Wixson & Lipson, 1991). One of them highlights how the current view of inefficiency rather than deficiency most accurately characterises the difficulties and struggles faced by learners with learning differences such as dyslexia. In other words, while students with learning differences possess the necessary cognitive tools to effectively process texts and information, for some reason, they do so inefficiently. These inefficiencies, breakdowns and learning gaps could be attributed to their inability to process information strategically as well as manage their cognitive activities in a meaningful and reflective manner.

While most researchers have tended to focus heavily on building learners' metacognitive awareness and skills in reading comprehension, other theorists such as Kollingian and Sternberg (1987) have argued that too little focus and attention have been placed on factors that are equally as important in improving comprehension. Some of these factors include (a) knowledge of text structure and language features (b) vocabulary knowledge (c) the appropriate use of world knowledge to aid understanding (d) the importance of active reading and task persistence, (e) the role of fluent reading in comprehension.

Vocabulary Knowledge and Reading Comprehension

Learners with dyslexia also struggle immensely with the vocabulary aspect of comprehension. Reading comprehension requires the learners to have not only good world knowledge on the topic at hand but also familiarity and exposure to the technical vocabulary present in texts (Anderson & Pearson, 1984; Bos & Anders, 1990). Learners with dyslexia tend to bring less of this knowledge to the reading task as compared to those who are proficient readers thus, their comprehension suffers significantly. The relationship between reading comprehension and vocabulary knowledge is strong and unequivocal (Baumann & Kameenui, 1991; Paul & O'Rourke, 1988; Stanovich, 1986). Vocabulary knowledge contributes significantly to reading comprehension (Stanovich, 1986) and grows through reading experience (Cunningham & Stanovich, 1998). In other words, without good vocabulary knowledge, reading comprehension will be severely impaired. This relationship holds true for all readers. The importance of vocabulary knowledge is further supported by the National Reading Panel (2000) which states that comprehension being a highly cognitively demanding task will be impacted by weak vocabulary knowledge consequently impairing the reader's capacity to achieve meaningful understanding of text.

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The Role and Function of Cohesive Devices in Reading Comprehension

Cohesion is the linking of elements within the text at the semantics, syntactic and discourse structure levels. According to Halliday & Hassan (1976), cohesion plays a critical role in language use and communication. This highlights the significance of cohesion to both readers in constructing meanings from texts and to writers in creating texts that can be easily understood. Consequently, the presence of cohesive devices in texts which include conjunctions and referring expressions contributes to textual cohesion where the writers' thoughts are related to each other through a series of cohesive ties, ensuring that texts do not appear disjointed and disconnected.

Furthermore, studies of reading comprehension have also suggested that the presence of cohesive devices provide focal points for readers to understand the texts they read better (e.g., Garrod & Sanford, 1977; Kintsch, 1974; Lesgold, 1972; 1973; 1974). Thus, cohesive devices enhance the quality of a writers' writing by increasing the clarity, appropriateness and comprehensibility of texts (Halliday, 1985; Halliday & Hasan, 1976).

Reading Comprehension and Motivation

Motivation affects performance in all academic areas and is related to how learners develop a sense of failure and frustration whenever they perceive tasks to be demanding and challenging for them. This is even more important for learners with learning differences. When they encounter repeated setbacks on a particular task, they start to feel demoralised and as a result, their motivation to continue working on that task decreases. More importantly if such behaviour persists, learning in general will be impacted. As reading comprehension is acknowledged to be one of the most complex among the language skills, it is without doubt that the acquisition of reading strategies and comprehension skills require learners to put in a great deal of effort while maintaining their motivation (Stipek, 2002).

Highlighted in a large observational study by McKinney, Osborne and Schulte (1993), one characteristic of learners with learning differences that hinder reading comprehension is their limited task persistence. Research has also provided evidence that if learners are engaged and motivated during the reading process, they process information more deeply and therefore they are able to achieve better comprehension. Moreover, when learners read with purposeful intent and greater understanding, they increase in reading comprehension proficiency (Guthrie, Wigfield, Metsala, & Cox, 1999). More recently, Guthrie and colleagues have produced a model of the impact of motivation on secondary school students, the Concept-Orientated Reading Instruction framework (CORI) that has consistently demonstrated positive results in terms of on task-behaviour and success in comparison with traditional intervention. (Guthrie and Klauda, 2014).

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In conclusion, a summary of traditional and current thinking on teaching reading comprehension to students with dyslexia has highlighted the need for a more explicit and concrete teaching of skills at the secondary level to empower students' capacity to process texts in a more effective manner by paying more attention to grammatical features such as cohesive devices to approximate the meaning of unknown vocabulary and consequently, arrive at a deeper level of understanding the reading comprehension text. Their growing success at decoding texts with these explicit techniques will increase their motivation to continue using these techniques to handle their reading tasks.

This approach is designed to enhance the existing Main Literacy programme, which provides individualised group lessons taught in accordance to the Orton-Gillingham (OG) principles (Ritchey & Goeke, 2006; Rose & Zirkel, 2007), as well as the previous MLP reading comprehension curriculum. This focused mainly on general skills based on Bloom's Taxonomy (Bloom, 1956): higher order thinking skills (i.e. inferential and evaluative) and lower order skills (i.e. literal). The teaching was broken down into three stages especially for beginning readers from Grades K-6 to scaffold and guide the learners:

1. Pre-reading: making connections with the texts through the activation of prior knowledge and schema

2. During reading: deriving meaning through questioning techniques as well as exposure to vocabulary

3. Post reading: application and the transference of skills learnt to answer reading comprehension questions

METHODOLOGY

a) Enhanced MLP Reading Comprehension Curriculum

In developing the enhanced reading comprehension curriculum, the researchers have combined a variety of approaches drawn from a body of research and materials, encompassing well-established traditional methods to more recent innovations that highlight the importance of metacognition, vocabulary and motivation. The enhanced reading comprehension curriculum includes a combination of the questions types and target skills devised by Benjamin (2002; 2003; 2015) in conjunction with the required skills derived from the mainstream syllabus (MOE, 2010).

The elements of the enhanced reading comprehension curriculum are outlined in Table 1 below, and illustrated in Tables 2 to 7.

Table 1. Elements of the MLP Enhanced Reading Comprehension Curriculum (Adapted from Benjamin, 2003)

QUESTION TYPES	TARGET SKILLS
Content	♦ Target skill: EXTRACT ♦ Extraction of EXPLICITLY stated information in the text/ passage [Answers can be found in the text/passage]
Inferential	♦ Target skill: INFER ♦ Answers are not found in text, only implied and thus, need to be inferred
Vocabulary	♦ Target skill: REPHRASE ♦ Answers need to be rephrased in one's own words
Content-inferential	♦ Target skill: EXTRACT and INFER ♦ Answers will be based on extracted details from which further inferences are drawn
Vocabulary-inferential	♦ Target skill: REPHRASE and INFER ♦ Answers will be based on inferring nuances of the meaning of a quoted word in specific contexts.
Content-vocabulary	♦ Target skill: EXTRACT AND REPHRASE ♦ Extraction of required information/specific detail(s) from the text and then rephrase in one's own words

The table above shows some of the types of questions and the corresponding target skills that are included in the enhanced reading comprehension curriculum and teaching materials.

Skills that are taught and delivered according to the PPP (Presentation, Practice, Production) stages (Criado, 2013) to:

- facilitate the pre-activity discussions through modelling
- scaffold and guide students in a structured, cumulative and sequential manner to enhance learning
- provide opportunities for students to be independent in applying the concepts/ skills learnt

PPP begins with the Presentation stage where the teacher highly controls the teaching and learning process (Criado, 2013). Following that, the practice stage is where the teacher continues to provide support and guidance to the students while creating some opportunities for them to apply what they have learnt. The third and final stage is the Production stage where the students would have attained mastery of the skills and concepts acquired and should be able to apply them independently across different domains. Not only is the PPP approach a systematic way of teaching students, it also takes the students from the dependent and guided learning stages to the independent stage. Getting the learners to do independent tasks at the production stage allows the teachers to diagnose and assess if their learners have firmly understood the concepts and skills taught. Students who continue to have difficulties will require over-learning hence the teachers would need to review what had been taught previously by going through the PPP stages again.

The PPP stages are used not only for Reading/Listening Comprehension but also in scaffolding and guiding our students in other literacy components such as Writing. In between each PPP stage, there can be various levels of scaffolding and some parts of PPP can be recursive to ensure greater automaticity and confidence before moving on to the next stage. For example, students in between the Presentation and Practice stages can be shown a good deal of teacher modelling followed by the teacher asking a few questions to elicit responses or to reaffirm answers. When students demonstrate greater levels of confidence, competence and automaticity in what they've been taught, the teacher can then undertake the practice activity with the students during Practice. During this stage, more scaffolding may be required to guide the students. If needed, the teacher may need to present the whole concept again. When the students have attained mastery of concepts, they will be asked to carry out the assigned tasks independently.

Reading Comprehension and Annotation

Research findings have supported the importance of careful modelling, scaffolding and active text-annotation to improve comprehension (Fowler & Barker, 1974). This is especially so for students with learning differences to better encourage active participation as well as promote greater maintenance and transference of skills and strategies. Annotation, a writing-to-learn strategy for use while reading or rereading, is highly encouraged to help readers develop a greater and deeper engagement with the text and in turn, promote active reading. Explicit and direct instruction ensures structure, clarity, careful task sequencing and guidance- all of these are essential in supporting students with dyslexia.

Most proficient readers are able to make use of their intuitive knowledge of linguistic structure to help them make sense of the text they read and thus, are able to understand and interpret the writer’s intent and his approach to conveying his thoughts and ideas effectively. However, less proficient readers may not possess this intuitive knowledge and

therefore, need to be trained with a more concrete and explicit technique of interpreting texts such as annotation to help them understand the contents of the text. Annotating a text helps readers pay attention to both grammatical features and vocabulary that are crucial in helping them connect related ideas and interpret more accurately what they are reading.

While annotation as a reading technique is not new to the field of reading comprehension, teacher knowledge and usage of the technique can vary greatly leaning mostly towards a teacher-led approach of explaining meanings instead of demonstrating how textual details especially grammatical features can help to explicate meanings in text including working around unknown vocabulary. Hence the capacity to help learners see the efficacy of annotation technique in bridging the gaps in their understanding of text may not always be successful. As a result, while most students are aware of annotation as a reading technique, they may not be motivated to employ it because they do not understand how to execute the technique independently. Therefore, when teaching reading comprehension to students on MLP, cohesive devices and vocabulary are two main areas of emphasis that teachers will focus on as they guide and scaffold the lessons to help them to interpret texts meaningfully and successfully.

Cohesive Devices

Table 2. Textual Features at word level- Cohesive Devices (Referring Expressions) (Halliday & Hasan, 1976)

TEXTUAL FEATURES	DEFINITIONS/EXAMPLES
Referring Expressions Referring expressions are pronouns or articles that are used to refer to participants in a text categorised in terms of where the referent can be found or the complexity of referent.	
Anaphoric Referring Expressions	The referent of the referring expression can be traced backwards in the text to find the interpretation. E.g. <u>Blood</u> is the main fluid in the body. **It** (= blood) has many functions and thus, no part of the body can survive without it.
Cataphoric Referring Expressions	The referent can be traced forwards in the text to find the interpretation. E.g. In the distance, **they** (= the clouds) looked like huge cotton balls heaped up in a picturesque yet disorderly way; little by little <u>the clouds</u> swelled up and the rain started pouring down from the sky soon after.

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Table 2.1. Textual Features at word level- Cohesive Devices (Referring Expressions-Extended Text Referent) (Benjamin, 2015)

Extended Text Referent	The referent is found by going backwards in the text but involves the interpretation of an entire clause. E.g. Imagine if you will, what it is like to dive into cold black waters, not knowing where or when you will again see the light of day. A cave diver did just **that** (= dive into cold black waters) and found some of the oldest sculptures ever made by man.

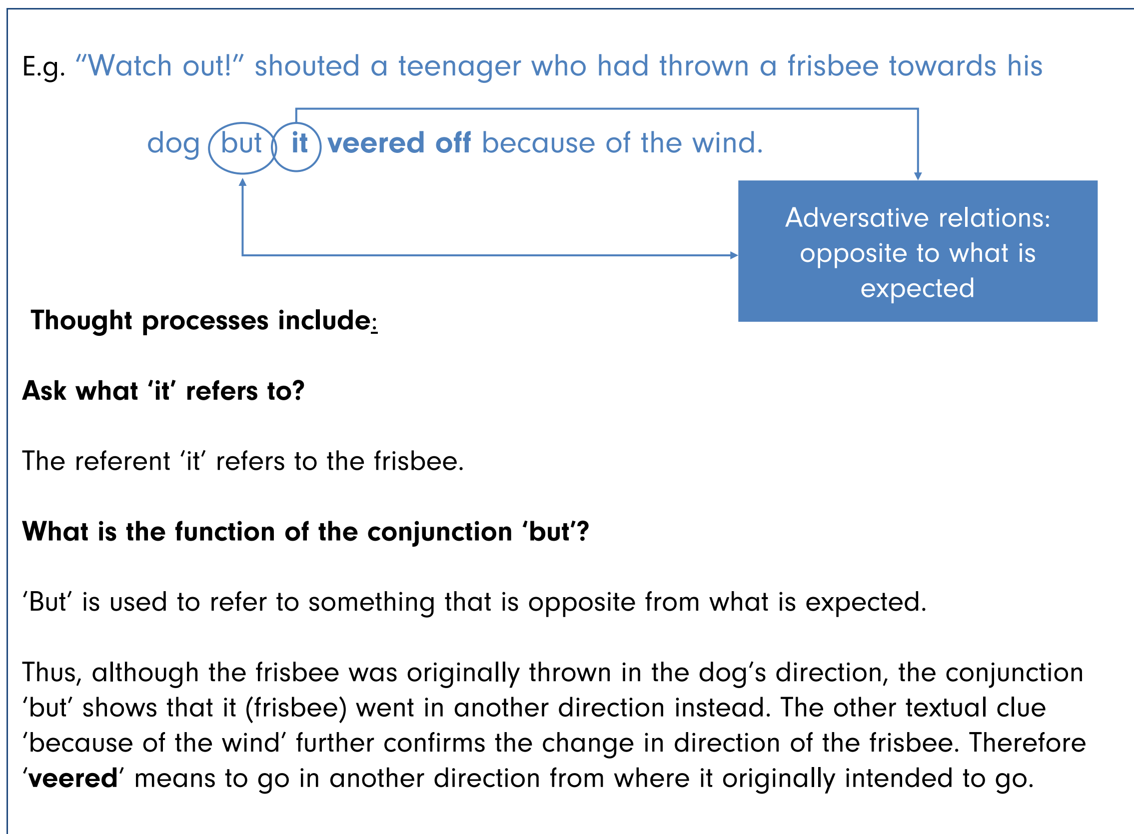
Table 3. Textual Features at word level- Cohesive Devices (Conjunctions) (Halliday & Hasan, 1976)

TEXTUAL FEATURES	**DEFINITIONS/EXAMPLES**
Conjunctions Conjunctions are linking words that show the relationship between clauses that may either be additive, adversative, causative or temporal.	
Additive - signals addition, introduction, similarity to other ideas	Besides being good at cooking and sports, Jane is also a professional pianist.
Causative - signals cause/effect and reason/result/ purpose	It was announced recently that the working hours for nurses would increase by ten percent. Consequently, we can expect even fewer candidates applying to join the profession.
Adversative - signals contrast, conflict, contradiction	I can provide you with some simple directions on how to get to the conference venue but you will have to find your way there yourself.
Temporal - signals chronological or logical sequence	The tired girl slept soundly until her alarm clock went off.

Having the knowledge of cohesive devices such as referring expressions and conjunctions helps students develop text-processing skills required to comprehend texts in general and not just for a particular text or genre. Additionally, referring expressions and conjunctions have been proven to be critical textual targets in the text-processing efforts required for working out answers to comprehension questions (Benjamin, 2002). Consequently it is important for students to pay attention to such cohesive devices in their annotations of texts. For instance, in trying to work out the answers to the comprehension questions, students need to be able to trace the referents to track the flow of events and ideas as well as interpret the conjunctions to understand and note how certain ideas are related to one another in order to interpret the text meaningfully.

The example below demonstrates how students can be guided explicitly to decipher the meaning of 'veered of' by paying attention to the presence of cohesive devices.

Table 4. An example of guided and explicit steps to decipher unfamiliar vocabulary words



E.g. "Watch out!" shouted a teenager who had thrown a frisbee towards his dog but it **veered off** because of the wind.

Adversative relations: opposite to what is expected

Thought processes include:

Ask what 'it' refers to?

The referent 'it' refers to the frisbee.

What is the function of the conjunction 'but'?

'But' is used to refer to something that is opposite from what is expected.

Thus, although the frisbee was originally thrown in the dog's direction, the conjunction 'but' shows that it (frisbee) went in another direction instead. The other textual clue 'because of the wind' further confirms the change in direction of the frisbee. Therefore '**veered**' means to go in another direction from where it originally intended to go.

Vocabulary Knowledge

Vocabulary, according to Richards (1985) involves knowing a word syntactically, semantically and pragmatically and can therefore be understood at three levels:

1. Syntactically- what word forms does a word hold in sentences? Is it a noun, verb, adjective or adverb?
2. Semantics- what does a word mean?
3. Pragmatics- how to use a word appropriately in the correct context

1. Syntactically- what word form does a word hold in sentences? Is it a noun, verb, adjective or adverb?

Table 5. Nonsense Comprehension Text to illustrate the importance of syntax

EXAMPLE: Two days ago, I saw a grandish chester pollining begrunt the gruck. He seemed very thunderbil, so I did not norter him, just feepled towards him quistly. Hopefully, he will be more desand pander later so that I will be able to rangel to him.
What was the chester doing, and where? *He was pollining begrunt the gruck.* What sort of a chester was he? *He was a grandish chester.* Why did the writer decide not to norter him? *He seemed very thunderbil.* How did the writer feeple towards the chester? *The writer feepled quistly towards the chester.* *Adapted from Cambridge University Press, 1996*

The text above, though short and simple, demonstrates the importance of word forms. In spite of the incomprehensibility of the text, the questions are still answerable. While the vocabulary items are unrecognisable, one can still figure out the word forms and answer the questions easily without understanding the meaning of each of the words Thus, if a reader were to recognise the grammatical patterns, he/she would be able to answer the questions rather accurately.

2. Semantics- what does a word mean?

The meaning of a word is determined by the context of the sentence in which it occupies. For unfamiliar words, readers would need to use the grammar and cohesive links within the text to guesstimate the meaning. The lexical cohesive links within the text can support interpretation as demonstrated below.

Lexical Cohesion

Lexical cohesion refers to the synonymous and antonymous links between words in the text.

Synonyms

E.g.1

There is always a certain amount of danger to diving in strange waters.

It is hazardous to explore the dark and winding passages of an unknown cave on foot.

Antonyms

E.g.2

While many desert snakes are harmless, the sidewinder is deadly.

Pale in colour and up to about 1 m long, this rattlesnake has a short, dark

If a student is not able to decipher the meaning of the word 'deadly', the presence of textual clues such as words with similar and/or opposite meanings to the unknown words might help that student work out and therefore, be able to make informed deductions. In example 2: the presence of the conjunction provides an important clue because 'while' is used to compare things, situations or people as well as to show how different they are. Therefore, if a desert snake is harmless, then the sidewinder is 'harmful'- the opposite of harmless.

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Connotations

Words can have both denotative and connotative meanings, that is, holding literal (denotative) as well as connotative meanings depending on the context of the sentences that the words are located in. Connotations can be described as having positive or negative implications while denotations are neutral. Connotation is suggestive and it is dependent on various social overtones, cultural implications or emotional influences. Connotations can be reflected either contextually or by word choice as demonstrated below.

Contextual Connotation:

The word 'snake' can have denotative and connotative meanings depending on the context of the sentence. E.g.

She saw a **snake** slithering up the tree. (reptile) denotation
He was such a **snake.** (evil) negative connotation

Connotative Word choice

The denotative meaning of home is 'a place where person resides' while the connotative meaning of home could mean 'a place of comfort and security'. E.g.

'Our home is not just a house.'

Knowing the different connotations would enable readers to accurately interpret the writer's intent and attitude and his whole approach to conveying his thoughts and ideas.

Table 6. Examples of words with different connotations

WORDS	NEGATIVE	NEUTRAL	POSITIVE
Nosy / curious / inquisitive	nosy	curious	intrigued
Mob / gathering / crowd	mob	crowd	gathering
Young / childish / child-like	childish	young	child-like

Table 6 consists of words with the same behaviour and/or phenomena but with different connotations. For example, the word 'stubborn' has a negative connotation while the word 'tenacious' has a positive connotation although both words represent the same behaviour.

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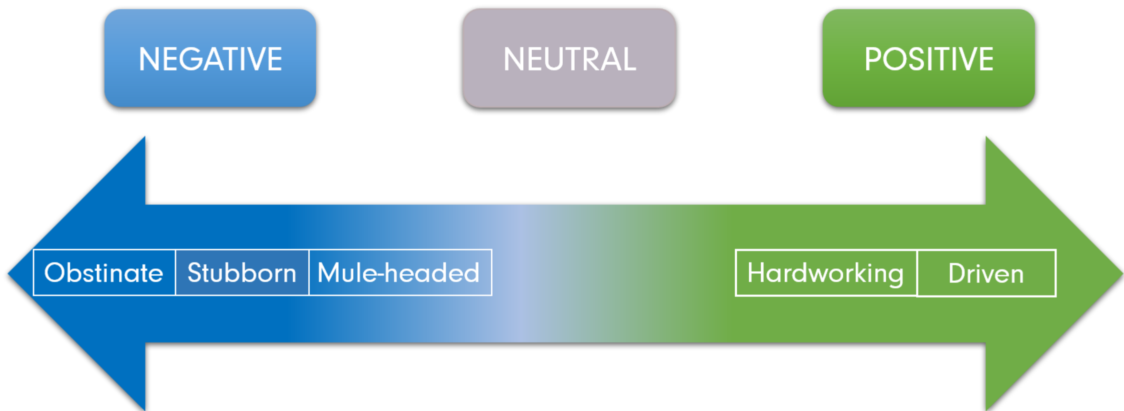

Figure 1. Words with positive or negative connotations with varying intensity

Additionally, there are also some words with only negative or positive connotations although they still differ in terms of intensity and magnitude. For example in Figure 1, the word 'driven' has a much higher intensity (positive) than the word 'hardworking'.

Thus, through the teaching of related words on a gradient, the hope is for the students to be able to capture the nuances between words and thereby increase their precision when it comes to answering the comprehension questions.

3. Pragmatics- how to use a word appropriately in the correct context

Table 7. Examples of words with multiple meanings

POLYSEMOUS WORDS
Words that have the same spelling and pronunciation but with multiple meanings.
Meat is **rich** (= abundant; full of) in protein.
The farmers were delighted that they were able to reap a **rich** (= great worth or value) harvest of crops this year.
The **rich**(= wealthy) businessman bought a mansion close to a million dollars to surprise his only one and beloved daughter.
The **rich** (= vivid and deep in colour) red hue of the queen's gown was mesmerising.

The ability to understand texts is dependent not only on the reader's background knowledge regarding the topic at hand but also his/her familiarity with terminologies and vocabulary used in the given context. Therefore, in order for students to fully comprehend any text, they will need to be aware of textual details such as critical vocabulary and cohesive devices such as conjunctive and referring expressions that must be interpreted accurately in order to better comprehend texts.

In conclusion, the enhanced reading curriculum was derived from a body of literature on good practices as well as techniques devised and evaluated in a rigorous yet flexible approach. The enhanced curriculum was driven largely by knowledge as well as the importance of developing students' text processing skills through the employment of explicit techniques to increase motivation in handling reading tasks as ascertained from the work of Guthrie and colleagues (Stipek, 2002; Guthrie et al.,1999 ; Guthrie and Klauda, 2014).

b) Effectiveness of the enhance programme and perceived efficacy of the teachers

The enhanced reading comprehension 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 teachers to ensure that they 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 students.

In designing the training content, a number of factors were considered that related to teacher training based on both good practice in the literature and previous training sessions delivered at DAS. In a study comparing the effectiveness of two approaches to teacher training, the cognitive apprenticeship model and the direct instruction model, in comparison with no specific training for teachers, significant advantages were found for both approaches (de Jager et al., 2002). The key issues identified included changing the mindsets and practice of experienced teachers, the need for ongoing support and training, and the importance of using videos to review what was covered during training. The results indicated that metacognitive strategy used was the major difference for teachers who had completed the training in contrast to teachers who had no specific training.

Drawing on these principles for effective training outlined above, three mass training sessions were organised and conducted for all MLP teachers, emphasising the key essential reading comprehension skills that are aligned to the mainstream syllabus. The process of teaching and scaffolding those skills using explicit and concrete explanation and techniques were also highlighted to help teachers guide their students towards independence and success. Further, the sessions were also video-recorded and shared with the teachers to allow them to review and watch the videos at their convenience.

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The reading comprehension resource materials designed were also presented in a structured, sequential and cumulative manner to facilitate the teaching of reading comprehension. The materials developed 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 was provided to the teachers through platforms such as focus group sessions and consultations. Moreover, on the ground support led by a team of Educational Advisors was also made available to the teachers should they have encounted any challenges implementing and/or delivering the curriculum.

In addition to organising and conducting the mass training sessions, focus group sessions were also held for all teachers from the different clusters. The intent of the focus group was not only to provide an avenue for teachers 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 them. Thus, in order to ensure that the focus group sessions benefitted the teachers and targeted their areas of needs, they were asked to complete a pre-focus group survey prior to attending the sessions.

METHODOLOGY

Participants

Out of the 120 teachers who attended the training, 80 of them participated by completing all required fields in the surveys administered before and after the training sessions. They provided data on their perceptions of the effectiveness of the enhanced reading comprehension curriculum as well as the approach taken to teach reading comprehension in an explicit and concrete way. The teachers had received ongoing training at the DAS for the Main Literacy Programme (MLP) including the previous reading comprehension curriculum. Additionally, most of them have had several years of experience teaching and supporting students with dyslexia. The surveys included information and data derived from using both the Likert scale as well as open-ended questions.

In addition, the teachers who participated represented the different clusters and have supported students of varying needs and profiles. Lastly, the skills targeted in the enhanced curriculum were classified into three broad categories: basic, intermediate and advanced in order to provide information on the skills the teachers required more support in.

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Materials

The Survey Forms can be found in Appendix 1.

RESULTS

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

- Teachers' perceptions and sentiments towards the enhancements made to the reading comprehension curriculum
- Areas of gaps highlighted by the teachers

Apart from getting the teachers 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 in order to provide a qualitative understanding of their responses.

Teachers' perceptions and sentiments toward the enhanced Reading Comprehension Curriculum

After having implemented the enhanced reading comprehension curriculum, it was pertinent to gather feedback on whether the enhanced curriculum:

- includes skills that are relevant to the students' varying profiles and learning needs, and
- provides more support to students in reading comprehension

In Figure 2, based on a total of 80 respondents, 63% of teachers (summing up those who agreed and strongly agreed) felt that the reading comprehension skills in the enhanced curriculum are relevant to the learning needs and profiles of students in their classes. In other words, the enhanced curriculum as well as the materials developed support their students in reading comprehension regardless of their literacy proficiency and needs.

Even though the enhanced reading comprehension curriculum had only been 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 teachers thought their students had improved in their reading comprehension ability. From Figure 3, it is heartening to know that none of the teachers reported 'no improvements'. On the contrary, 21.3 % of the teachers reported positive results while the majority (78.8%) reported that their students have shown some improvements. The results could suggest that given more time to implement the enhanced reading comprehension curriculum, the teachers would

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

80 responses

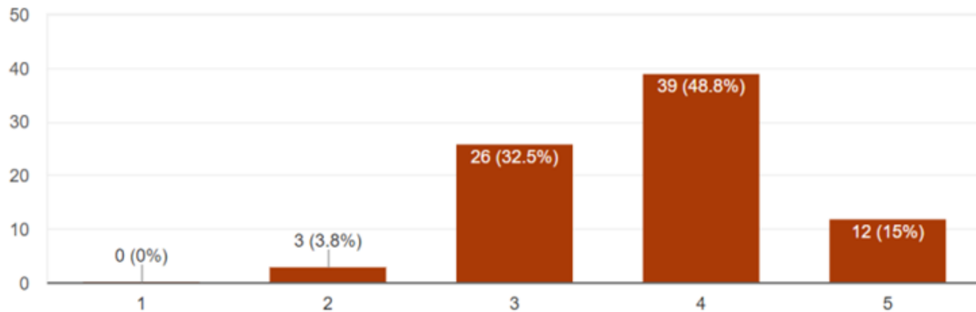

Figure 2. The relevance of the reading comprehension skills for each band

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

80 responses

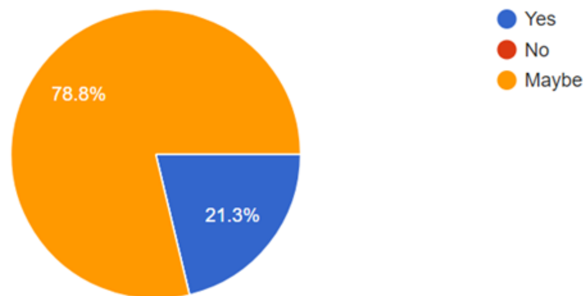

Figure 3. The teachers' perspectives on their students' improvements in reading comprehension

observe more substantial progress in their students' reading comprehension. Some of the qualitative responses extracted (from the survey) and reflected in the table below also yielded encouraging feedback from the respondents.

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Table 7. Qualitative comments from the teachers

♦	"They (students) are more confident and are more able to apply the skills taught to them."
♦	"better awareness in tackling questions"
♦	"Have only covered 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 are not consistent, but there have been improvements when identifying types of questions."
♦	"Yes in my class. and it would very encouraging if I know they use the skills they learnt in their mainstream classes."
♦	"There is more structure in the teaching of RC concepts now. A single concept can be reiterated over a few lessons for better understanding."

Areas of gaps highlighted by the teachers

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

- Which skills do you feel most confident teaching to your students?
- Which skills do you feel least confident teaching to your students?

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.

The comprehension skills were classified into three main categories- basic, intermediate and advanced comprehension skills as shown in Figures 4 and 5. Both figures showed that the majority of the teachers 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.

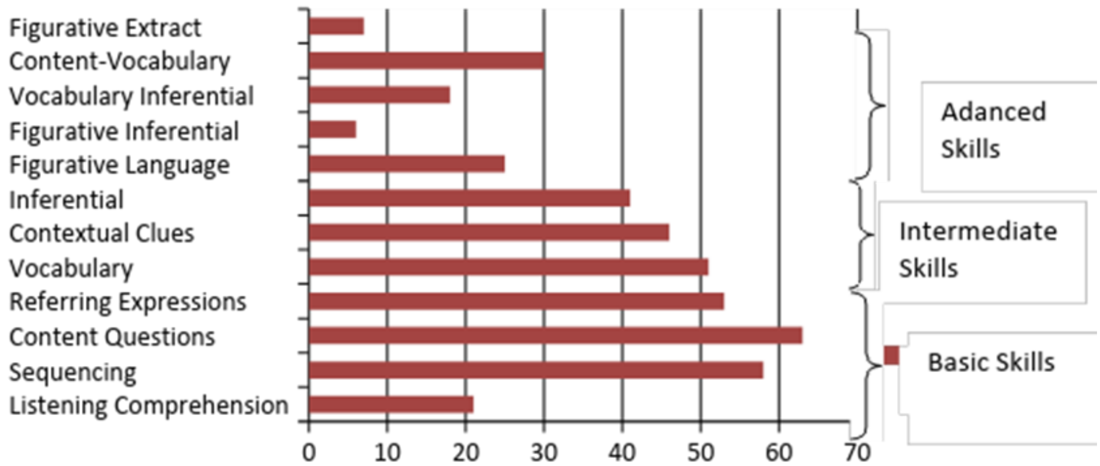

Figure 4. Reading comprehension skills teachers feel most confident delivering

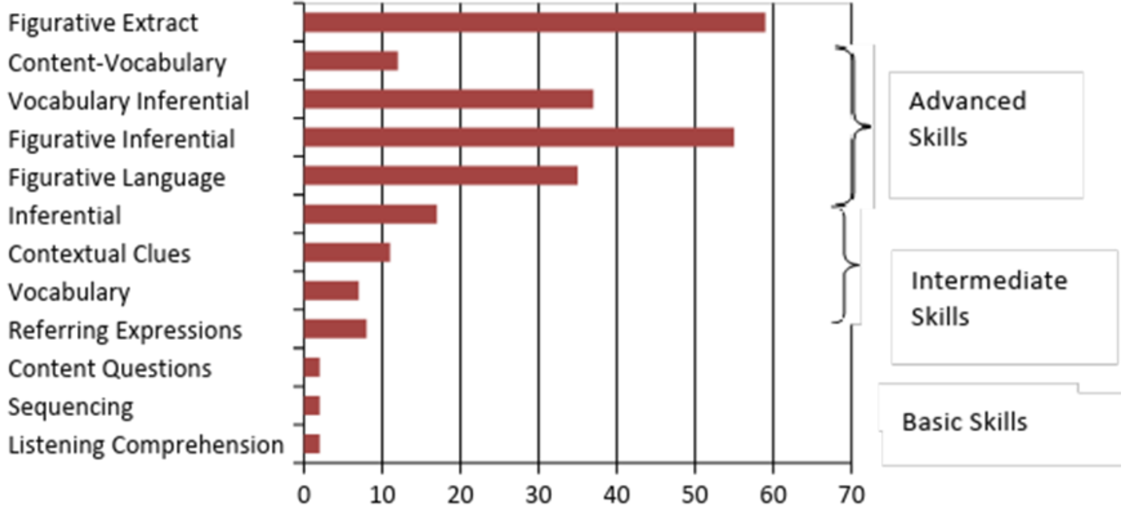

Figure 5. Reading comprehension skills teachers feel least confident delivering

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Additionally, the teachers also struggled 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 on how to annotate and what to annotate are some of the difficulties faced by the teachers.

Hence, the focus group sessions included demonstrations and activities that highlighted the process of annotation to enable the teachers to 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 teachers felt about the sessions and more importantly, gather information on how their students have benefitted from an explicit and structured way of teaching reading comprehension. All in all, the feedback received was positive and encouraging. Below are some feedback extracted from the post focus group survey.

Table 8. Qualitative comments on focus groups

"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"

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

CONCLUSION

This paper highlighted the importance of heightening students' awareness of critical textual features that impact meaning in a text and the appropriate reading skills to employ when interpreting them, consequently empowering students to develop the necessary reading and text-processing skills required to handle any reading text, thereby increasing their capacity to answer comprehension questions. This focus on textual features followed through with an emphasis on vocabulary building that has been shown to help students make significant improvements in their reading comprehension capacities.

Therefore, the explicit teaching of reading skills and textual features as well as the employment of annotation are highly emphasised in the teaching of reading comprehension to students on MLP. Such explicit and structured delivery process increases the opportunities for more fluid discussions of text through teacher modelling and scaffolding in line with the principles of cognitive apprenticeship outlined by de Jager et al., 2001. This approach serves to improve not only the students' reading comprehension skills but also their participation, confidence and motivation to succeed, a key factor for ongoing improvement.

As a first step in evaluating the impact of this approach, a study was undertaken to ascertain the confidence and motivation of the teachers delivering the enhanced comprehension curriculum. The results showed a growing confidence in the teachers who have attended both the initial training and focus group sessions. 100% of the teachers in total thought that the enhanced reading comprehension curriculum had been beneficial to their students, or was likely to prove beneficial over a longer period (21% and 79% respectively). The majority of the teachers (63%) indicated that the explicit and direct teaching approach was appropriate for the students in the bands they were teaching. To address the first research question, the enhanced curriculum appears to be effective based on teachers' perceptions of progress and suitability. The second question which looked at the teachers' confidence in delivering the curriculum showed over 50 out of the 80 teachers expressing confidence in teaching comprehension skills from the basic and intermediate levels. However, equal or greater numbers (i.e. the majority) felt the least confident when it comes to teaching the advanced skills.

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These results provided important information on the need to support the teachers in developing their confidence and competence when it comes to delivering the more sophisticated reading comprehension skills.

Finally, as part of an ongoing process to refine and strengthen the quality and standards of the reading comprehension curriculum as well as improve the learning outcomes for the students, programme effectiveness and efficacy will continue to be evaluated, to ensure that the curriculum remains robust, relevant and responsive to the learning needs of the students. The teaching approach outlined in this study as well as future follow-ups could be seen as an example of best practice in this area in not only considering the needs and motivation of the students but also those of the teachers implementing the curriculum. Ongoing follow-ups will include providing continued support and training to teachers especially in delivering the more advanced comprehension skills as well as evaluate the progress of students.

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APPENDIX 1:

Feedback for RC Phase 1

Dear EdTs, we hope that you've implemented the reading comprehension curriculum in your classes and that you've had the opportunity to use the resource materials. We would appreciate you taking the time to complete this survey as your participation will not only provide information to aid us in preparing for the upcoming focus group sessions, it will also provide information on what helps in the teaching of Reading Comprehension and how our students can benefit more fully from it. The survey responses will also be useful for future revisions of the curriculum.

All responses will be compiled and analysed as a group. Please be assured that the data collected in this survey will only be used as feedback to improve the curriculum and the teaching of reading comprehension.

It will not be used for any other performance-related evaluations. The findings from this survey might also be reported in research studies published by the DAS.

- Which Band do most of your students fall under?
- Do you find the Reading Comprehension skills relevant to the learning needs of students in each?
- Do you find the Reading Comprehension resource materials accessible
- and user-friendly to use?
- Do you find the Reading Comprehension resource materials relevant to
- students in Band A? Band B? Band C?
- Any suggestions to further enhance the resource materials?
- Which skills from Phase 1 curriculum do you feel most confident/least confident implementing? (You may choose more than 1 option.)
    - Listening Comprehension
    - Sequencing of events
    - Content Questions
    - Referring Expressions
    - Vocabulary
    - Figurative Language
    - Contextual Clues
    - Inferential
    - Global Sequencing
    - Figurative Inferential
    - Vocabulary Inferential
    - Content Vocab
    - Figurative Extract

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Please share the reason(s) why you feel confident in delivering the skills selected above.

- Do you think the skills reflected in the enhanced Reading Comprehension curriculum are closely aligned with the mainstream.
  If yes, For which bands? If no for which bands?
- Do you feel that your students have improved in their Reading Comprehension after the implementation of the enhanced curriculum?
- Please share your reason(s) for the above responses

Post focus group feedback (omitting specific sections on aspects of comprehension)

Dear EdTs,

Thank you for attending the scheduled Reading Comprehension (RC) Phase 1 Focus Group. The Curriculum and SPD teams hope that the session has been beneficial in addressing all if not most of your queries regarding the enhanced RC curriculum.

Your time in completing this survey as well as your feedback would greatly aid us as we continue to develop the RC Phase 2 curriculum and teaching materials.
Break-out sessions. Sharing of teaching experiences and feedback on the implementation and planning of Reading

- Do you think that the breakout session was useful in enabling you to share your thoughts and concerns regarding a) lesson planning of the enhanced Reading Comprehension Curriculum to your students?
- Do you think that such a platform was effective in enabling the sharing of your thoughts and concerns regarding b) lesson delivery?
- please provide reason(s) why you think the breakout session was useful/not useful in addressing your thoughts
- please provide reason(s) why you think the breakout session was useful/not useful in addressing your thoughts and concerns regarding a) lesson planning and b) lesson delivery.
- Do you think that sufficient time was allocated for the sharing during the breakout session?
- Was the breakout session effective in encouraging the sharing of thoughts and concerns among participants?
- Would you like small group/peer learning sessions to be conducted in future?
- Were there any queries you had but were not able to share during the session?
- Which topics would you like to cover in future focus groups?
- Which methods of delivery would you prefer for teaching future training. You can choose Group discussion, lecture format, question and answer, lesson demonstration.

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UNITE SpLD 2019 CONFERENCE

Uniting Ideas in Teaching Excellence:
Specific Learning Differences 2018

27 to 28 June 2019

Lifelong Learning Institute
11 Eunos Rd 8, Singapore 408601

The UnITE SpLD Conference seeks to bring together parents, teachers and practitioners working with children with specific learning difficulties and special educational needs. This conference will be showcasing research that covers aspects of behavioural, literacy and social emotional support, intervention and assessment for children with special learning needs. Come and listen to our SpLD experts share their research. Research will be presented it short, engaging and entertaining sessions accompanied by poster presentations and the chance to talk directly with researchers who are making a difference in the Asian region.

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Keynote Presentation—Conference Day 1—27June 2019

Lifting the Bottom - Helping the Disadvantaged

Geetha Shantha Ram[1*]

1. *Dyslexia Association of Singapore*

Abstract

As we continue to explore ways to empower learners and families impacted by learning disabilities, one group in particular perhaps warrants our special attention. Around the world, a significant discourse on poverty and learning disabilities centres on identification woes with a central focus on understanding how the quality of life of families of children with learning disabilities is impacted by a reduced economic status. In 2015, it was reported that a third of the American population lived below the poverty line. While Singapore does not have a clear poverty line, The Borgen Project reports that between 2012 and 2015, the number of families receiving financial assistance in Singapore grew to 43.45 percent, which is the highest poverty rate ever reported in the country. Undeniably, there are amongst the people with learning disabilities.

Are those in greatest need of support and intervention the least likely to receive help due to their social economic status? The Dyslexia Association of Singapore, through the support of the Ministry of Education (Singapore), provides bursaries for more than 50% of the students on the Main Literacy Programme so that they may receive intervention to overcome their dyslexia challenges and the demands for these bursaries continue to grow. Is being learning disabled and of less-resourced a double disadvantage? Are there areas in which learners and families dealing with dyslexia are further impacted due to their low socioeconomic status. This presentation explores the challenges of being learning disabled and poorly resourced through a look at the learners in the DAS and their experiences and how Singapore and the DAS hope to address this concern.
.

Keywords: Bursaries, Financial Support, Low Socioeconomic status, SpLD, dyslexia

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Keynote Presentation—Conference Day 1—27 June 2019

Assistive Technology Enabling Learners

Jim Lee[1*]

1. *Google, Singapore*

Abstract

According to the World Health Organization, more than 1 billion people need one or more assistive products including assistive technology. This figure doubles to 2 billion by 2030. Considering Google's mission is to organize the world's information and make it universally accessible and useful, what is Google doing to help these people?

Technology offers people with accessibility needs a set of tools such as computers, mobile phones, and the Internet to enable learning. Google has dedicated teams and engineers who identify accessibility needs then develop tools and features to help fulfill those needs. These needs are categorized into five types: Vision, Movement, Hearing, Memory and Cognition. This presentation will provide an overview of some of the tools Google has developed and made available to address such accessibility needs.

Keywords: Assistive Technology, Learning Differences

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Using Progress Monitoring Data to Measure the Performance of Singaporean Primary School Students with Dyslexia in the English Exam Skills Programme.

Siti Asjamiah Bine Asmuri [1*] and Andy Wang Ding Xiong[1]

1. *Dyslexia Association of Singapore*

Abstract

The English Exam Skills Programme (EESP) was started in 2013 with the goal of helping Singaporean primary school students with dyslexia achieve in their school and national examinations. Previous studies (Leong, 2015; Leong, Asjamiah & Wang, 2017; Abdul Razak, See, Tan & Leong, 2018) have demonstrated that students who enrolled in the EESP showed improved performance. However, students' performance measured against the duration of their enrolment in the programme were not recorded in these earlier studies. Hence, the performance of three different groups of students who enrolled in the programme at different stages was examined using a one-way ANOVA. Progress of students who have been in the programme for 10 weeks was compared with those who have been in the programme for 20-weeks and 30-weeks. Students who have been in the programme for a period of over 30 weeks demonstrated better retention and application of concepts. Therefore, progress monitoring data informs us that the full level of effectiveness demands longer exposure to the programme.
learning.

Keywords: Standard stream, Foundation stream, Entry test, Annual test, Synthesis & Transformation, Editing, Comprehension

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Dyslexia And The Imagery-Language Connection: Theory, Research, Practice

Angelica Benson[1*]

1. *Lindamood-Bell, United States of America*

Abstract

Based on over 30 years of instructional experience with 45,000 at-risk readers, we know that the imagery-language connection is critical to 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 types of imagery—symbol and concept—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, including those previously diagnosed with dyslexia. A consistent, repeated finding is that students with reading difficulties have shown significant word reading and comprehension improvements with imagery-based sensory-cognitive instruction. These results are observed in an analysis of students' pre-post data disaggregated by the United Kingdom, the United States, and Australia. Neurological research further validates the imagery-language connection resulting in lasting effects on word attack, word recognition, comprehension and specific areas of brain function in students with dyslexia (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, Huber et al., 2018). Supported by Dual Coding Theory (Paivio, 1979), key research findings, and 33 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.

Keywords: Sensory-Cognitive Instruction, Imagery-Language Connection, Reading Intervention, Symbol Imagery, Concept Imagery
Also Presented as a Poster

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Breaking Down Barriers: Dyslexia & Accommodations.

David Campbell[1*]

1. *Scanning Pens Australia*

Abstract

Reading is difficult for dyslexics to master, whilst test taking often presents an almost impossible barrier to overcome. David discusses empowering students with smart reader pens to do both.

.

Keywords: Assistive Technology, Scanning, Smart Pens, Reader Pen, Exam Reader

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Madras Dyslexia Association (MDA) - a 25 years journey

D Chandrasekhar[1*] and Lata Vasanthakumar[1]

1. *Madras Dyslexia Association, India*

Abstract

Many a child with Specific Learning Difficulty (SLD) has gone unattended in the "golden years" of primary classes. This impacts not just the academics but also their social well-being. While the academic gap continues to widen, the child's self-esteem slides down steeply. They also run the risk of turning into social delinquents. Timely identification and providing remedial strategies within the classroom is not just a "band-aid"; it is scaffolding that helps the child optimize his or her academic potential. But how does one reach this support SOS to as many children as possible? This presentation campaigns for empowering the Primary School Teachers to be the first point of succour for children with SLD. This strong recommendation arises from the paradigm –"early intervention in classrooms is the ideal solution" First, the paper discusses the rationale underlying the concerted effort to take remediation to mainstream teachers. Then, it delineates the structured path to provide support to children with dyslexia, irrespective of the barriers of physical distance from large cities, economic strata, school affiliation or family educational background. Next, the paper describes how Madras Dyslexia Association garnered the required infrastructural and government collaboration to reach-out so far and wide. The training programs conducted by MDA are addressing approximately 12,500 teachers in one calendar year, impacting several thousand children. The impact of the activity, lessons learned and best practices are discussed through case studies. Then the paper sketches out the role of the ubiquitous technology in different aspects of the training process. Technology-based planning, monitoring, implementing and collaborating makes it feasible to keep together the growing community of empowered teachers, stakeholders, and facilitators. The lessons learned are ploughed back into the system to improve the remedial support being given to a child with SLD. Analysis of the data exhibits that this process is growing from strength to strength. Finally, it presents evidence that this scalable solution empowers the education system of a vast and dense country like India to provide a ray of hope to dyslexics studying even in public schools to run on minimum budgetary allowances. It can be one of the effective ways to narrow the academic gap and ameliorate the positives outcomes for children who are likely to miss the opportunities to receive remedial support due to different socio-economic barriers.

Keywords: Training program, Empowering Mainstream Primary School Teachers, Class Room Remedial Strategies, inclusive route to reaching out

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Engaging parents of students with dyslexia in the school-based dyslexia remediation programme.

Fiona Cheam[1*] and Lim Pei Ling[1]

1. *Ministry of Education, Singapore*

Abstract

Research has shown that parent involvement is positively associated with children's attitudes towards education and school attendance, and therefore academic achievement. For students with persistent literacy difficulties, various studies demonstrate that parental involvement has a significant effect on the child's literacy development. This presentation will describe MOE's efforts to facilitate parental involvement in supporting children with dyslexia through structured home-based activities. The rationale for the project, the resources and training developed for parents, and the outcomes of the project will be discussed.

Keywords: dyslexia, parent engagement, reading support

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Perspectives of Mainstream Students with Special Educational Needs on Inclusion

Siti Mariam Binte Daud[1*]

1. *Dyslexia Association of Singapore*

Abstract

The increase in the number of students with special educational needs (SEN) studying in mainstream schools has largely been influenced by international developments in inclusive education practices. This has led to strong advocacy for the inclusion of these students in local mainstream schools. Despite increased support and resources to implement inclusion and inclusive education practices, there has not been a substantial investigation into how these practices are perceived by local students with SEN. This research project seeks to examine the perspectives of students with SEN on the inclusion and inclusive education practices in their regular mainstream schools and classes. A qualitative approach was used to generate data through questionnaires and semi-structured interviews with students with SEN who were attending literacy intervention lessons in a local SEN organisation. A thematic analysis coding system was employed in analysing the transcribed data. Students' perspectives were organised in results according to a framework based on three guiding questions:

1) To what extent do students with SEN feel included (or excluded) in their schools and classrooms, i.e. during both academic and social situations?; and
2) What academic or social-emotional barriers do they face that may affect their perspectives of the inclusion or inclusive education practices in their mainstream schools and classrooms; and
3) How can these barriers be overcome? The findings indicate that students had both positive and negative perspectives on the following themes that emerged: Teachers' attitudes, the school system, academic support, and peer support. Barriers related to the themes were also identified with recommendations as to how these can be overcome. These recommendations include a need to develop teachers' attitudes, to explore later school start times, to regulate homework assignment and to promote a culture of respect in the classroom. Future research could look at expanding the criteria of the sample group and supplementing questionnaires and semi-structured interviews with field observations.

Keywords: Inclusion; Inclusive practice; SEN .

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Level of Understanding of Dyslexia Among Indonesian Professionals, Teachers, and Society

Kristiantini Dewi[1*] and Purboyo Solek[1]

1. *Indonesian Dyslexia Association*

Abstract

This study is a simple survey upon the understanding the level of Indonesian people regarding dyslexia done within 17 months started in May 2017, using Google form questionnaires. Total respondents were 2036 persons, coming from various islands of Indonesia. Most of them were teachers, female, aged ranged 30-39 years old, bachelor degree. Approximately 13,6% of respondents believed that dyslexia had low IQ and therefore they would put dyslexic students in a special class set for low IQ students. Nearly 1343 respondents knew that dyslexia is a genetic-based condition, while the rest thought that it was due to poor parenting, poor teaching, impairment of spine, and TV/ Gadget exposure. Nearly one-fifth of respondents believed that poor diet, finger hypotonic and impairment of spine were the underlying medical problems in dyslexia. Most of the respondents (84.4%) knew that dyslexia often has comorbid, and 62,4% believed that the comorbidities were Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). While the rest believed that dyslexia may occur with Intellectual Disability, Autism, Spine Impairment, and Speech Delayed. Most of the respondent (72,5%) still believed in fancy treatment for dyslexia which was Sensory Integration Therapy (44,6%), diet, hiking, riding dolphins, coloured lenses, while only 27,5% understood that dyslexia needs remedial intervention. Most of the respondents (88.8%) agreed that dyslexia could be identified early, nevertheless quarter of respondents still believed that early intervention would heal dyslexia. Conclusion: The level of understanding of dyslexia among Indonesian people across professional backgrounds are still very poor. Further education to those professionals is a must.

Keywords: dyslexia, teacher, professional, Indonesian people
Also Presented as a Poster

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Revisiting the Cerebellar Deficit and Phonology: An Explanatory Theory.

Angela Fawcett[1*]

1. Dyslexia Association of Singapore

Abstract

For many years, our claims that the cerebellum was involved in dyslexia were largely dismissed by established researchers, because there seemed to be no clear link with regions traditionally associated with dyslexia. In this talk, I revisit our cerebellar hypothesis, in the light of new evidence that has revealed for the first time the underlying mechanisms. In an exciting study, US authors (September, 2018) have determined that the cerebellum is implicated in reading by connections with the phonological and semantic circuits, as well as orthographic processing for both familiar and unfamiliar words. These findings confirm all the earlier theoretical research from our group, including automaticity, conscious compensation and procedural learning. Most importantly these insights have strong implications for educational support and confirm our long-standing belief that a broad approach targeting the whole child is likely to be the most effective and cost-effective overall. In terms of assessment, it is important to check for speed of performance, as well as accuracy, using Rapid naming tests, measuring writing fluency and simple motor speed, as well as executive function, and non-word reading tests. Further implications for intervention will be discussed.

Keywords: Cerebellar deficit, phonology, orthography, semantic route, educational implications

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Succeeding Against the Odds With Undiagnosed Dyslexia

David Fawcett[1*]

1. *Regional Sales Manager, Honeywell Controls, United Kingdom*

Abstract

In this talk, David will present some of the insights gained from his many years of involvement in the field of dyslexia, driven by his personal experience of failure in school, leading onto success in adult life. Despite the lack of support that he received in education, he was able to emerge triumphant, with the support of family and key figures in employment. He will share the misery of undiagnosed dyslexia, and of seeing the same pattern emerging in his son Matt. Above all, he will highlight the joy of finding that he is not stupid at all, but of superior intelligence. He will reveal some of the strategies that he has developed to help him achieve success. Finally, insights from Positive dyslexia on how to ensure all dyslexics can be successful will be shared, with something for everyone, including parents, teachers, and dyslexics themselves to learn from these experiences.

Keywords: Intelligence, strategies, positive dyslexia

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Educational Therapists' Perceptions towards an Enhanced Reading Comprehension Curriculum

Fong Pei Yi[1*] and Chua Minqi[1]

1. *Dyslexia Association of Singapore*

Abstract

An enhanced reading comprehension curriculum was developed and implemented at the Dyslexia Association of Singapore (DAS), as part of their specialist literacy intervention programme for individuals with dyslexia. Given that teachers' perceptions have long been associated with the successful implementation of the curriculum in various content areas, opinions of the enhanced curriculum from the DAS educational therapists could inform the future improvements to the curriculum.

Sixty-six educational therapists from the DAS were surveyed to get their opinions on the enhanced reading comprehension curriculum and the materials provided. Preliminary analyses suggest that 65-89% of the educational therapists found the enhanced curriculum to be useful and relevant to the teaching of reading comprehension, as well as relevant to their students' school curriculum. Most also expressed confidence in using the enhanced curriculum. However, only 56% of the educational therapists found the enhanced curriculum comprehensive and easier to implement compared to the previous curriculum. Educational therapists also voiced varied opinions on the need for changes to the teaching materials provided for the enhanced curriculum. Further analyses will be conducted and presented, along with recommendations for further research and enhancements to the reading comprehension curriculum.

Keywords: Teacher Perceptions, Curriculum, Reading Comprehension, Dyslexia

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The Power of Morphological Awareness Instruction: Developing Greater Access to Unfamiliar Words for All Students

Sylvia Foo[1*]

1. *DAS Academy*

Abstract

According to Apel (2014), morphological awareness includes awareness of the meaning of affixes and how they change the meaning and grammatical class of base words/roots, and the relation between base words/roots and the words that can be derived from them. Research shows morphological awareness strongly impacts success in reading, writing and spelling (e.g. Apel & Lawrence, 2011; Nagy et al., 2006; Wolter et al., 2009). Goodwin & Ahn's (2010) meta-analysis of 17 studies found that morphological awareness instruction benefited students with reading, learning, or speech and language disabilities. Morphological awareness instruction is also found to mediate and facilitate vocabulary acquisition, which in turn facilitates reading comprehension (Bowers & Kirby, 2010; Carlisle, 2010; Guo et al., 2011). Morphologically complex words make up 60% of the English academic vocabulary found in school reading comprehension passages (Nagy & Anderson, 1984). Vocabulary seems to be the most persistent challenge affecting second language reading comprehension (Farnia & Geva, 2011). ESL students with or without SpLDs may therefore benefit from morphological awareness instruction to increase their access to word meanings for better reading comprehension. This workshop will introduce and practise morphological awareness activities that can be carried out for students with or without learning difficulties to enhance their access to unfamiliar words. The morphological awareness activities will be based on the work of various researchers (e.g. Bowers, 2012; Goldup, 2010; Apel & Werfel, 2014; Ebbers, 2017; Wolter & Collins, 2017).

The workshop will follow this structure: What is Morphological Awareness? Why is Morphological Awareness important (References will be made to SpLD and ESL contexts). Morphological Awareness activities that can be done in a small group as part of intervention or adapted to mainstream classrooms e.g. Word Sorts, Word Segmentation, Word Building. Word Hunts and Word Relatives.

Keywords: Morphological awareness, written language, reading, spelling, instructional approaches

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Word retrieval abilities in Japanese children with developmental dyslexia. Report based on use of picture naming tasks

Takashi Gotoh[1*] and Akira Uno[2,3]

1. *Mejiro University, Japan*
2. *Tsukuba University, Japan*
3. *Dyslexia Association of Japan*

Abstract

Developmental dyslexia is assumed to be partially caused by word sound retrieval difficulty. We analyzed the word sound retrieval abilities inaccuracy in Japanese children with developmental dyslexia with and without developmental language disorder using picture naming tasks. The participants in this study were 28 children with developmental dyslexia (9 with and 19 without specific language impairment; SLI) and 18 children with typical development. All groups were matched for chronological age; 9 children with developmental dyslexia with SLI was 10.8±1.8 years, 19 children with developmental dyslexia without SLI was 10.7±1.6 years and 18 children with typical development were 10.4±1.9 years. We evaluated the number of correct responses of picture naming tasks using 10 colors and 100 objects.

Picture naming stimuli were selected from the Test of Lexical Processing in Aphasia (TLPA), Standard Language Test of Aphasia (SLTA) and Supplementary Tests for Standard Language Test of Aphasia (SLTA-ST). Children with developmental dyslexia and SLI showed lower scores in picture naming tasks than those in children with typical development and with developmental dyslexia alone. Children with only developmental dyslexia manifested scores in the normal range. Our results suggest that picture naming connects with spoken language development and Japanese children with developmental dyslexia without developmental language disorder have no problem in word sound retrieval accuracy.

Keywords: developmental dyslexia, specific language impairment, picture naming task, vocabulary

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Phonological Awareness and Phonics Instruction: Inclusive practice that benefits all kinds of learners

Masarrat Khan[1*] and Rameeza Khan[2]

1. *Maharashtra Dyslexia Association (MDA), India*
2. *Head of Special Needs, Mumbai, India*

Abstract

There is an impressive array of studies showing that a measure of phonological awareness in preschool children is a good predictor of their reading achievement in early elementary grades. Phonological Awareness provides children with skills to become independent readers as well as good spellers. Phonemic Awareness is the ability to focus on and manipulate phonemes in spoken words. Phonics instruction is systematic when all of the major letter-sound correspondences are taught and are covered in a clearly defined sequence. Poor phonological awareness leads to difficulties with decoding, which is seen as a critical factor in successful literacy development. Structured Literacy, which prepares students to decode words in an explicit and systematic manner, not only helps students with dyslexia, but there is substantial evidence that it is more effective for all readers. As phonological processing deficits are a hallmark of dyslexia, children with dyslexia require direct phonological awareness and explicit and systematic phonics instruction to learn to read and spell efficiently. Research shows English as second Language Learners benefit from direct instruction in phonological awareness and systematic phonics instruction along with alphabetic knowledge. Studies have also stressed the beneficial role of phonological training on the reading abilities of children who come from low-income families.

Through this paper, various phonological awareness activities will be discussed to highlight their importance, and how teachers can tweak their teaching practice to incorporate these activities effectively in an inclusive set-up will be shown.

Keywords: Phonological Awareness, Phonics, Inclusive practice

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Inclusion of Students with Learning Differences

Rameeza Khan[1]

1. *Head of Special Needs, Mumbai, India*

Abstract

A mainstream day-cum-boarding girls' school in a city in India, following the Indian Certificate of Secondary Education curriculum, caters to 1000 students out of which 120 are boarders. Most of the boarders come from economically backward homes, some of whom are first generation learners. Amongst them are students with Language Difficulties and Specific Learning Disorders too. The Special Needs Department comprising of four Special Educators and three Counsellors helps around 120 boarders and 50 day-scholars with academic, emotional and behavior concerns every year. Students receive remediation in reading, spelling and comprehension skills on a regular basis. The language development program conducted for all the boarders helps in successful inclusion. Life-skills programs are conducted in the mainstream classes once a week. Depending on the needs of the students, accommodations such as extra time, oral evaluation, big font, condoning spelling errors, calculator, reader and writer are offered to students with learning differences. There is substantial evidence that structured literacy programs, in addition to helping students with dyslexia, are effective for all kinds of learners. Hence, a major step towards inclusion began two years back when, in Kindergarten, the school introduced Phonological Awareness and Phonics along with evidence-based Cursive Handwriting and Multisensory Mathematics programs. The various programs and activities, offered in school, help our students with learning differences perform at par with their peers. Thus, the school's unique inclusive approach and team work helps students with learning differences to graduate from school with confidence and flying colors.

Keywords: Inclusion, learning differences

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Dyslexia Café – An Experiential Method of Disseminating Information about Dyslexia by setting up a Café

Swetha Krishna[1]

1. *Special Educator, Madras Dyslexia Association, Chennai, India*

Abstract

Learning Objectives:

1. To disseminate information about Dyslexia to the general public.
2. The general public is exposed to information about Dyslexia through experiential learning.
3. The general public is able to understand, at a basic level, difficulties a person with Dyslexia experiences in order to navigate the world, and is able to empathise with them.
4. Knowledge that, much of innovation and entrepreneurial success is because people with Dyslexia use their "unique abilities" in scientific inventions and business enterprise.

Awareness about Dyslexia and about how individuals with Dyslexia navigate the world around them; the struggle in their daily life; how they process information; reasons why they 'fail' repeatedly in reading and writing. This information is experienced hand-in-hand with the positive aspects of having Dyslexia. In this presentation, we will demonstrate how we were able to achieve this by setting up "Dyslexia Café" in collaboration with Writer's Café, a space largely popular with people in the 18 to 35-years age group. We further demonstrate our success in generating public interest and their understanding of Dyslexia by sharing videos; experiential "props" like Pop-quiz sheets, table-top information cards, bookmarks, cloth bags with Dyslexia messages, puppet show, book reading session. These activities will demonstrate how we were successful in achieving our goal of generating awareness about Dyslexia in the general population.

Keywords: Awareness to general population, experiential learning, positive aspects of

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A Case Study: Buddy system to step-up social learning in an inclusive setting

Lee Wei Ling[1*] and Beverley Tan[1]

1. *Kindle Garden Preschool, Singapore*

Abstract

Often in a classroom, adults provide opportunities to support children's social engagements and these lead to sustained interactions with their peers. Better social engagement can lead to independent and empower children. In an inclusive classroom, teachers used a buddy system to support children's peer interaction. Two groups of children, aged between 3 and 5 years, were introduced to the buddy system. 30% of these children have at least one diagnosis such as global development delay, Autism, Down Syndrome, etc. Buddies were selected and assigned by teachers. These were also visually available and accessible to the children. Buddy system was embedded for transition, routine and table tasks. These included walking to and from toilets/rooms, seating arrangement, shower, packing bag, after nap, meal times, etc. The buddy system allows for children with mixed abilities to be partnered. Children were encouraged to seek their buddy's help for a variety of situations. Children were trained to identify opportunities to seek assistance. These led to increase opportunities for social communication in their natural setting. All children learnt strategies to seek help from peers. Through the buddy system, children learn to be more independent in various tasks and routines. The positive behavioural outcome from buddy system will be shared and the impact on the children's interaction will also be discussed.

Keywords: Buddy system, social learning

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A Curriculum-Based Approach: Bridging the Secondary School Chinese Learning Gap

Li Dong[1*] and Tan Ah Hong[2]

1. *Dyslexia Association of Singapore*
2. *National Institute of Education, Asian Languages and Cultures, Singapore*

Abstract

Chinese language learning at the secondary school level focuses on increasing the proficiency of students in their reading and writing abilities. Given the variety of text types as compared to what they have been exposed to at primary school level, a student who has a language learning difficulty would find learning Chinese in school an increasingly difficult task. To help students access the mainstream curriculum more readily, the Dyslexia Association took on a curriculum-based approach to help bridge the learning gap at the secondary school level. Teaching content is organised in themes to raise the language skills of listening, speaking, reading and writing. Progress of the students were tracked for two years using measures such as students' reflection, therapist's lesson log, assessment of taught content, literacy ability tests and lesson observations. The curriculum-based approach has effectively helped learners bridge the learning gap to access the mainstream curriculum, as well as maintain their interest for learning Chinese.

Keywords: Chinese, Dyslexia

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How Teaching with Digital Tools Affect Motivation and Learning Outcome

Soofrina Binte Mubarak[1*] and Rebecca Lim[1]

1. *Dyslexia Association of Singapore*

Abstract

Increasing students' motivation has been one of the key areas that educational institutions work on to better engage students and yield results. It has also been increasingly important especially when working with learners with learning differences, such as dyslexia who usually experience the risk of being demotivated. Motivation is one of the factors that cause people to behave in certain ways. The students who spend the weekend in the library and the students who cannot wait to get out of class to go to the beach are both motivated, but they have different goals and interests. Of course, motivation is not the only factor in student performance. To perform well, a student must also have the right abilities and resources (Broussard, 2002). Without motivation, however, even the most capable working student with excellent support will accomplish little (Boggiano, 1991). There is also the greater sense that, with learner access to burgeoning online resources and with their increasing digital skills, educators are at a point where they ought to rethink their pedagogical approaches and so that students can take control of their own learning, in the direction of higher motivation and learning outcomes. This presentation will cover the following areas in an instructional design perspective: a) principles of technology-enabled learning models (Bloom's digital taxonomy, ADDIE model, Gagne's nine events of instruction and Merill's principles of instruction) b) learner differences and the implications for lesson design - which will provide examples and case studies from DAS MLP classrooms. Audience can thus expect theoretical as well as practical take-ways from this session.

Keywords: Technology, Digital tools, Digital Natives,

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RETA Case Management Discussion on Supporting adolescents with learning and behavioural issues at DAS

Hani Zohra Muhamad[1*]

1. *Dyslexia Association of Singapore*

Abstract

Adolescence, describes as the years between 13 and 19, can be a period of great challenge for many teenagers as they transit between childhood and adulthood. It is a period of multiple transitions which involve changes in physical, psychological, education, social interaction, interpersonal relationship and vocation aspects of human development. It can be made worse if the teenager is diagnosed with a learning disorder such as dyslexia , and a disruptive behavioural disorder such as Attention Deficit Hyperactivity Disorder (ADHD). A teenager who is already grappling with a learning condition and a behavioural issue can be easily frustrated as he/she deals with the complexities and challenges of "growing up". Therefore, identifying the problems faced by the teenager is crucial so that intervention strategies can be put in place in order for him/her to learn optimally, regulate his/her behaviour and emotions as well as act appropriately in any social context. Only then will the teenager be accepted by peers and society at large.
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: adolescents, psychosocial issues, dyslexia, co-morbidities

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Examining the cross-linguistic relations between early reading and writing for simultaneous bilingual children in English and their Mother Tongue language

Beth O'Brien[1*], Nicole C. Lim[1], Malikka Begum Habib Mohamed[1] and Nur Artika Binte Arshad[1]

1. *Centre for Research in Child Development, National Institute of Education, Singapore*

Abstract

There is a strong relationship between reading and writing skills as children begin to acquire literacy, likely because these skills share linguistic and cognitive resources, and experientially they often co-occur (Fitzgerald & Shanahan, 2000). This has been reported for the development of English skills, but these relations have not been investigated more broadly across orthographies. In this presentation, we contribute new information with regard to (a) reading-writing co-relations within different languages: Chinese, Malay and Tamil, (b) consideration of these relations over time longitudinally from the beginning phases of literacy, and (c) skills within simultaneously bilingual children learning to read and write in two languages at the same time. Specifically, we examine the cross-domain relations of reading and writing in each language, the cross-linguistic influence with English for reading and writing, and the latent structure of literacy across the different languages. Cross-lag analysis is used to examine children's reading and writing longitudinally from kindergarten 1 and 2 into primary 1. At kindergarten 2, we also assessed their literacy-related skills of metalinguistic awareness and receptive vocabulary, and analysed the contribution of these skills to literacy for English and the other languages.

Keywords: Bilingual children, Literacy, Read, Write, Mandarin, Malay, Tamil, English

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Cognitive Abilities Related to Reading and Writing attainments in Chinese Third-graders

Jieping Ou[1*]

1. *University of Tsukuba, in Japan.*

Abstract

In this study, we investigated the characteristics of cognitive abilities as predictors of Chinese reading and writing. A total of 140 Chinese third-grade children in Ningbo, Zhejiang, China were assessed for their abilities to read and write Chinese, as well as their cognitive abilities and nonverbal intelligence. A series of reading and writing tests were conducted to evaluate the children's reading and writing attainments in Chinese. Moreover, Rey-Osterrieth Complex Figure Test, Rapid Automatized Naming, and The Standardized Comprehension Test of Abstract Words were conducted to examine children's visual cognition, naming speed and receptive vocabulary, respectively. Onset/rime deletion and non-words repetition tests were carried out to examine their phonological awareness and phonological memory. Children were devided into three group based on their reading or writing scores:low score group (LG), average group (AG) and high score group (HG). Results of Mann-Whitney U test indicated that the socre of phonological memory, naming speed, and visual cognition in HG is significantly higher than in LG. Results of multiple regression analyses revealed that visual cognition and phonological awareness were significant predictors for word and non-word reading, respectively. Naming speed showed a significant contribution to the rapid reading of words, non-words, and paragraphs. The results also indicated that the performance of word and non-word reading are factors for predicting writing test scores. Our findings suggested that visual cognitive

Keywords: Reading; Writing; Visual cognition; Phonological awareness; Naming speed

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Motor Dance Training: practical exercises to improve reading in dyslexia

Eleonora Palmieri [1*] and Piero Crispiani[2]

1. *Psychological and Pedagogical Victor Center Macerata, Italy*
2. *University of Macerata, Italy*

Abstract

The target is to improve multitasking performances stimulating cognitive and motor functions through the application of Motor Dance Training as a part of Cognitive Motor Training, based on the Crispiani Method. The training provides infinite variety of exercises with movements, rhythm and music and it can be easily applied in group activity or individually. Participants will be introduced to dancing training with practical exercises walking on the spot or forward and backward, sitting on the floor. The presenters, in front of the group, will assume the role of modelling. The Dance Motor Training help people with dyslexia to be active and well coordinated with a better self – esteem in a fun innovative way, achieving considerable improvements in reading.

Keywords: rhythm, music, multitasking, cognitive and motor functions

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An Exploration of the Impact of Picture Book Illustrations on the Comprehension Skills, Vocabulary Development and Engagement Level of Children with Dyslexia

Deon Poh [1*]

1. *Dyslexia Association of Singapore*

Abstract

The main characteristics of dyslexia include difficulties in the accuracy and fluency in word recognition, word decoding and spelling. Due to the difficulties in the acquisition of these basic literacy skills, it may result in secondary difficulties like reading comprehension, writing and vocabulary development. Comprehension and vocabulary are essential components to acquire in developing literacy skills. Research has shown that the formal instruction of literacy skills to learners with dyslexia needs to incorporate highly structured and systematic teaching that uses multi-sensory methods to tap on their cognition and construction of knowledge. Learners, in our current society, experience pictures and images in almost everything they encounter. In educational settings, visual elements like pictures with text in textbooks, Smartboards and computer interfaces are prevalent. As such, incorporating visual literacy instruction (e.g., supplementing picture books with illustrations) into our educational process might aid in the development of literacy skills for learners with dyslexia. This current research sought to examine the impact of picture books on learners with dyslexia. One group of learners was exposed to the illustrations and another group of learners was not exposed to the illustrations were investigated on their comprehension through retelling and vocabulary development. This research also investigated these learners' engagement during picture book instructional sessions. Seven students (mean age = 10 years 9 months) diagnosed with dyslexia participated in this study The results showed that the group of learners who visually experienced the illustrations accompanying a picture book demonstrated moderate improvement in overall comprehension through retelling as opposed to the other group which was not exposed to the illustrations in the picture book storytelling sessions. The group which saw the illustrations also exhibited higher indirect vocabulary development than the other group who did not see the illustrations as the story was read to them. More significantly, the group which saw the illustrations displayed a higher level of engagement through observations of their physical characteristics during the sessions. The findings from this study have implications for the curriculum development at any educational settings who support learners with dyslexia to incorporate picture books into its literacy instruction.
Keywords: Picture books, illustration, comprehension, vocabulary, engagement, children with dyslexia

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Development of Adaptive Experiential Learning via Interactive Contemporary Education with Virtual Reality (AELVICE)

Pong Ke Xin (Stella)[1*], Lau Jia Xian[1] and Wesley Tan Chee Wah[1]

1. *Nanyang Technological University, Singapore*

Abstract

Today, students with dyslexia are limited in their abilities as they can only practise public speaking within a small class size. The development of our Adaptive Experiential Learning via Interactive Contemporary Education with Virtual Reality (AELVICE) is a fresh educational approach which aims to assist dyslexic students in improving their presentation skills, by allowing them to experience presenting in a virtual room with a larger audience size and providing a safe learning environment. In this virtual environment, the learner will be guided on script reading, and be prompted if he/she is speaking too soft, and/or not having sufficient eye-contact with the audience. Research shows that perceived visual clutters render text illegible for dyslexic learners [1]. AELVICE here enables the customisation of scripts to be read word-by-word, thereby resolving visual clutter and addressing one of the biggest challenges dyslexic students face. Reducing visual clutter empowers dyslexic learners to improve both their presentation and reading skills [2]. An adaptive system will also be implemented, whereby the student will be given less guidance when the student becomes more confident.

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Keywords: Adaptive learning, Contemporary Education, Dyslexia, Virtual Reality

Also Presented as a Poster

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The Face of Educational Well-Being: Mind full to Mindful

Harsheeni Rajoo[1*], Tarsheeni Rajoo[1] and Pratyusha Sridhar[1]

1. *Dyslexia Association of Singapore*

Abstract

Educators encounter high levels of occupational stress that result in burnout, poor teaching, and attrition. Equipping educators with resources to cope helps buffer against challenges. Effective resources include work climate, job social support, job autonomy, and skill discretion, and personal traits, such as self-efficacy and optimism (Bakker & Demerouti, 2007). The Staff Professional Development (SPD) Division at the Dyslexia Association of Singapore (DAS) supports our Educational Therapists (EdTs) with the expertise of our board of proficient Educational Advisors (EAs) - who along with ensuring seamless and consistent work quality assurance, strive to create a fulfilling experience for all our EdTs. More recently, the SPD Division has adopted CalmEd, a mindfulness-based well-being initiative, as part of enriching this support extended to our EdTs. Having established an understanding from a recent study on how mindfulness efficaciously impacts the euthenics of a group of EdTs, CalmEd kicked off its pilot project with our board of EAs to investigate further how else mindfulness-based approaches can bolster the well-being. Some of these approaches include sending weekly mindfulness reminders, encouraging deliberate mindfulness practices such as filling out the five-minute retrospect journal, breathing techniques, and even enjoying a nourishing snack. Mindfulness has been defined as, 'paying attention in a particular way: on purpose, in the present moment and non-judgmentally' (Kabat-Zinn,1994, P.4) A considerable body of evidence with adult populations indicates that mindfulness, a particular way of deploying attention and awareness in the present moment without emotional reaction or conceptual judgment, is instrumental in helping adults reduce stress, regulate emotion, and thereby improve their health and well-being (Carmody & Baer, 2008; Grossman, Niemann, Schmidt, & Walach, 2004). Research has shown that educators are more likely to experience occupational stress that results in occupational burnout (Wisniewski & Gargiulo, 1997). The results of this is usually a rise in teacher attrition. CalmEd is a mindfulness-based well-being initiative adopted by the Staff Professional Development (SPD) Division at the Dyslexia Association of Singapore (DAS) to ensure the well-being of educators while promoting a positive working environment. CalmEd is guided by mindfulness-based principles to help educators improve their overall well-being. This workshop aims to share the results of a case study on how mindfulness efficaciously impacts the euthenics of a group of Educational Therapists and an ongoing project with the Educational Advisors at the DAS.
Keywords: mindfulness, educators, well-being

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Technological scaffolding for reading- MDA- Avaz Reader, an assistive reading app

Harini Ramanujam[1*], and Mala Natarajan[1]

1. *Madras Dyslexia Association*

Abstract

“To learn to read is to light a fire” said Victor Hugo in Les Miserables. If this is so, then unfortunately many people with Specific Learning Difficulties are in darkness since fluent reading eludes them. While remedial teachers equip the child with coping strategies, continuous support during every instance of reading may not be possible. “MDA- Avaz Reader”, the reading app provides this assistive framework. Based on well researched, time tested and successfully implemented practices, this easy to use app provides familiar reading strategies on demand for any textual material of interest in a personalized manner. These reinforcements work towards building and strengthening all the facets of reading i.e. decoding, fluency and comprehension. With sustained use of MDA-Avaz Reader, children who struggle with print become better at processing words and reading independently. Firstly the paper discusses the vital need for an app that provides assistance for reading- an indispensable life skill. The presentation then goes on to showcase the different features of the app-the visual appeal, seamless migration from print to digital content, choice of reinforcing reading strategies, customizability etc. It is a predominantly offline app, only some actions require online connectivity. The paper showcases the well-thought-out integration of this app with the teaching-learning process of a child with Specific Learning Difficulty. It then discusses the model adopted to make it economically viable for the developer to sustain progressive improvements in the features of the app, while ensuring it can be afforded by most people. Madras Dyslexia Association has been working closely with children and observing and measuring the gains from the usage of this app. The paper provides evidence through case studies on the academic, emotional and social impact of this app on its users (with Specific Learning Difficulty). MDA proposes to take this scalable and customizable assistive device to people with reading difficulties across different demographics, empowering them to read gainfully and independently. It is an educational resource and a productivity tool that people with reading difficulties need, to succeed.

Keywords: Assistive reader, app for reading, scale up fluency, scale up comprehension, reading strategies on demand, promotes independent reading

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"Dyslexia is not a Backdoor"—Personal Dyslexia Story

Dayantara Priyo Santano[1*]

1. *Student, Jakarta, Indonesia*

Abstract

Jogjakarta is not a strange city to me. It cannot be counted on the fingers, how many times I've been visiting the city which is famous for its traditional food called 'Gudeg'. My visit this time was very different from the other trips before. Why? This trip is actually made for fulfilling my MYP project at school as one of the requirements of passing IB standards.

This project asked all students to make something that they liked but it had to be challenging. Writing a book is something that I find challenging regarding my dyslexic condition. But, travelling and photography is something that I like. Out of curiosity, I finally decided to make a trip down to the route of the Imaginary Line of Jogja which was very interesting to explore accompanied by two mentors on November 5th , 2016. Under the guidance of my supervisor, I made a pocketbook that guides people especially those with dyslexia throughout the journey of the Jogja imaginary line.

In producing the book, I was supported by my parents and a team of editor and graphic designer. This was my strategy to cope with what I think are the challenges in making a book. The process made me learn that we need other assistance to overcome our challenges and turn it into a new opportunity to develop ourselves. As a result, I have produced a pocketbook of journal as a reward of all the efforts that have been done.

Keywords: Traveller's Pocketbook: Jogja's Imaginary Line

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Incorporating technology in comprehension instruction for preschool children

Shakthi Bavani Sathiasilan[1*] and Vera Tai[1]

1. *Dyslexia Association of Singapore*

Abstract

It is inevitable to incorporate technology into learning especially for preschoolers. Technology has the ability to enhance relationships between teacher, students and the process of learning as it keeps children engaged. Comprehension is the ability to read, understand and process language. Comprehension skills allow children to pick up vocabulary, improve their memory and gain the ability to acquire more advanced literacy skills. Poor comprehension in children jeopardises their ability to understand instructions, concepts and hence children face difficulties to apply what they have learned. Hence, pairing technology and comprehension instruction will definitely make intervention more motivating. For preschool children, comprehension skills can be built with and without reading texts. Technology can be used to enhance such skills in a multisensorial mode of learning. Computers, tablets and other forms of technology bring multiple resources such as apps and resources not typically available in books. Skills required for successful comprehension can be strengthened daily in fun and easy ways. The workshop will focus on the different methods to build a variety of literal and evaluative comprehension skills that will allow the preschool children we support to learn better. This workshop will provide examples and highlight available resources on how to incorporate and build comprehension skills into daily conversations, structured verbal communication, story-telling and reading activities based on different level of abilities, with technology.

Keywords: comprehension skills, comprehension instruction, preschool children, technology, kindergarten

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Assessing Language in Bilingual Children with Dyslexia

Seet Xian Hui[1*]

1. *Dyslexia Association of Singapore*

Abstract

Background: There have been inconsistencies in the literature on whether children with Developmental Dyslexia (DD) have grammatical deficits on top of their written language impairments (Altmann, Lombardino, & Puranik, 2008; Ramus, Marshall, Rosen, Lely, & Hall, 2013). In Singapore, the bilingual environment and influence of Singapore Colloquial English (SCE) have made it especially challenging to identify language difficulties. Objective: To obtain the morphosyntactic profile of children with DD, using a newly developed sentence repetition (SRep) test and to compare them to typically developing (TD) age peers. Method: 10 Primary 1-2 children (aged 6;9 – 8;5 years) with DD who are English-Mandarin bilingual and English-dominant, were matched on their age and non-verbal intelligence to a control group of 10 TD peers. The children were assessed on their non-verbal intelligence (Ravens Colored Progressive Matrices), verbal short-term (Digit Forward) and working memory (Digit Backward), as well as oral (CELF-4 UK Core Language subtests, BLAB English receptive vocabulary, SRep test) and written language abilities (WRAT-4 reading and spelling subtests). Results & Discussion: When compared to TD children, quantitative and qualitative analyses of performance on the SRep test revealed group differences in the overall score as well as number and type of errors, providing support for the view that there are underlying oral language deficits common in children with DD. A model reflecting the non-phonological deficits of children with DD was proposed. EBP Implications: This study identifies areas for intervention with children who have DD in Singapore, and provides evidence for the SRep test as a potentially useful oral language screener.

Keywords: dyslexia, developmental language disorder, bilingual, sentence repetition

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Teaching Science using the inquiry-based learning approach (IBL) to primary school students with dyslexia

Kavitha Tiruchelvam[1*]

1. *Dyslexia Association of Singapore*

Abstract

Inquiry-based learning approach (IBL) describes a cluster of student-centred approaches to learning and teaching that are driven by inquiry or research. It empowers students, positioning them as active participants in their education and preparing them to work under their own initiative especially in a Science classroom. Teachers and students can use talk to work through their Science ideas and build co-constructed understandings of Science phenomena (Mortimer & Scott, 2013). However, unlike a narrative text, a Science text is an expository prose which includes different text structures and vocabulary (Gajria et al., 2007). This becomes a great struggle for students with dyslexia in their mainstream schools who have learning difficulties in reading and comprehending the text with specialized Science vocabulary. With the aim to provide support for our primary school students with dyslexia, both Science workshops and short-term programmes have been designed using the inquiry-based learning approach to teach Science at the Dyslexia Association of Singapore. During the Science lessons, these students were encouraged to explore, discover, investigate, evaluate and elaborate on Science as an experiential learning in their daily lives, society and environment.

Keywords: Dyslexia, Teaching Science, Inquiry-Based Learning

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What does it mean to know a word?

Jasmine Tse[1*], Juzailah Amin[1] and Safina Bte Hassan[1]

1. *Dyslexia Association of Singapore*

Abstract

Students from the age 11-17 diagnosed with Dyslexia face difficulties reading a word that they are unfamiliar with and this makes understanding its meaning a problem. It gets even more challenging for them to be able to use the word accurately in the right context. This in turn hinders their ability to read with understanding, and to write with accuracy and precision.

Therefore, recognizing the challenges faced by these students is key in planning intervention strategies. A direct vocabulary instruction approach provides them with specific word instruction and word-learning strategies. Specific word instruction allows students to have an in-depth knowledge of word meanings. Practitioners working with students who possess a limited range of vocabulary need to understand what it truly means to know a word. A struggling reader would benefit from a direct instruction that considers the word forms, synonyms, antonyms, homonyms of a word. To deepen the learner's experience with a new vocabulary item, connotative meanings and nuances amongst synonyms should also be explored.

Multiple exposures to these words in different contexts provide many opportunities for them to use the new vocabulary expressively and receptively. Dyslexia learners benefit from an approach that is highly structured, with opportunities for repetition and reviews. The Marzano 6-Steps provide such an avenue for learners with dyslexia to build vocabulary that would support their advanced literacy skills.

This workshop will provide intervention strategies to help students use a word correctly using direct vocabulary instruction and this will build their writing and reading comprehension skills.

Keywords: Vocabulary

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Experience Sharing of Mainland China on Dyslexia Intervention Mode and Service System

Wang Lei Ryan[1*]

1. *Shenzhen Sparkling Education, China*

Abstract

Although the intervention service for dyslexia in Mainland China started late, it has made remarkable achievements through the development of these years. Shenzhen Weining Dyslexia Education Centre as the representative of Mainland China's dyslexia service organizations has created a hierarchical intervention model and service system suitable for the Mainland of China according to the actual situation of simplified Chinese areas. Hierarchical intervention model includes public education, community and school support, family intervention and individual training. Meanwhile Shenzhen Weining Dyslexia Education Centre establishes a trinity service system of school, family and institution to give full play the role, power and wisdom of schools and parents.

Keywords: Chinese Dyslexia Service, hierarchical Intervention mode, three-in-one service platform System

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Difficulties in expressing numbers in words: A study on Grade four students with dyslexia in Singapore

Rebecca Yeo[1*] and Siti Aishah Binte Shukri[1]

1. *Dyslexia Association of Singapore*

Abstract

The ability to read numbers and to speak about them is one of the basic skills in mathematics, yet there is a dearth of research on the difficulties students experience when trying to express numbers in words, especially in relation to dyslexia. This study explores the types of errors students with dyslexia were making with expressing 5-digit numbers in words. This investigation is part of a larger research study to measure the performance of a group of Grade 4 students in Whole Number concepts after attending a 6-month long mathematics intervention programme at the Dyslexia Association of Singapore. These students have been identified to have dyslexia as well as mathematical difficulties such as having difficulties with remembering times tables, fluent and accurate calculation, and understanding word problems. Results from both qualitative and quantitative analyses showed that the participants' errors could be classified as: (1) spelling errors (e.g. spelling the number 40 as "fourty"); (2) punctuation errors (e.g. omitting a hyphen in "twenty-seven"or a comma after the word "thousands"); and (3) sentence structure errors (e.g. using the conjunction "and" too frequently when expressing 5-digit numbers in words). Although students did make fewer errors after the intervention, the types of errors made remained constant. This study concludes with possible causes for such errors and provides suggestions for professionals working with dyslexic students on mathematics about what they could do to better support their learners in this task.

Keywords: Writing numbers in words; number sense

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Difficulties in expressing numbers in words: A study on Grade four students with dyslexia in Singapore

Elizabeth Ow Yeong[1*]

1. *National Institute of Education, Nanyang Technological University, Singapore*

Abstract

This is an ethnographical qualitative inquiry into the quest to explore the factors (both personal and systemic) that have enabled educators (which hereby refer to both teachers and allied educators for learning behaviour support) to effectively work with students with special needs in the mainstream Primary and Secondary schools, and enabled these students to have a positive experience in schools.

By employing information gleaned from multiple audio-recorded and verbatim transcribed interviews from educators who had worked effectively with students with special needs from the four different school zones, and from 15 different schools (Primary and Secondary) with students from varying Socio-economic status (SES), the research explores the factors that have enabled the educators to be effective in their support, both on a personal and on a systemic level.

A framework is then proposed for educators to enable them to effectively work with students with special needs in the mainstream Primary and Secondary schools in Singapore.

Keywords: Enabling factors, special needs, mainstream

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Robots and children learning differently: A Brief Review of Robot Applications For Young Children

Patricia Ng Mui Hoon[1*]

1. *Education Consultant, Early Childhood and Special Education*

Abstract

The purpose of this review is to explore robot use for its potential benefits in educating today's children who need to be learning differently from the generation before. As children are growing up in an increasingly tech-savvy world, this review would serve to raise the awareness of robot applications developed for young children. The studies and reports included in this review are a selection of robot applications used with children in the general population of early childhood (0 - 8) years. Based on collaborative efforts in function and design such as the use of puppetry, as well as curriculum design in areas such as behaviour modification, social or motor skills, numeracy, language and literacy through storytelling and/or games, the robot applications reviewed here have been found to present with great potential for a dynamic way to educate the young. Implications for use with children with special needs are discussed

Keywords: Robot applications, young children, learning differently, general population.

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Auditory, Visual and Cross-Modal Temporal Processing Skills among Chinese Children with Developmental Dyslexia

Li-Chih Wang[1*]

1. *Department of Special Education & Counselling, The Education University of Hong Kong*

Abstract

The present study examined whether temporal processing (TP) is associated with the reading of a non-alphabetic script, i.e., Chinese. A total of 126 primary-school-aged Chinese children from Taiwan (63 children with dyslexia) completed cross-modal, visual, and auditory temporal order judgment tasks and measures of Chinese reading and literacy-related skills. The results showed that typically developing children and children with dyslexia differed in all TP skills. Structural equation modeling indicated that cross-modal TP contributed independently to character recognition in the entire sample if the significant effects of phonological awareness, orthographic knowledge, and rapid automatized naming were considered. The multi-sample analysis showed that TP did not predict reading in the typical group after controlling for literacy-related skills, but visual and cross-modal TP skills independently contributed to reading in the dyslexic group in addition to literacy-related skills. Finally, the path analysis indicated that in the typical group, separate TP skills affected reading through literacy-related skills, but visual and cross-modal TP skills had direct effects on character reading in the dyslexic group. These findings suggest that TP is more important for reading in children with dyslexia than in typically developing children, and the roles of TP in dyslexia require further examination.

Keywords: temporal processing, cross-modal, dyslexia, Chinese

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Saccadic Suppression in Dyslexics

Parameswari Shunmugam[1*], Vijayakumar V.[2] and Muthusamy K. A.[3]

1. *Port Dickson Polytechnic, Malaysia*
2. *University Cyberjaya, Malaysia*
3. *University of Malaya*

Abstract

EEG data was obtained from dyslexics and controls during a reading task. The data was then cleaned and analyzed using EEGLAB. An event-related spectral perturbation (ERSP) analysis of the two groups for every electrode was performed and the output displayed graphically. Visual inspection of the plots enabled us to compare visual signal suppression indicated in ERSP plots obtained from our EEG data. From these plots, we have found significant differences in saccadic suppression before, during, and after the onset of saccades between the dyslexics and controls.

Keywords: Reading, saccadic suppression, dyslexia

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Li-Chih Wang[1*]

1. *Department of Special Education & Counselling, The Education University of Hong Kong*

Abstract

The present study examined whether temporal processing (TP) is associated with the reading of a non-alphabetic script, i.e., Chinese. A total of 126 primary-school-aged Chinese children from Taiwan (63 children with dyslexia) completed cross-modal, visual, and auditory temporal order judgment tasks and measures of Chinese reading and literacy-related skills. The results showed that typically developing children and children with dyslexia differed in all TP skills. Structural equation modeling indicated that cross-modal TP contributed independently to character recognition in the entire sample if the significant effects of phonological awareness, orthographic knowledge, and rapid automatized naming were considered. The multi-sample analysis showed that TP did not predict reading in the typical group after controlling for literacy-related skills, but visual and cross-modal TP skills independently contributed to reading in the dyslexic group in addition to literacy-related skills. Finally, the path analysis indicated that in the typical group, separate TP skills affected reading through literacy-related skills, but visual and cross-modal TP skills had direct effects on character reading in the dyslexic group. These findings suggest that TP is more important for reading in children with dyslexia than in typically developing children, and the roles of TP in dyslexia require further examination.

Keywords: temporal processing, cross-modal, dyslexia, Chinese

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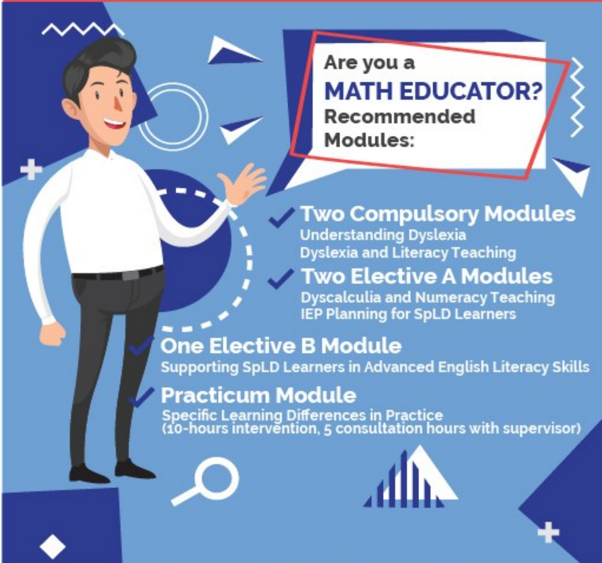

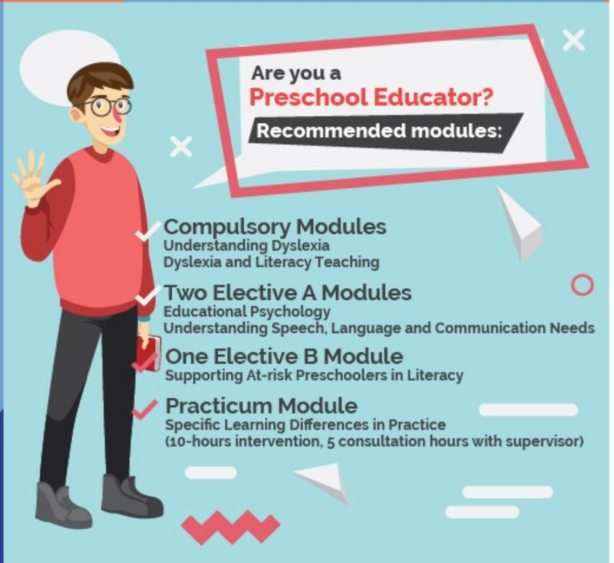

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Asia Pacific Journal of Developmental Differences

Guidelines for Contributors

Overview

The Asia Pacific Journal of Developmental Differences (APJDD) will be unique in addressing a range of special educational needs including dyslexia, autism, dyspraxia, dyscalculia, ADHD in the Asian context. The journal will cover theory into practice and will provide a showcase for research in the Asian context as well as highlighting research areas which have implications for further research within Asia and beyond.

Frequency of Journal

The Journal will be published twice a year in January and July.

Contributions Considered for the Journal

Primary consideration for publications will be given to manuscripts that are focused on developmental differences within the Asia Pacific region. Manuscripts will be peer reviewed and included in the journal on the following criteria:

- They contribute to the further understanding of developmental differences as well as the applications and implications in the educational, social and cultural environments.
- They include sound research methods, interpretation and validity of results
- They contain organised and clarity of writing
- They contribute to the local Asian context
- They should be original papers that have not been submitted to other journals or publications.

Editorial Policy—Retractions

The APJDD takes the issue of retractions very seriously. In line with requirements of major academic journals the APJDD will continue to monitor publications for retractions. No future citation will be permitted for articles that have been retracted and a correction will be issued if any such article is published in error. In the case of citations prior to retraction no such correction will be issued, in line with the policy for other journals of this type. Please contact the editor in the first instance if there are any concerns. COPE guidelines have been accessed in preparing this guidance.

Articles published in the APJDD should be original work that has not been published in this form elsewhere. In rare instances where previous publication has been made, this will be fully acknowledged.

Scientific Review Committee

In common with a number of other academic journals, we are now setting up a scientific committee of reviewers to assist the editor and editorial board in the review process.
In forthcoming issues, a list of members recruited internationally will be presented, with a short bio for selected members published in each issue.

Submission of Manuscripts

All manuscripts are to be sent in electronic copy (MS WORD) as well as a PDF copy of the final edited document. PDF copy is required to verify the word copy and for publishing purposes. There is no need to submit hard copies of manuscripts.

Images, charts and diagrams should be sent separately where possible to ensure high quality reproductions.

Submissions are to be emailed to the editor at both email addresses below:

Angela Fawcett
DAS Academic Director
Dyslexia Association of Singapore,
Emeritus Professor, Swansea University,
angela@das.org.sg

Deborah Hewes
Managing Editor
Dyslexia Association of Singapore
www.das.org.sg/publications/journal
deborah.hewes@das.org.sg

Preparation of Manuscripts

It is expected that all manuscripts be submitted using the American Psychological Association (APA) standard of referencing and publication. APA style is detailed in the Publication Manual of the American Psychological Association (6th ed), which offers sound guidance for writing with clarity, conciseness and simplicity. Authors should follow the APA style in preparation of their manuscripts.

DYSLEXIA ASSOCIATION OF SINGAPORE (DAS)

Our Mission: Helping Dyslexic People Achieve

Our Goal: To build a world class organisation dedicated to helping dyslexic people and those with specific learning differences in Singapore.

Our Aims:

- To put quality first in delivering a comprehensive and effective professional service for dyslexic people and those with specific learning differences on a not-for profit basis.
- To provide an assessment service for individuals at risk of having dyslexia and/or specific learning differences.
- To provide educational programmes and other support services for individuals with dyslexia and/or specific learning differences.
- To raise public and professional awareness of the nature and incidence of dyslexia and specific learning differences.
- To enable others (teachers, parents and professionals) to help dyslexic individuals and those with specific learning differences.
- To assist and elicit financial and other support for people with dyslexia, those with specific learning differences and their families.
- To promote and carry out local research into dyslexia, specific learning differences and to disseminate results.
- To network with other organisations in Singapore and internationally to bring best practices to the DAS and Singapore.

DAS as a Social Enterprise

- We provide high-quality, professional, innovative and client-focused solutions to create and sustain services for the dyslexic community in Singapore and the region.
- We operate as a financially viable and cost-effective business which at the same time ensures that no dyslexic person is unable to access our services because they cannot afford it.
- We generate social returns on our investments through the development of a dynamic, motivated team of highly qualified and experienced professionals.
- We have a heightened sense of accountability to stakeholders through our professional management team.

Registered in 1991, the Dyslexia Association of Singapore (DAS) is today a vibrant voluntary welfare organisation with over 250 full-time staff who provide a wide array of services for dyslexics not only in Singapore but in the region. DAS Specialist Psychologists conduct assessment and diagnosis for preschool students to adults. DAS Educational Therapists, Speech and Language Therapists and Specialist Teachers provide support for over 3,500 preschool, primary and secondary school students in 14 venues all over Singapore. Increasingly, DAS provides support for dyslexics who also suffer from other Specific Learning Differences such as ADHD, Dyspraxia, Dyscalculia and Non-verbal Learning Differences.

The DAS Academy is a Private Education Institution (PEI) registered with the Council for Private Education (CPE). It is a wholly-owned subsidiary of the Dyslexia Association of Singapore (DAS). Like DAS, the Academy is also a registered charity with the Commissioner of Charities. DAS Academy delivers a wide range of workshops and courses including a Master of Arts in Special Educational Needs. DAS Academy provides the bridge that links professionals, caregivers and people with special needs.

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