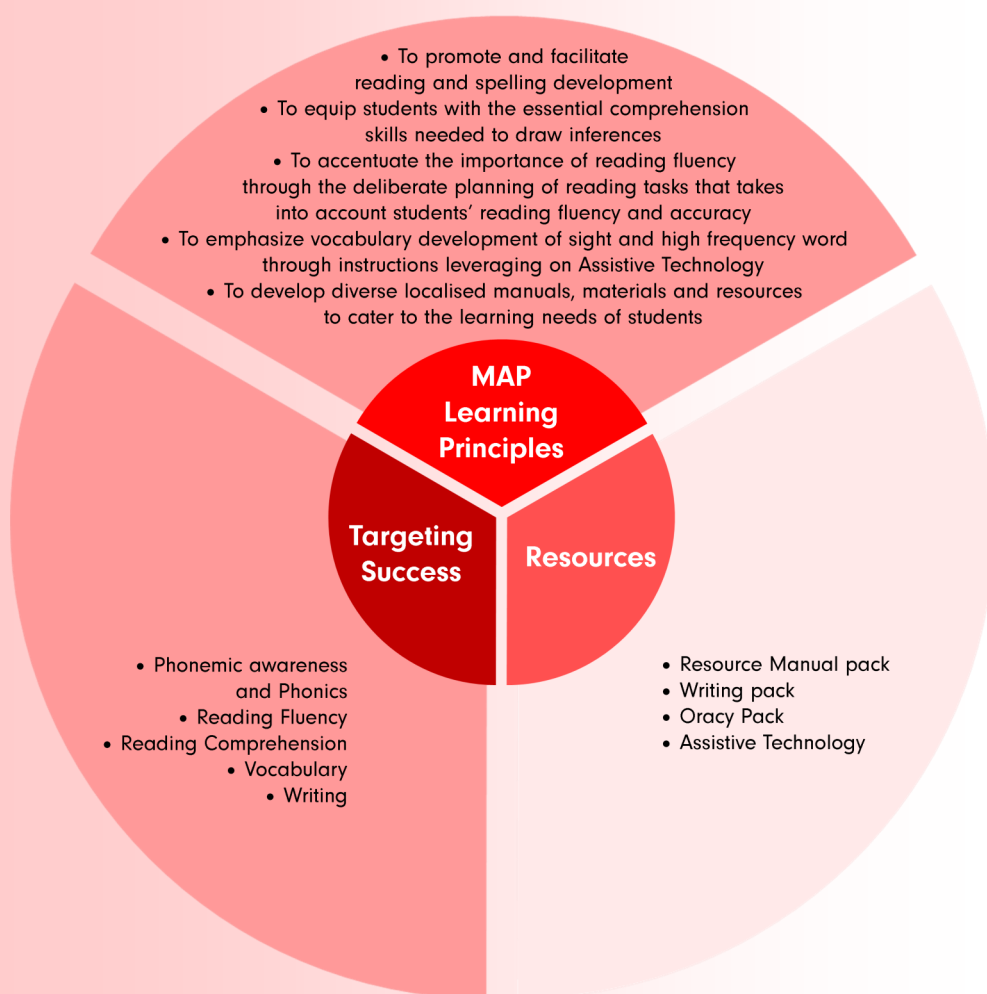


MOE-aided DAS Literacy Programme MAP

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

Curriculum Framework - Map provides a comprehensive and quality curriculum to support dyslexic students facing literacy challenges.



MOE-aided DAS Literacy Programme (MAP) Early Intervention

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The identification of dyslexia at an early age is an important task (Snowling, 2012). The negative repercussions of repeated failure in reading are often more entrenched in older students and it is generally agreed that the earlier symptoms are identified, the better the student's chances of success (Rose, 2009). This is likely very much so, if early identification is followed closely by early intervention that is rigorous and appropriate to the child's needs.

In Singapore, academic expectations are often high. Parents are generally enthusiastic to support their children in learning and are consequently becoming more aware of learning difficulties. It is not uncommon for parents to bring their children to hospitals, clinics and therapy centres for early checks on their children's development when they notice that they are starting to fall behind at a young age, typically during kindergarten to lower primary years. In Singapore, children may attend two years of nursery, starting at three years old, and two years of kindergarten, starting at five years old. Most enter primary school in January of the year they turn seven.

Taken together, both the repercussions of late identification and intervention as well as growing parental awareness of learning needs provide impetus for organisations such as the Dyslexia Association of Singapore to seek ways to support learners with dyslexia as early as possible.

EARLY INTERVENTION MATTERS

Research suggests that for those at risk for dyslexia, large gains in reading tend to be made in intervention programmes that emphasise explicit, structured, systematic phonics that is embedded in vocabulary/fluency/comprehension work

and delivered before the age of 7 to 8 (Griffiths & Stuart, 2013). This suggests that it is critical for intervention to be delivered in a timely and rigorous manner.

In general, it is evident from research that the earlier one intervenes in the development of literacy skills, the better the outcomes. The meta-analysis¹ of previous research by the National Reading Panel in the United States suggest that systematic phonics training resulted in larger effect sizes² prior to first grade ($d = 0.55$) than after ($d = 0.27$) (Ehri et al., 2001). In fact, Ehri and colleagues (2001) found that phonemic awareness training resulted in larger gains in reading in preschool ($d = 1.25$) as compared to those in kindergarten ($d = 0.48$), first grade ($d = 0.49$) and second-sixth grade ($d = 0.49$). This trend was also similarly noted in spelling development, where they found effect sizes in spelling to be the highest in kindergarten ($d = 0.97$), in comparison to first grade ($d = 0.52$) and second-sixth grade ($d = 0.14$). Likewise, a meta-analysis by Bus and van Ijzendoorn (1999) showed that effect sizes for phonological intervention on phonological awareness for primary school children ($d = 0.50$) were lower than preschool ($d = 1.10$) and kindergarten ($d = 1.26$).

Wanzek and Vaughn's (2007) review of 18 early reading interventions for children who are at risk or have been diagnosed with a learning disability also indicated that higher effect sizes were obtained when intervention is provided early, at the beginning of first grade, than when it is provided at second or third grades. In addition, Alexander and Slinger-Constant (2004) reported that second to sixth grade children respond significantly less to similar phonics-based instruction as compared to their younger counterparts. Moreover, more intensive instruction in a one-to-one or small group instruction over a longer period was needed to produce gains, which were less robust. Therefore, while older children may respond to intervention at later ages, it appears that the earlier the intervention, the better the outcomes.

Furthermore, delaying intervention may lead to unnecessary accumulation of negative experiences for the child. By a later age, the cycle of failure might have already set in and undesirable repercussions of having an unrecognised learning difficulty such as poor self esteem, misconceptions of oneself being unable to learn, would likely be hard to reverse.

1. *Meta-analyses include data from independent studies conducted in different countries. School ages might vary slightly across countries, with those attending preschool generally between 3 to 4 years and those in kindergarten generally between 5 to 7 years.*

2. *Effect size indicate the magnitude of the treatment effect. Effect sizes of 0.2, 0.5, and 0.8 represent small, medium and large effects respectively.*

RESULTS FROM FIRST YEAR OF INTERVENTION

To investigate the early effects of intervention, the first year of MAP students' progress were examined. The data came from MAP's records of student profiles from 2003 to 2009.

Given the varied nature of the dataset (i.e., different students taking different cognitive and literacy tests or different versions of tests), it was necessary to focus on a sample of a group of students within the MAP population whose profiles come from the same tests and participated in annual testing over a period of a year.

METHOD

N = 202 (151 males)

Criteria for inclusion:

- ◆ General Conceptual Ability within 2 SD of population mean (76 - 129)
- ◆ Verbal scores \geq 70
- ◆ Assessed by DAS psychologist using British Ability Scales - Second Edition (BAS-II)
- ◆ \geq 1 year in DAS remediation
- ◆ Reading achievement $<$ 115
- ◆ Spelling achievement $<$ 115

RESULTS

Reading gains across school level (P1- P6)

T-tests indicate that reading gains from start of intervention to first year are primarily driven by those admitted into the programme from Primary One, $t(43) = 6.34$, $p < .001$. Importantly, this statistically significant gain in reading by Primary One children was accompanied by a large effect size (Cohen's $d = 0.96^3$). Change in reading scores for all levels post P1 was not statistically different (all $ps > .12$; see Figure 1).

3. Cohen's d is a measure of effect size. Effect sizes of 0.2, 0.5, and 0.8 represent small, medium and large effects respectively.

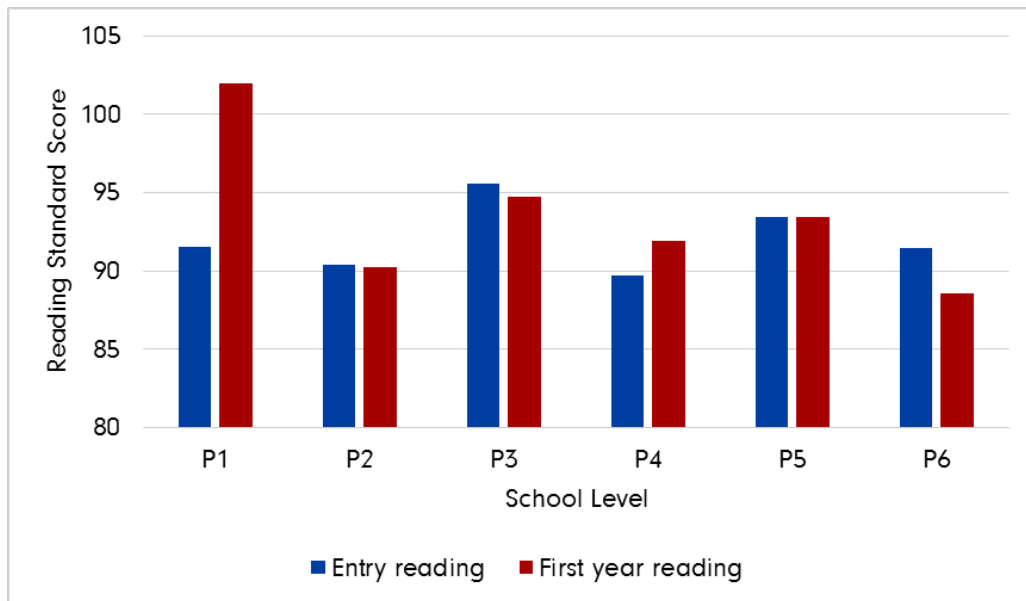


Figure 1. Reading achievement from baseline to first year across Primary 1 to Primary 6.

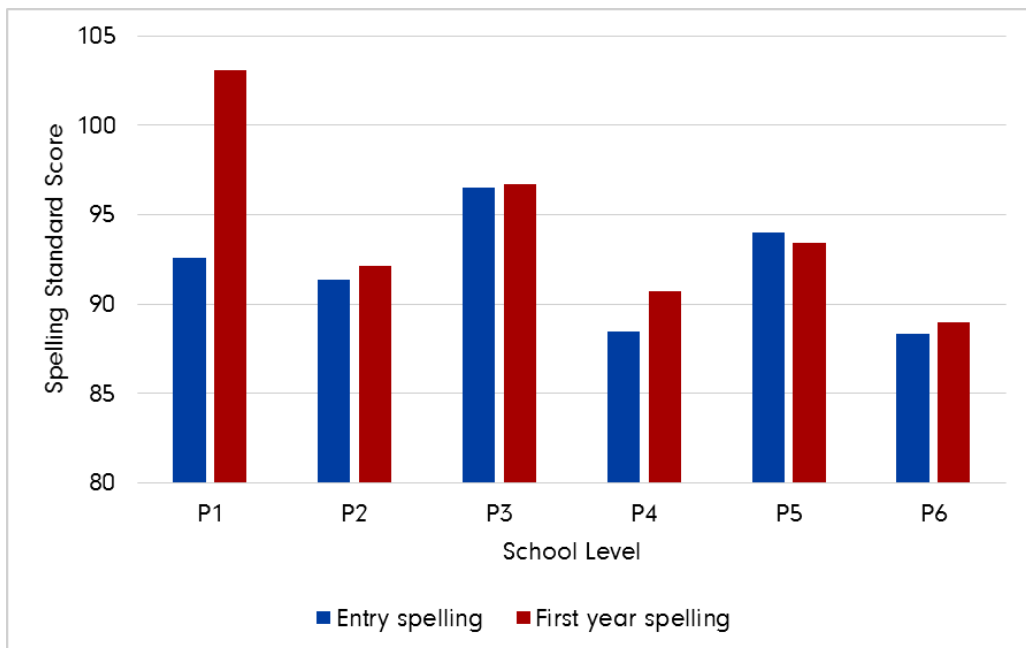


Figure 2. Spelling achievement from baseline to first year across Primary 1 to Primary 6.

Spelling gains across school level (P1- P6)

Consistent with reading gains, t-tests show that spelling gains from start of intervention to first year are primarily driven by those admitted from Primary One, $t(43) = 6.27$, $p < .001$. Similarly but crucially, these spelling gains were accompanied by large effect sizes (Cohen's $d = 0.95$). Change in spelling scores for all levels post P1 was not statistically different (all $ps > .12$; see Figure 2).

As such, the collective results from above analyses from the first year of intervention at the DAS suggest that significant improvements in reading and spelling are made by younger students. This echoes what was previously shown in a meta-analysis from the National Reading Panel, which showed that the younger the child (Kindergarten through first grade) the better the outcome of intervention (Ehri et al., 2001).

Apart from the focus of actual achievement gains in early intervention, which are important in influencing how well a child might cope with academic demands, it is important to consider the emotional impact of having prolonged difficulties in learning to read. It is essential to bear in mind that the first two years of primary education as the child is forming his impressions of school and that of his reading experience may be critical to his future success as a learner. Furthermore, reading dysfluency may be hard to restore when young poor readers lose out on the amount of reading practice they would have had compared to their more competent peers (Torgesen, 2000). As such, there are obvious benefits to providing intensive intervention as early as possible.

CONCLUSIONS

It has been generally found that early intervention is important and beneficial (Bus and van Ijzendoorn, 1999; Ehri et al., 2001). In order for early intervention to occur, it is important to identify signs of difficulties early on. Research has shown that there are early variables related to a child's phonological awareness and letter knowledge that may reliably predict reading and spelling difficulties later on. For these children at higher risk of failure who are identified at an early age, it would be important to put in place specific forms of support for their learning before negative repercussions of reading failure set in. This is particularly so in view of research findings showing that older children's unsuccessful coping with their learning difficulties may be associated with poorer self esteem, higher anxiety and other feelings of disappointment, frustration, anger and embarrassment of their inability to do what appears to come easy to their peers (Alexander-Passe, 2006).

The cut-off for when the identification and intervention occurs may be quite arbitrary and may differ from child to child. Every child's learning journey is different as the interplay between biological, cognitive, behavioural and environmental factors can often be complex. Where concerns are raised and needs are identified, it would be important to address these sooner than later in accordance to each individual child's profile to enable him to achieve the best possible learning outcomes.

ABOUT THE AUTHOR



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Lois has worked at DAS since 2005 as a psychologist. She graduated with a Bachelor of Social Sciences (2nd upper honours) from the National University of Singapore and later with a Master of Arts in Applied Psychology from the National Institute of Education, Nanyang Technological University. In addition to her interest in specific learning difficulties, she has developed a specialisation in the assessment of dyslexia and is actively involved in the training and supervision of psychologists at the DAS as well as in enhancing DAS' intervention efforts.

REFERENCES

- Alexander-Passe, N. (2006). How dyslexic teenagers cope: an investigation of self esteem, coping and depression. *Dyslexia, 12*, 256-275.
- Alexander, A., & Slinger-Constant, A. (2004). Current status of treatments for dyslexia: Critical review. *Journal of child neurology, 19*, 744-758.
- Bus, A. G., & van Ijzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology, 91*(3), 403-414.
- Ehri, L. C., Nunes, S. R., Stahl, S. A., & Willows, D. M. (2001). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Review of Educational Research, 71*(3), 393-447.
- Griffiths, Y. & Stuart, M. (2013). Reviewing evidence-based practice for pupils with dyslexia and literacy difficulties. *Journal of Research in Reading, 36*, 96 - 116.
- Rose, J. (2009). *Identifying and Teaching Children and Young People with Dyslexia and Literacy Difficulties*. Retrieved September 23, 2013 from <http://www.education.gov.uk/publications/eOrderingDownload/00659-2009DOMEN.pdf>.
- Snowling, M. J. (2012). Early identification and interventions for dyslexia: A contemporary view. *Journal of Research in Special Educational Needs, 13*, 7-14.
- Torgesen, J. K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. *Learning Disabilities Research & Practice, 15*(1), 55 - 64.
- Vellutino, F. R., Fletcher, J. M., Snowling, M. J., & Scanlon, D. M. (2004). Specific reading disability (dyslexia): What have we learned in the past four decades? *Journal of Child Psychology and Psychiatry, 45*, 2-40.
- Wanzek, J., & Vaughn, S. (2007). Research-based implications from extensive early reading interventions. *School Psychology Review, 36*(4), 541-561.