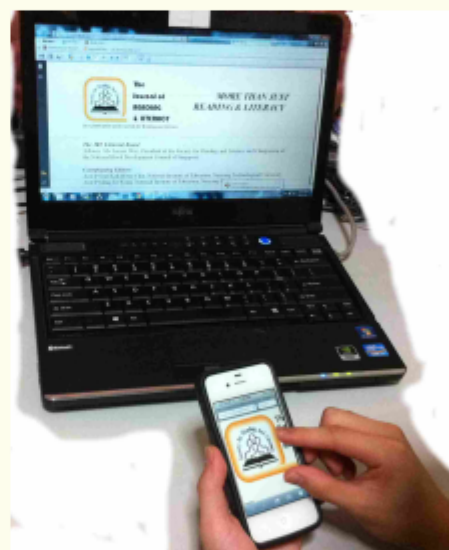




The  
Society  
For  
Reading And Literacy

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Theme : Reading for an inclusive society

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**The  
Journal of  
READING  
& LITERACY**

***READING FOR AN  
INCLUSIVE SOCIETY***

*An e-publication of the Society for Reading and Literacy*

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***Aims and Scope***

The Journal of Reading and Literacy (JRL) is the official journal of the Society for Reading and Literacy, Singapore. This is a refereed journal with interests in reading and literacy issues in both mainstream (including adult education) and special education settings. The journal welcomes manuscripts of diverse and interdisciplinary themes in the aim of improving reading and literacy. Literacy is contextualized within a broad interpretation including traditional literacy, literacy standards, early and/or emergent literacy, comprehensive literacy, content area literacy, adolescent literacy, functional literacy, adult literacy, multimedia literacy, multicultural literacy, literacy and technology as well as any other interpretation that is of interest to the readers and the Editorial Board. Based on this broad conceptualization of literacy, assessment, measurement, evaluation, testing, programming, implementation, remediation, teaching and methodology are examined. The journal is particularly interested in papers investigating reading and literacy from the Southeast-Asian region, and how systems and practitioners are addressing literacy issues from their respective cultural and social backgrounds.

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The JRL welcomes manuscript submissions at any time of the year on themes related to reading and literacy. Authors are completely responsible for the factual accuracy of their papers contributed to this journal. Neither the Editorial Board of JRL nor the Executive Committee of the Society for Reading and Literacy (SRL) accepts any responsibility for the assertions and opinions of contributing authors. Authors are also responsible for obtaining permission to quote lengthy excerpts from previously published papers.

All submissions should include a cover letter stating the name/s of the author/co-author(s), organisation/institution that the author/co-author(s) is/are currently associated with, e-mail address of the corresponding author, and the contact telephone number. Papers that have been sent to other journals will not be considered for publication. Please indicate whether the paper has been published or being considered for publication anywhere else, in whole or in part. All papers will be peer-reviewed and upon acceptance for publication, the author and/or co-authors will be notified.

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3. Document: Microsoft Word
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5. Page limit: None
6. Margin: 1” on all sides
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10. Abstract of not more than 150 words should accompany each submission and should appear immediately after the by-line(s)/name(s) of organization or institution.
11. Length: 3000-6000 words
12. Format: All authors and/or co-authors are expected to follow the guidelines of the 5<sup>th</sup> edition of the Publication Manual of the American Psychological Association (APA, 2001).
13. All figures, diagrams, illustrations and tables should be integrated in the typescript.

14. All sources cited in the paper must also appear on the References page at the end of the manuscript.
15. Submission of papers should be forwarded by electronic mail to the Editor at [secretariat@srl.org.sg](mailto:secretariat@srl.org.sg).

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## Message from the President of the Society for Reading and Literacy

Serene Wee

We are very happy to announce the publication of our fourth *Journal of Reading and Literacy* – a journal of peer reviewed articles on reading and literacy - put together by our team of dedicated editors, co-headed by Dr Noel Chia Kok Hwee and Mr Norman Kee and our in-house editor, Dr Ng Chiew Hong. To all the writers, contributors and editors, thank you for the hard work you've put in to make this journal a professional read for everyone in the field of reading, literacy and education.

Earlier this year, the Society for Reading and Literacy organised a successful conference on Special Education and Reading & Writing for children. As a follow-up to this conference, our team put together topic related articles to share with you. You will find articles on reading, word recognition, learning challenges, including numeracy and literacy challenges of children on the theme: *Reading for an inclusive society*.

We are also proud to present SRL's first Research Award Winner. Take a look to see who our first winner is.

As SRL continues to share knowledge and expertise, we invite you to contribute your articles to our journal. Contact our editors if you have written anything on reading and literacy or any other related topics on education. Go to our website [www.srl.org.sg](http://www.srl.org.sg) and submit your article to our Secretariat who will then forward it to our e-publication team. They are open to review your articles and where suitable, we would be happy to publish them in the next journal.

## Getting Children from Low-Income Families to read: What works

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### Abstract

*This paper is an excerpt from the author's Master of Education dissertation. The author carried out a study to evaluate a community-based reading programme, kidsREAD for children aged between 4 and 8 of different ethnic groups from low-income families. These children, who are most at risk of reading failure, were exposed to one hour of weekly reading intervention for a year at various reading clubs where volunteers read aloud stories to them in groups before engaging them in a variety of other reading-related activities. Analyses using paired t-tests and intercorrelation were conducted on variables to establish the significance of the effects, and to examine the links among the reading activities measured. Drawing from the research findings and literature review, the author discusses how the underlying elements of the kidsREAD programme might have worked to benefit slow or poor readers.*

*Key words: kidsREAD, low-income families, reading programme, reluctant readers, slow readers*

### Introduction

In the last few decades, there has been much interest in how to help young children read, especially those identified as at risk of reading difficulty or academic failure. As a result, reading programmes initiated by various agencies for helping children, especially reluctant or poor readers have sprouted. This is in part fuelled by national interests in literacy problems as well as the wealth of research findings on reading and its effects on readers. Programmes initiated at the national level are normally funded and use teachers or certified reading specialists to deliver the instruction. This can be costly, especially if one-on-one tutoring is practised. An alternative explored is the utilization of volunteers to facilitate the reading sessions to a group of children. However, little is known about the effectiveness of such programmes.

### Background

There is considerable evidence to show that reading is highly related to academic learning and hence useful as an index of general academic achievement (Chall, Jacobs & Baldwin, 1990). Studies have consistently demonstrated the high correlation between reading and academic success (e.g., Anderson, Wilson, & Fielding, 1988; Chall et al., 1990; Cipielewski & Stanovich,

1992; Cox & Guthrie, 2001; Cunningham & Stanovich, 1991; Krashen, 1998; Madden, Slavin, Karweit, Dolan, & Wasik, 1993). Studies further inform us that the benefits of reading are phenomenal, extending beyond academic to other skills such as language and general knowledge development, critical thinking, listening, imagination, cognition, communication, character development and social development (e.g., Arizpe & Blatt, 2011; Billington, Dowrick, Hamer, Robinson & Williams, 2010; Dickinson, Griffith, Golinkoff & Hirsh-Pasek, 2012; Justice, McGinty, Piasta, Kaderavek & Fan, 2010; Maloch & Beutel, 2010). Reading has also been found to increase children's social skills and community participation (Guthrie, Schafer, & Hutchison, 1991). Research shows that among the children from low income families and among the struggling readers, reading success is positively associated with good social skills, social behaviour and a child's general disposition (Ashcroft, 2004; Miles and Stipek, 2006).

At the same time, research studies also abound with findings that relate higher frequencies of reading difficulties to socio-economic status (e.g. Burney & Beilke, 2008; Chall et al., 1990; National Institute for Literacy [NIFL], 2008; Parcel and Dufur, 2001; White, 1982). Research has reported that poverty is a strong correlate of low reading achievement (Cunningham, 2006) and on average, cognitive scores of children at age 4 in the lowest socio-economic status (SES) groups were 60% below the scores of those from the highest SES group, and this gap was likely to stay or even increase throughout the schooling years of children (Neuman & Celano, 2006). Torgesen (1998) too reported compelling findings regarding how children who got off to a poor start in reading rarely caught up; poor readers almost invariably continue to be so, thus, the importance of catching them when they are young. Therefore, there is a compelling need to get children to read, especially those from families with low income.

## Reading

To evaluate the success of a reading programme, the standard of literacy should be understood and defined. According to Saksena (1970), the most fundamental concept of literacy is to be able to read and write. In his paper 'Bridging Reading and Writing: A Cognitive Equation of Literacy', Chia (2007) stated, "Reading and writing are uniquely human and most complex of all cognitive activities" (p. 6). This complexity was exemplified in his explanation of the evolution of the concept of literacy to meet the changing demands of society. Myers (1996) effectively traced this process from *signature literacy* (the ability to read and write one's name) to *recitation literacy* (ability to orally recite memorized texts) to *decoding/analytic literacy* (ability to read and understand previously unseen text, including ability to spell correctly and write fluently), and finally *appreciative literacy* (ability to appreciate the aesthetic beauty of written language in reading). Hence, participants of a reading programme can be evaluated based on any of these standards, a combination or even a continuum of standards, based on the entry-level ability of these participants.

## Reader's Profile

Similarly, when developing reading programmes, it is important to understand and cater to the reader's profile so as to facilitate the development of the readers. There are many ways in which



readers can be profiled. As early as in the 60's and 70's, readers were grouped according to their reading readiness (Eisenberg, 1966) or reading proficiency (Erickson & Erickson, 1977). In the 80's and 90's, readers were categorized according to their intellectual abilities (Detterman, 1982), reader interest and motivation (Lee, 1984), and learning or reading styles (Carbo, Dunn, & Dunn, 1986). By the 90's, readers were profiled by reader attitude and enthusiasm (McKenna & Kear, 1990), and reading behaviours, feelings, and needs (Chia, 1999).

In *A Comprehensive Model of Reader Profiles*, Chia (1999) proposed four different profiles of readers as a theoretical concept that served to provide information about the behaviour, feelings and needs of the readers for the purpose of facilitating the development of the readers. Of relevance to the author's study (Law, 2012) is his proposed type 2 profile: the reluctant reader, defined as one who can read but does not read. Also known as the slow or poor reader, this type of reader lacks confidence in his or her ability to read or learn to read well. A slow or poor reader may have very low motivation to read and choose to avoid reading situations. This could be due to a lack of reading materials as well as fear of failing to read fluently.

Findings from the research conducted by McKool (2007) suggested that there were differences between avid and reluctant readers due to the economically diverse backgrounds of their home lives and literacy experiences in preschool. In particular, more children from middle- or high-income families were read aloud to when they were young as compared to their peers from families with low income. This finding is consistent with the concept of "blue collar value" as discussed by Allington and Cunningham (1996) and McKool (2007). It refers to parents holding blue collar jobs working hard during the day who expect to wind down and spend time relaxing when they get home. So, instead of espousing home literacy practices such as reading aloud to their children, these parents who have blue collar jobs expect the schools to educate their children.

From the myriad research findings linking reading or literacy outcome and family factors, it can be established that owing to what Molfese, Modglin, and Molfese (2003) classified as distal measures (family income, parental occupation, and parental education), proximal measures (educational resources, parental involvement, and parenting practices), or both, poverty and its concomitant challenges appeared to impede student learning and contribute to the academic achievement gap experienced by children from low-income families. As a result, children from families with low income are most likely to fall under the category of reluctant readers as profiled by Chia (1999). According to Stanat *et al.* (2002), poor readers (i.e., reluctant readers) are considered to be an at-risk group for failure in both academic and social life.

## **Children at Risk - Poor or Reluctant Readers**

An "at-risk reader" as defined by Tierney, Readance, and Dishner (1995) is one "who fails to have the skills and strategies to maintain the ability to read and to grow as a reader" (p. 410). To Kadzin (1993), "at risk" referred to the "increased likelihood over base rates in the population that a particular outcome will occur" (p. 129). In the National Center for Education Statistics [NCES] (1992) report 'National Education Longitudinal Study of 1988: Characteristics of At-Risk Students in NELS: 88', students who failed to achieve basic proficiency in reading were

also considered at-risk of school failure. According to Chall et al. (1990), “children at risk” is defined as children who are variously known as “socially deprived”, “culturally disadvantaged”, “urban-disadvantaged” or simply children of poor families who, regardless of the label, generally perform below norms in literacy on national, state and school assessments and whose lag in reading achievement becomes greater in the later elementary school grades and in high schools. It follows that children from families with low income can be considered as children at risk for reading failure.

This was further supported by Snow, Burns, and Griffin (1998) who stated that other than developmental disability, children could be at risk for reading difficulties due to poverty and limited home support for literacy. Snow *et al.* (1998) presented a list of risk factors in learning to read for young children that included residing in low-income families which could expose children to the risk of reading difficulties as a result of having acquired relatively lesser literacy-related knowledge and skills during preschool years either through limited home literacy experiences or some inherent cognitive limitations. In fact, it was reported that in the United States, the largest group of children at risk of school are the children of the poor (Vernon-Feagans, Hammer, Miccio, & Manlove, 2001). Hus (2005) also reported that studies showed that there was a disproportionate representation of children who were poor, racial minorities and non-native speakers of English in population of children with significant reading disabilities, and children in lower income families suffered from higher frequencies of academic failure and grade retention.

The children in this study were the participants of *kidsREAD* whose family income must meet the criteria of “low-income” set by the National Library Board (NLB) and the major ethnic community self-help organizations (NLB, 2010). To qualify for the programme, the declared monthly gross income for the family should not exceed \$2,500 or per capita income should not be more than \$650. With effect from April 2011, the eligible income criteria had been revised to \$3,500 or per capita income of not more than \$900, in line with the revision of the Kindergarten Financial Assistance Scheme (KiFAS)’s income criteria set by the government. Most of the children attending this programme were either granted the KiFAS (for preschoolers) or the Ministry of Education Financial Assistance Scheme [MOE FAS] (for children attending primary schools). Benefits enjoyed under these schemes included kindergarten subsidy, start-up grant of up to \$200 per child, free textbooks and school attire, waiver (full or partial) in fees (e.g., examination fee), and others. These children came from a disadvantaged background where resources were limited, where exposure to a model for reading was lacking and where the love and habit of reading might not be inculcated at home since birth. Arising from these, these children were at risk of reading failure. They could certainly do with some help to give them a head start for reading and writing: help that could level the playing field for at-risk children from low-income group against their peers from the higher income group.

Thus, it would seem reasonable to say that the very children most in need of literacy support are those from low-income homes and from families who speak languages other than English at home as reported by Dickinson, Golinkoff, and Hirsh-Pasek (2010). Moreover, according to Chia (1999), “A reluctant reader should be viewed as one with a very special learning need as through avoidance, the reluctant reader may eventually lose some of his/her earlier reading skills” (p. 67). Therefore, in working with such readers, it is of utmost importance to overcome their reluctance

to read, through motivating them to become habitual readers. To this end, the methods used in the intervention are the keys to overcoming the problem. Without such an intervention, a reluctant reader may risk failing as a competent reader and consequently experience academic failure in school.

### ***kidsREAD* Programme**

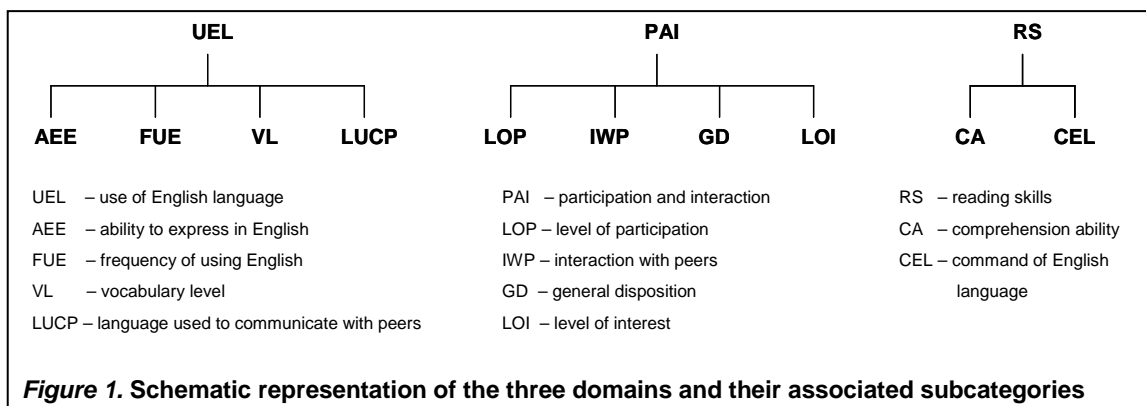
*kidsREAD* is a nation-wide early reading project launched in 2004 born out of a collaboration between NLB, People's Association (PA) and the major ethnic community self-help groups in Singapore namely, the Association of Muslim Professionals (AMP), Chinese Development Assistance Council (CDAC), Singapore Indian Development Association (SINDA), the Eurasian Association, Singapore (EA) and Yayasan MENDAKI. It has been supported by various members of parliament and cabinet ministers. This national reading programme is an initiative to promote the love of reading and language competence among children from families with low income, mainly pre-school to Primary 2 children (ages 4 to 8), regardless of ethnic background. According to NLB, the majority of these children come from non-English speaking home environments, many of whom do not speak English at all. Most have also not been exposed to reading material of any kind.

Through weekly one-hour read-aloud sessions, the programme aims to:

- leverage on strengths of partners to create a reading programme for the children,
- promote love of reading and cultivate good reading habits among the young,
- provide children with an opportunity to advance in reading, writing and speaking English,
- provide an avenue of interaction for young children of different races, and
- enhance the quality of life of members and their families.

The *kidsREAD* classes are kept to a small group size of not more than 30 children, with volunteers managing and facilitating the sessions. Lessons are normally conducted over the weekends with volunteers reading aloud one to two stories to the children before breaking them up into smaller groups to engage them with a variety of activities related to the stories read or to reading in general. In a nutshell, it is a literature-based intervention programme for children from economically disadvantaged background that seeks to provide enjoyable and facilitative interactions among volunteers and children from various races, with the presumption that love for reading and literacy skills will be enhanced.

The children in the programme were evaluated in 10 areas (i.e. subcategories) at the start, middle and end of the programme. For her study, Law (2012) used data collected at the beginning and end of the programme as pre- and post-test data for comparison. The standard of literacy that determines the reading success of these at-risk children was evaluated on a continuum from *signature literacy* to *appreciative literacy* based on entry-level ability of the children in the 10 areas evaluated. These 10 areas were primarily classified under three domains: (a) use of English language (*UEL*), (b) participation and interaction (*PAI*), and (c) reading skills (*RS*). Figure 1 illustrates the three domains and its associated subcategories.



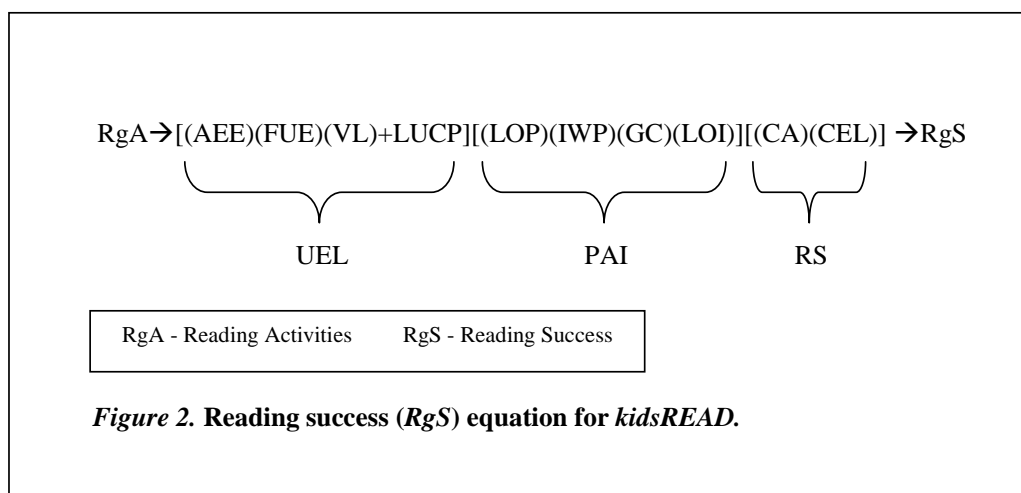
## Summary of Results

In summary, the results for the domain on *UEL* suggested that as a result of having undergone the *kidsREAD* Programme for one year, the participants showed a significant improvement in their ability to express in English with increased frequency of its usage and also an improvement in their vocabulary or word knowledge in English. However, the results also suggested low use of English by the participants to communicate with their peers. The intercorrelation analyses among the various subcategories measured yielded the first part of an equation for success for *kidsREAD* as follows:  $UEL \rightarrow [(AEE)(FUE)(VL) + LUCP]$ .

The results for the domain on *PAI* suggested that as a result of having undergone the *kidsREAD* programme for one year, the participants showed a significant improvement in their level of interest in reading as well as their participation in its activities and interacting with other readers or peers. Their general disposition as a reader also improved in terms of them becoming more enthusiastic or cheerful readers. Intercorrelation analyses of the subcategories measured for the *PAI* domain yielded the second equation for *kidsREAD*'s success as follows:  $PAI \rightarrow [(LOP)(IWP)(GD)(LOI)]$ .

For the third domain on *RS*, the results suggested that as a result of having undergone the *kidsREAD* programme for one year, the participants showed a significant improvement in their ability to comprehend what they read and a good grasp of command in English. The intercorrelation analyses further yielded the final equation for success of *kidsREAD* as follows:  $RS \rightarrow [(CA)(CEL)]$ .

In conclusion, this author summarized the findings of her study (Law, 2012) into an equation for reading success for *kidsREAD* as depicted in Figure 2.



## What Really Matters?

To better understand the domains measured in *kidsREAD* that define reading success, it is essential to discuss the instructional approach and strategies adopted for the programme. The following discussion will unveil the underlying elements that appeared to have worked to benefit the at-risk children from low-income families who could be reluctant, slow or poor readers.

## Make Learning Experiential

*kidsREAD* is not just a conventional reading programme in a classroom environment. Traditional code-based reading readiness skills taught in other well-researched reading programmes are not its focus. Recognizing the importance of experiential learning, *kidsREAD* had organized regular storytelling performances by professional storytellers, ambassadors and prominent artistes all over the world. It had also brought children in the programme to educational trips to the museums, parks, Science Centre, and other places of interest. The children were also provided opportunities to attend performances by theatre arts group as well as meet-and-greet sessions with favourite characters from Nickelodeon, British Broadcasting Corporation or McDonalds. Themes of these trips and outings were closely related to the books read to these children. Hence, learning to read for the young participants of *kidsREAD* occurs through a natural and experiential process where words are put into meaningful sentences and context in the form of stories, performances and excursions for their enjoyment with the hope that they would be motivated to go on reading. This method of intervention – experiential learning – unlocked the key to motivating these reluctant, slow or poor readers.

## Make Learning Holistic and Joyful

In *kidsREAD*, volunteers try to make learning to read easy, which according to Smith (1985) “means making reading a meaningful, enjoyable and frequent experience for children.” (p. 143).

Children in the programme are regularly exposed to interesting and quality materials that are meaningful and can be connected to their background knowledge and experience. Volunteers will model positive reading behaviour and extend the children's comprehension and oral reading skills through use of related arts such as speaking, listening, writing, art and craft, and drama. Games like *Bingo*, word puzzles, word searches and *Snap* (matching of cards with same word or picture) are commonly incorporated as part of the supplemental activities to connect the children to the stories read and to develop their language skills. Puppets (hand or finger puppets and story aprons), a fun medium, are also used during read aloud to engage the children, get their attention and hold their interest. The programme also elicits the participation of all children, including the shy ones, thus developing their social skills. Singing songs (e.g. *Old MacDonald Had a Farm*), using ipads or apps on iphone to show concepts like sounds and movement of animals are among the repertoire of tools and strategies that volunteers may use to facilitate the reading sessions. In this programme, children's reading opportunities are thus facilitated through the organization of meaningful classroom and out-of-classroom activities. There is active student engagement to achieve the programme goals. These principles for reading and writing, and teaching and learning are whole language based (see Goodman, 1986, for more detail). The instructional strategies adopted serve to meet the broadly defined literacy standard in terms of cognitive, affective goals and behavioural goals of the programme. These are categorized under the three domains, covering the 10 specific goals that formed the criteria for evaluating the success of the programme. Learning is holistic in *kidsREAD*. Instead of rote memorization, concepts are learnt through relating it across different stories and supplemental activities. Therefore, by making the reading sessions holistic, fun and enjoyable, without the traditional phonemic drills and systematic phonic instruction, the programme further unlocks the key to motivating the slow and poor readers and overcoming their reluctance to read.

### **Make Learning a Social Experience**

Children develop linguistic and communicative competence through learning in a natural environment and in context (Clark, 2000). In the natural environment such as the home or school, children learn to interact with members of their families, peers, teachers and others. The children attending *kidsREAD* were regularly interacting with other children and the youth or adult volunteers in big and small group settings. While the programme was taught in English, the children were observed to continue their habit of using their mother tongue to communicate with their peers during the programme. The children in *kidsREAD* hailed from a home environment where their mother tongue (mostly Malay and Chinese) was the primary language of communication. English was their secondary language. This habit showed that most of the children were attached to their primary language although they had been taught about reading and communicating using English. It is possible that communicative efficacy could be the primary driving force in the choice of the language used by the children when communicating with their peers in class. Such a behaviour is consistent with suggestions from previous investigations where choice of language used with peers reflects the language spoken at home (Ting, 2010), where bilinguals develop knowledge on how and when to use their two languages depending on the topic discussed, the situation, and the person talked to (Fantini, 1985; Halmari & Smith, 1994; Zentella, 1982, 1997), and where children do benefit from transfer of learning from L1 to L2 (Jiang and Kuehn, 2001; Karim, 2003; Reyes 2004; Ringborn, 1992). It is thus

characteristic of bilingual children to adjust their language differentially with parents, teachers, friends and strangers as part of their communicative competence (Reyes, 2004). Children should be allowed to respond contingently and positively, using their own language during their interactions with peers so as to foster bondage and interaction (Black & Logan, 1995). Although the volunteers had consistently served as a role model to the children in using English to communicate with them, they could have recognized and acknowledged this, allowing the children to continue speaking to their peers in their mother tongue. Doing so could have a positive impact on the children's interests and disposition towards the programme, besides developing their social skills.

It is also noteworthy that the study had found that the level of interest did not significantly determine the levels of participation and interaction of children in this programme (Law, 2012). It appeared that participation level did not necessarily affect a child's interest (i.e., attentiveness and responsiveness) in the story read or activities conducted during the programme. A plausible explanation would be that instead of interest, the children participated for social acceptance by their peers and the volunteers who were playing the role of teachers. If this was true, enrolling young reluctant or poor readers into a community-based reading programme might provide the added benefit of developing the adaptability and social acuity of these children, further developing their social skills.

## **Make Teaching Easy**

Summarizing decades of scientific research on reading instruction, the National Reading Panel Report (National Institute of Child Health and Human Development [NICHD], 2000) identified five essential components that are critical for an effective reading programme as follows:

- Phonemic awareness
- Phonics
- Fluency
- Vocabulary
- Comprehension

To provide explicit and systematic instruction in these five areas as recommended, teachers or certified reading specialists must be used to deliver the instruction. This is not feasible for a community-based reading programme such as *kidsREAD* where there is limited government funding and volunteers are used to facilitate the lessons. The programme is dependent on these volunteers, primarily made up of working or retired adults and youths (secondary schools or junior college students) who have a passion to contribute to society or be involved in the community through reading to the kids. To tap on this pool of invaluable resource, the programme must be flexible and easy to deliver. To this end, a simple aim has been crafted for the programme which is to inculcate a love of reading so as to reduce the need for instructors who are specialized in the field of literacy. In addition, guidebooks, resource kits, pre-selected storybooks, donated storybooks, stationery and craft materials are provided for the reading clubs. Templates for lesson planning are also provided. Every new volunteer would undergo basic training in storytelling and reading aloud. Clubs are given the flexibility to use other storybooks

outside of those provided. NLB also introduced the appointment of a knowledgeable person, in the form of a coordinator at reading clubs, since 2008. Other than supervising the running of the club, a coordinator's role includes other responsibilities such as administrative duties, overseeing events and outings, keeping track of achievements at the clubs, serving as a mentor to the volunteers and assisting them in the planning and delivery of the reading lessons as necessary. It takes the specialist load off the volunteers and makes teaching easy and fuss-free for them.

## **Make It Free**

The high cost of commercially run reading programmes put them out of reach for children from low income families. Making it free to the children from low-income families will attract parents to enroll children who are reluctant or slow readers into the programme. Since the programme is offered free, it can only afford to use volunteers to deliver the lessons. As such, parents who need not pay for the programme will also not make unrealistic demands on the programme delivery and the volunteers. As it is free so as to serve the needs of those from low income background, it provides a meaningful cause for the volunteers. In a society where there is fierce competition for these invaluable "free time" resources, positioning the programme to serve the low-income segment of the population is an effective strategy for recruiting volunteers (Haski-Leventhal & Meijs, 2011). When individuals volunteer for a cause that matches their values and beliefs, they are also more likely to derive greater fulfillment and satisfaction and hence commit for a longer duration. This is a win-win situation for the children, volunteers and the organization.

## **Conclusion**

The primary research objective of the study was to determine the impact of *kidsREAD* on the reading success of children at risk. In the process of looking at how the various reading goals in the programme were instrumental in achieving the success of the programme, certain insights have emerged.

With the success of *kidsREAD*, NLB had recently announced its plan to extend the programme from one to five years to allow the children to build a stronger foundation in early literacy (Chia, 2012; Channel News Asia, 2012; TODAY, 2012). It is the hope of this author that the study of *kidsREAD* could add to the current literature and discussion on volunteer-delivered intervention programme as well as inspire more works or research into this topic. The author further hopes that this would in turn encourage sharing of practices and methods that work to develop the reading culture, transform reading attitudes and raise the level of attainment in the reading ability of children from families with low income. This could potentially benefit thousands of children in years to come.

It is this author's belief that no child should be made to feel incompetent in reading or learning as a result of his family background or home environment. Given the right training for volunteers, provision of appropriate materials for instruction, and a safe, positive and conducive environment for reading and learning, children who may be disadvantaged at the start as



compared to their peers can experience accomplishment and success in their own journey of reading and learning.

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## Developmental Stages in Word Recognition among Young Children

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### Abstract

*This paper aims to provide a clearer understanding of word recognition development in young children by examining the early developmental stages of word recognition. It begins with a brief introduction to the developmental stages of language acquisition and then moves into the ten developmental stages of word recognition as postulated by Carver (1970), which, in turn, form the essential foundation to reading development. The author also examines the developmental phases of word reading (Ehri, 1991, 1994) and the four stages of word recognition process (Chia, 2009).*

*Keywords: children's literature, imagination, imaginativity, literary appreciation, literary taste*

### Introduction

Linguists who study language development in early childhood divide the stages of language acquisition into pre-linguistic and linguistic stages. Many of them are in agreement that the earliest cries and whimpers of the newborn cannot be considered early language (Fromkin, Rodman, Collins, & Blair, 1985). According to Fromkin et al. (1985), these noises made by the newborn are totally stimulus-controlled, that is, they are involuntary responses of the child to hunger, thirst, discomfort, the desire to be carried and cuddled, and so on. In other words, the child's first noises are stimulus responses.

Language acquisition in infants and young children begins with babbling in the first few months, normally around the six-month period. These sounds produced during this period are stimulus-controlled cries and gurgles. Babies born with hearing impairment or deafness also babble and has been reported that that their early babbling seems very similar to that of normal children (Svirsky, Teoh, & Neuburger, 2004). Non-deaf children born of non-speaking deaf parents also babble. Hence, babbling is not dependant on the presence of acoustic, auditory input.

The next stage of language acquisition takes place sometime after one year of age but this varies from child to child. It must be emphasized here that it has nothing to do with the intelligence of the child. The second stage is known as holophrastic phase when most children go through the one-word/one-sentence utterances as they attempt to communicate.

The third stage takes place around the time when the child is about two years old, but there is a great variability among children when they begin uttering two-word sentences.

The fourth stage begins when the child starts to string more than two words together in the utterance. Many developmental linguists use the mean length of utterances (MLU) to measure the children's stage of language acquisition.

The final stage is often known as the infinity phase when children begin to utter more and more authentic sentences in their verbal expressions. They also move from constructing compound sentences to complex sentences in their utterances.

### **Low Weight and Pre-maturity: Impact on Language Development**

Anything can happen to a child during the developmental period of language acquisition from peri-natal to post-natal phases. Depending on the cause, onset and severity of the interference on the language acquisition and development, it is important for both parents and early childhood educators to be able to identify the symptoms and risk factors of possible early language impairment.

In one recent study done by Van Noort, Franken, Wieringa, and Weisglas-Kuperus (2010), their findings suggested that low birth-weight babies display higher level of problems in language development in later years which affect reading and writing abilities.

In another recent study (Van Nort, Franken, & Wieringa, 2011), reported in *Pediatrics*, which pooled data from 17 previous studies, 1,529 premature children born before the 37<sup>th</sup> week or pregnancy and 945 full-term children were examined. The researchers found that, in general, pre-term babies tend to have more difficulty with complex language skills such as reading or writing complex sentence structures as they grow older – at least, up to age 12. The study did not suggest that premature babies are doomed to long-term language problems but when these babies grow up, they may have a tougher time than their peers in school.

### **The Early Development of Word Recognition**

In the development of word recognition, Carver (1970) has identified 10 word recognition stages. Each of the stages is briefly described below:

**Word Recognition Stage 1** (below 4 years of age):  
Virtually, there is no word recognition knowledge.

**Word Recognition Stage 2** (below 4 years of age):  
Knowledge of word recognition is rudimentary. The child may possess understanding of a few initial letters, especially some initial short vowels, and perhaps *r*, *m*, *w*, *r*, *f* and *t*.



**Word Recognition Stage 3** (between 4½ and 5 years of age):

It cannot be assumed that the child at this word recognition stage has acquired an insight into serial aspects of letters in words or aural discrimination of letter sounds. However, the child has known some initial letters/sounds, but not all. He may be at the stage of hearing initial letters in words such as *c*amel but not in *c*limb.

**Word Recognition Stage 4** (between 5 and 5½ years of age):

The child has probably known somewhat more than half the initial letters. He can also relate to a few simple consonants at the end of words, know easier short vowels (*o*, *a*) in words, but may still be weak in the serial aspect of letters in words.

**Word Recognition Stage 5** (between 5½ and 6 years of age):

The child can identify most of the initial letters. There is also an accelerated increase in knowledge of word endings. The child is still likely to be confused over nuances between short vowel sounds (e.g., *e*, *i*, *u*).

**Word Recognition Stage 6** (between 6 and 6½ years of age):

The child has practically heard all initial letter sounds and can visually identify them, though he may still have difficulty with initial letter sounds such as *q*, *v*, *h*, *p*, *b*. The child is more or less able to identify short vowel sounds and associate the visual letters. He may still have a few confusions regarding initial positions of letters (serial aspect).

**Word Recognition Stage 7** (between 6½ and 7 years of age):

The child begins to discriminate aurally initial multiple consonants (e.g., *cl*, *gr*, *fl*) and probably recognizes simpler ones (e.g., *pl*, *fr*) in words. He could still be confusing *b* and *d*. However, the child has acquired a strong knowledge of the initial sound, its equivalent letter symbol and its serial position at the left of a word. He could still have a specific vowel discrimination difficulty, especially with short *i* and *e*, and possibly *u*; and most single letter endings identified.

**Word Recognition Stage 8** (between 7 and 7½ years of age):

The child develops a growing command of initial multiple consonants (especially, *bl*, *pr*, *fr*, *br*) and may still have difficulty in hearing letter sounds, as revealed by difficulty in discriminating aurally between, for example, *cl*, *gl*, *cr*, *gr*,

**Word Recognition Stage 9** (between 7½ and 8 years of age):

The child displays more sophisticated word recognition skills. For example, he can say words of combined vowel sounds (e.g., *or*, *aw*) and generally knows and hears initial consonants *ch* and *th*, though he may have difficulty in discriminating between *ch* and *th*. The child has also established initial multiple consonants, including *sw*, *ch*, *gl*, *cr*, *th*, *dr*, *gr*, and developed an ability to discriminate initial letters together with a second consonant, but may be limited to *sc* and *sw*.

**Word Recognition Stage 10** (above 8 years of age):

The child possesses a thorough knowledge of the double initial consonants: probably all simple single letter endings (e.g., *-ing*), begins to recognize and say consonant blends (e.g., *st*, *sl*, *sn*, *sm* and *sp*) as well as has insights into *th*, *tw* (initially) differentiation, manipulates letter groups

(e.g., *ar*, *ow*, *oy*), and begins to recognize difficult letter groups (e.g., *ir*, *er*, *ur*). The child has yet to master complex initial letter groups (e.g., *spr*, *str*, *thr*) and difficult endings (e.g., *ch*, *sh*).

## **The Four Developmental Phases of Word Learning**

According to several studies conducted by Ehri's (1991, 1994), children progress developmentally through four phases of word learning: pre-alphabetic, partial alphabetic, full alphabetic and consolidated alphabetic. These four phases are briefly discussed below:

### ***Phase 1: Pre-alphabetic***

During pre-letter awareness knowledge, a child reads words by sight through memorization of distinctive visual cues in or around the word. This process of word decoding is known as visual-cue reading (Ehri, 1995).

### ***Phase 2: Partial alphabetic***

Once the child has acquired some letter knowledge in terms of letter names and their corresponding letter sounds, the child remembers how to read specific words by noticing how a few letters correspond to salient sounds in the word's pronunciation. This process of word decoding is known as phonetic-cue reading (Ehri, 1995).

### ***Phase 3: Full alphabetic***

During this phase, the child can fully analyze the spellings of words by matching up all the letters to their corresponding sounds in their pronunciations.

### ***Phase 4: Consolidated alphabetic***

Larger units are used by the child to remember how to read sight words. In other words, it is easier for the child to read and remember multi-syllabic words as sight words by dealing with chunks of letters (e.g., notwithstanding = not + with + stand + ing) than each individual letter (e.g., n-o-t-w-i-t-h-s-t-a-n-d-i-n-g).

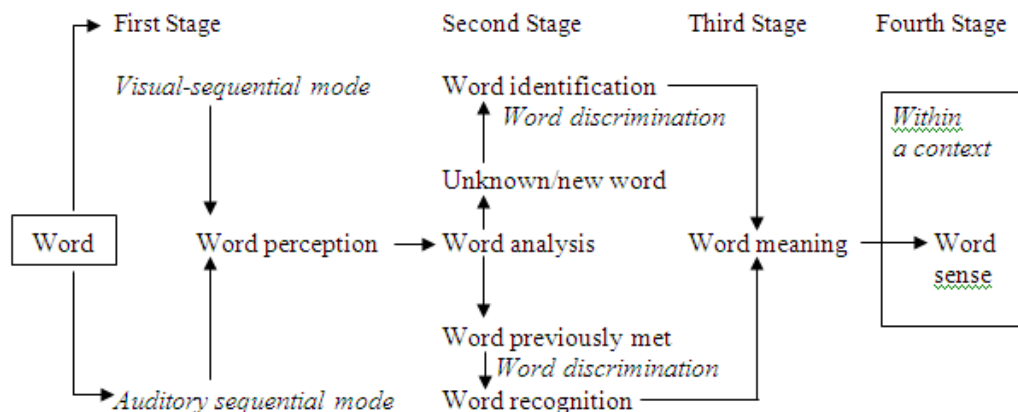
From Ehri's developmental phase theory of word learning, an explanation has been offered as to why some children display difficulties in deciphering new or unfamiliar words. Often these children fail to make progress beyond the two initial phases in their sight word reading, i.e., they still rely heavily on visual-cue or phonetic-cue reading (Chia, 1996a; Gaskins et al., 1997).

Knowing and understanding the developmental theories that underlie language acquisition (Fromkin et al., 1985), word recognition (Carver, 1970) and word learning (Ehri, 1991, 1994, 1995) sets the foundation for the four-stage process of word recognition (Chia, 2009) to provide us a better knowledge base how young children learn to recognize words as they are about to embark on their formal literacy education.

## Word Recognition as a Process

Word recognition is a process that involves decoding a word which entails more than just the interaction of three constituent elements – orthographic, phonological and semantic – of the word. According to Chia (2009), word recognition (see Figure 1) is a process involving four stages: (1) word perception, (2) word analysis, (3) word meaning, and (4) word sense.

Figure 1: Process of Word Recognition (Chia, 2009)



### Stage 1: Word Perception

According to Chia (1997, 2009), word perception takes place during the initial process of word decoding (i.e., reading and/or listening) in the mind of a reader/listener involving visual-sequential and/or auditory-sequential identification of the target word and some degree of meaning. Harris and Hodges (1995) have defined it as the process of understanding the appropriate meaning of a word following its identification (for unfamiliar or new words seen in print or heard) or recognition (for words previously met in print or heard). Word perception involves either visual-sequential or auditory-sequential perception of words depending upon the meanings present in the identification and recognition of words (Tinker, 1965). After the word perception, comes the next process of word analysis.

### Stage 2: Word Analysis

In this second stage, there are three sub-processes of word analysis: (1) word discrimination, (2) word identification, and (3) word recognition. According to Chia (1998), word analysis is the process of analyzing a word in terms of its constituent parts: phonological, orthographic and semantic elements.

- **Word Discrimination:**

Word analysis involves the process of noting differences in words, especially in their auditory-sequential (phonological) differences or visual-sequential (orthographic) outlines in terms of overall word shape or configuration (e.g., the word *limp* looks and sounds different from *limb* and *lime*).

Known as word discrimination, it involves both letter discrimination and letter sequencing (e.g., *three*, *there* and *their*). It helps to distinguish between *identifying* an unknown word (known as word identification) and *recognizing* a word (known as word recognition) previously met (Durkin, 1993; Tinker, 1965). Both essential interacting cognitive processes occur during this second stage of word decoding. However, only one of them can happen at any one time during the process of word decoding (Chia, 1997; 1998).

- **Word Identification:**

This refers to “the process of determining the pronunciation and some degree of meaning of an unknown word” (Harris & Hodges, 1995, p.282). For instance, when a listener/reader is dealing with an unknown or new word, he/she may attempt to do a phonetic analysis of it, i.e., segmenting the unfamiliar word into its constituent phonemes and then pronouncing them as he/she blends them together as a word in its entirety. This is also known as recoding. It is an alternative route that a child with dyslexia would resort to when he/she tries to decipher words (Chia, 2007). According to Manzo and Manzo (1994), phonetic analysis involves the reader/listener’s application of letter-sound correspondence until a hypothesis can be made and tested against the context in which the word appears as to what the word probably is. A key element of phonetic analysis is the “distinguishing of boundaries of linguistic elements within the sound stream” (Clark, 1988, p.8). It is commonly known as phonemic awareness and phonemic segmentation. Other word identification skills include word analytical skills (e.g., phonic analysis and structural analysis), using clues to guess a word (e.g., context clues, configuration clues, picture clues), and dictionary skills.

- **Word Recognition:**

Word recognition, on the other hand, involves a word previously met in print or writing. It is a quick and easy identification of the form, pronunciation, and appropriate meaning of a word encountered before. Manzo and Manzo (1994) define word recognition as a reader’s attempt to identify a word rapidly, with little attention to letter-sound correspondence. The process relies heavily on eidetic imagery (i.e., the ability to hold an image in the short-term memory while physically moving past it to other words or images in the working memory, to test to see if the word should be called one thing or another). For instance, is this word *there* or *three*?

In word recognition, a reader needs two additional aids: the most distinguishing features of the word (Gibson & Levin, 1975) and the context in which it is used (Pereira, 1991). For every word, there are special distinguishing features, which include its configuration, or shape (Marchbanks & Levin, 1965). The process of word recognition is especially crucial in the learning of phonetically irregular words that are used frequently in everyday speech and writing (Manzo & Manzo, 1994).

Moreover, both word identification and word recognition also involve letter sequencing in a given word. For instance, the word *cat* is read as it is and spelled as *c-a-t* and is not read as *tac* or *act* and/or spelled as *t-a-c* and *a-c-t*.

### ***Stage 3: Word Knowledge***

In word knowledge or vocabulary, word meaning is another important element. Word meaning is established when a word is identified or recognized. It is defined as “the concept of concepts associated with a spoken (auditory) or written (visual) word” (Harris & Hodges, 1985, p.282). In word meaning, thought and speech are united into a verbal thought (Vygostsky, 1962) which is essential for our cognitive understanding of words.

A word meaning can be denotative or connotative, literal or figurative, and this depends very much on how it is being used in a given context.

### ***Stage 4: Word Sense***

Word meaning is meaningless until it makes sense within a given context. This context can be either a conversation or a printed text. For example, the word ***cat*** may have its isolated meaning but it does not make any sense until it is placed in a given context as in the following two sentences:

- (1) The ***cat*** pounced on the frightened mouse and ate it up.
- (2) Don't you let the ***cat*** out of its bag or we'll all be killed.

Notice that the ***cat*** in the first sentence has a different meaning from that in the second. The former is a feline; the latter, a secret.

Moreover, a word meaning is determined by its word order – a sequential arrangement of the target word in a phrase, clause or sentence. For instance, the ***boy*** in the following sentence is the actor of the action *running*:

The ***boy*** is running down the street.

He is different from the other ***boy*** – being the victim/receiver of the action, i.e., the robber's threat – in this sentence:

The bully threatened to hurt the ***boy*** if he refused to lick the ground.

Research studies and theories (e.g., Chia, 1996b, 1997, 1998, 2009; Ehri, 1991, 1994, 1995; Gillet & Temple, 1990) about the word decoding process have provided a clearer perspective of four different routes children take to identify or recognize words:

The first route is sight word reading. This happens when a child tries to retrieve information about the words stored in his/her long-term memory from his previous experiences reading the words.

The second route is letter-sound decoding. This route involves the child sounding out the letters and blending them into a word.

The third route is analogy. This takes place when the child accesses memory information about the familiar sight words to read unknown words.

The fourth and last route is contextual guessing. This route involves the child using meaning-based cues in preceding text or illustrations to predict what a word might be (Ehri, 1991, 1994; Gaskins et al., 1997).

## Conclusion

Word recognition is a complex developmental process as well as part of the overall process of reading itself. In the event of any word recognition deficit, there are five categories of word decoders as identified by Chia (2009). The first category of word decoders refers to those who can recognize words previously met and know how to identify new or unknown words (i.e., readers with good word decoding). The second category of word decoders refers to those who can recognize familiar words and/or words previously met, but who are unable to identify new or unknown words (i.e., readers with dyslexia). The third category of word decoders refers to those who cannot recognize familiar words and/or words previously met, but somehow mysteriously are able to identify new or unknown words (i.e., readers with acquired aphasia and agnosia). The fourth category of word decoders refers to those who cannot recognize nor identify words whether they are previously met or new/unknown (i.e., readers with alexia or word blindness). The final and fifth category of word decoders, not found in this classification, refers to the precocious word decoders who are unable to understand what they are reading. These word decoders are often described as hyperlexic (Chia, Poh, & Ng, 2009). Often than not, this fifth category of word decoders also manifest other developmental learning and behavioral challenges. They include those with autism spectrum disorders, non-verbal learning disorders and sensory processing disorders (Chia, Poh, & Ng, 2009).

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## Understanding Children with Nonverbal Learning Disorder and Its Subtypes

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### Abstract

*This paper provides a comprehensive introduction to aid our understanding of the nonverbal learning disorder (NVLD) – also known as the right hemisphere learning disorder – and its four main subtypes. It also examines the different models of NVLD that have been described in the current literature of learning disabilities and disorders in order to understand the complexity of this disorder, which also co-exists with other learning disorders such as autism spectrum disorder and mathematics learning disability. The author feels that NVLD should be rightly recognized as a syndrome, just like that of the Developmental Gerstmann Syndrome, rather than as a specific learning disorder.*

*Keywords: differential diagnosis, nonverbal learning disorder, NVLD subtypes, right hemisphere learning disorder, syndrome*

### Introduction

Nonverbal learning disorder (NVLD for short), also known as right-hemisphere learning disorder (Denckla, 1979, 1983; Rourke, 1989; Semrud-Clikerman & Hynd, 1990), has long been neglected in the field of learning disabilities and disorders as it affects only a small number of children. According to Rourke (1989), an estimated prevalence of NVLD is only 5-10% within a learning disability clinic sample. It is considerable less than the prevalence of dyslexia, autism or Attention Deficit/Hyperactivity Disorder (ADHD).

In many of the case studies done on NVLD, difficulties with mathematics, handwriting and social cognition have been viewed as part of the same syndrome. Findings of a number of research studies reported that NVLD is found to co-exist with other learning disorders such as autism spectrum disorder and mathematics learning disability.

NVLD – a right-hemisphere learning disorder – has often been contrasted with Developmental Gerstmann Syndrome, which is a left-hemisphere learning disorder (Benson & Geschwind, 1970; Kinsbourne & Warrington, 1963). Moreover, according to Pennington (2009), “the construct of Gerstmann Syndrome suggests a left hemisphere locus for the symptoms of NVLD, whereas more recent evidence suggests that specific developmental problems in mathematics and

handwriting (but not reading) are more likely to result from right-hemisphere dysfunction” (p.243).

According to Davis and Broitman (2007), there are five categories of deficits or dysfunctions observed in children with NVLD that include the following challenges in: (1) motor skills, which include poor coordination, severe balance problems, grapho-motor difficulties; (2) visual-spatial skills which include lack in image formation, poor visual recall, faulty spatial perceptions, difficulties with executive functions; (3) organizational skills, which include poor executive functions in decision making, planning, impulse control, establishing goals, monitoring results of action, self-correcting, problems with spatial relations; (4) social skills, which include difficulties comprehending nonverbal communication, adjusting to transitions and novel situations, along with deficits in social judgment and social interaction; and (5) sensory skills, which include poor sensitivity in any of the sensory modes: visual, auditory, tactile, taste, or olfactory.

However, children with NVLD do also have their own strengths, too. These include the following: (1) early speech and vocabulary development; (2) remarkable rote memory; (3) strong auditory retention; (4) attention to details; (5) early reading skills, at times; and (6) excellent spelling skills (Thompson, 1997).

In other words, it seems that children with NVLD display hyperlexic tendency (i.e., excellent word decoders with early language development especially in spoken language and vocabulary or word knowledge) as well as high-functioning autistic traits (i.e., superior systemizing ability such as remarkable rote auditory memory and attention to details).

## **Diagnostic Model of NVLD**

According to Pennington (2009), the neuropsychological hallmark of NVLD is a significant verbal IQ greater than non-verbal or performance IQ. This deduction comes from evidence-based studies that found such children displaying weaknesses in visual-spatial skills and social cognition but strengths in verbal tasks. In fact, children with NVLD are often good readers and their strong areas are in word decoding and spelling. However, it is not found to be so in their reading comprehension. Hence, hyperlexia is often the suspect and the hyperlexia subtype is probably closer to the one that co-exists between Asperger Syndrome and visual-perceptual processing disorder (see Chia, Poh, & Ng, 2009, for more detail).

In establishing the neuro-psycho-educational profile of a child with NVLD, Rourke (1985, 1995) has suggested administration of the following testing procedure: Firstly, the target test should include a test of immediate visual memory by conducting the Reitan-Indiana Neuropsychological Test Battery (Rint-B) with the standard score that should be at least 1 Standard Deviation (SD) below the mean. Secondly, there is none or minimal simple tactile perception and suppression versus very poor finger agnosia or finger dysgraphesthesia. Thirdly, in administering the WISC-III, the VIQ exceeds PIQ by at least 10 points with the highest scores on two of the three WISC-III Verbal Scale subtests (i.e., Vocabulary, Similarities, and Information) and lowest scores on two of the three WISC-III Performance Scale subtests (i.e., Block Design, Object Assembly, and Coding) (Pennington, 1991). Fourthly, in the Wide Range Achievement Test-Revised, the

standard score for Reading subtest is 8 points higher than Arithmetic subtest. Fifthly, in the Tactual Performance Test, right, left, and both hand times become progressively worse vis-à-vis the norms. Lastly, there is also the need to determine the normal to superior grip strength versus mildly to moderately impaired Grooved Pegboard. In the case of children with NVLD, they perform better in grip strength than completing the Grooved Pegboard task.

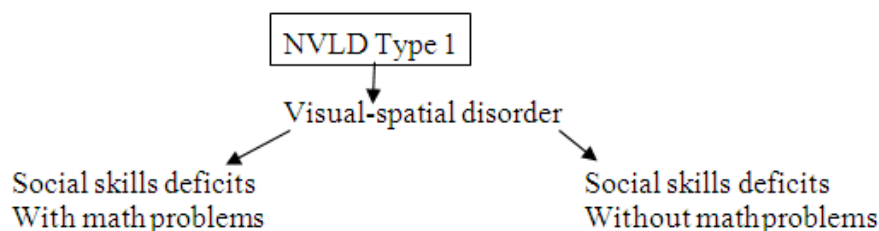
### Three Models of NVLD

There are several different models of nonverbal learning disorder (NVLD) with its different subtypes. According to Forrest (2004), there is one type of NVLD with two subtypes (see Figure 1). However, Mamen (2002, 2006) went on to identify another type of NVLD, also known as NVLD Type II (see Figure 2), in addition to the first type identified by Forrest (2004). Palombo (1995, 1996, 2001) presents a different model of NVLD with two subtypes: NVLD Subtype I and NVLD Subtype II. A third and a fourth subtypes of NVLD (i.e., NVLD Subtype III and NVLD Subtype IV) are later added into Palombo's (2006) model by Grodzinsky (2003), Mamen (2002, 2006) and Palombo (2006).

#### *NVLD Type 1 (Forrest's model)*

According to Forrest (2004), children of both Asperger Syndrome and NVLD are interested in establishing social relationships. However, children with NVLD do not manifest the very narrow, intense, obsessive interests that are associated with those with Asperger Syndrome. Asperger Syndrome is a developmental disorder that is co-morbid with neurological profile of NVLD (Klin, Sparrow, Volkmar, Cicchetti, & Rourke, 1995). Forrest's (2004) model of NVLD constitutes the first type of NVLD (see Figure 1) which is a form of visual-spatial disorder that can be further divided into two different subtypes. The first subtype of NVLD Type I shows social skills deficits with mathematical learning challenges. The second subtype of NVLD Type I also shows social skills deficits but without mathematical learning challenges.

*Figure 1: Type 1 of Nonverbal Learning Disorder*

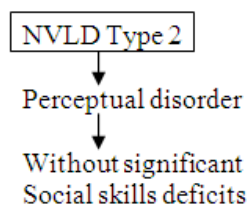


According to Rourke (2000), 72% of the children with NVLD demonstrated poor mathematical skills. Their visual-spatial problems create social skills deficits with co-morbidity of mathematical learning problem.

### *NVLD Type 2 (Mamen's model)*

There is also a second type of NVLD or simply known as NVLD Type II. According to Mamen (2002, 2006), the second type of NVLD or NVLD Type II is a perceptual disorder without significant social skills deficits (see Figure 2).

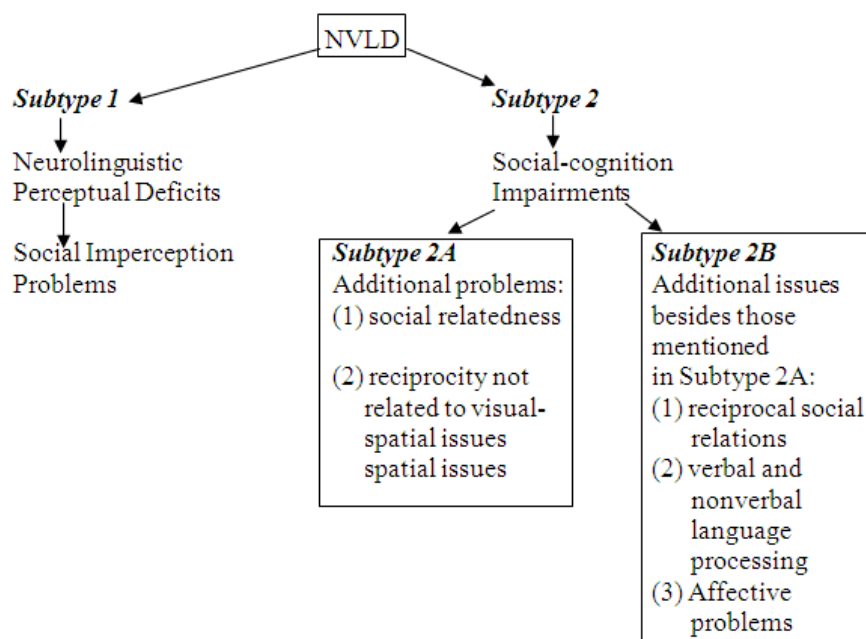
*Figure 2: Type 2 of Nonverbal Learning Disorder*



### *NVLD Subtypes 1 and 2 (Palombo's model)*

In Palombo's (2006) model of NVLD (see Figure 3), the disorder is divided into two subtypes. The first subtype concerns neuro-linguistic perceptual deficits with social imperceptions problems. The second subtype concerns social-cognition impairments. The latter can be further sub-divided into two following subtypes: (1) Subtype 2A NVLD with social-cognition impairments that is manifested with two additional problems in social relatedness and reciprocity that is not related to visual-spatial issues; and (2) Subtype 2B with social-cognition impairments that is manifested with three additional problems in reciprocal social relations, verbal and nonverbal language processing as well as affective problems.

*Figure 3: Two Subtypes of Nonverbal Learning Disorder (Palombo, 2006)*



### *NVLD Subtype 3*

In their respective research studies, Grodzinsky (2003), Mamen (2002) and Palombo (2001, 2006) agree that there is yet a third subtype of NVLD that significantly overlaps with the other two subtypes as described by Palombo (2006) as shown in Figure 3. The characteristics of the third subtype of NVLD are nearly the same as in the first and second subtypes, and they include visual-processing speed, and the social and attentional domains. It also focuses on the overlap between attention and executive functioning skills presented by both Attention Disorder-Hyperactivity Disorder (ADHD), especially the inattentive type, and NVLD. Moreover, it emphasizes how more fragile or inadequate executive functioning skills can be problematic in both academic and social arenas.

In children diagnosed with NVLD, there is a difference between verbal and nonverbal/performance subscale test scores, although the aspects of spatial perception seem to be intact. According to a study done by Mamen (2002) to identify children with NVLD, there are relative weaknesses revealed in the subscale scores of the Object Assembly and Picture Arrangement subtests of the WISC-III. In addition, Mamen (2002) also notes that the Block Design task is not usually affected to the same degree. The difference is due to the added pragmatic communication demands inherent in the socially-oriented themes of the Object Assembly and Picture Arrangement subtests (Pennington, 1991).

The social problems of the third subtype of NVLD are thought to be related to the following: expressive body language, pragmatic communication, personal or social space, difficulties with prosody, humor, metaphor and analogy. The academic strengths of children with the NVLD Subtype 3 can be observed in (1) reading, although some of these children with NVLD also struggle with advanced reading comprehension; (2) average to low average performance in mathematical skills due to problems with attention to detail and procedural memory; (3) written language where children with NVLD can be good at narrative discourse, but they experience difficulty in expository writing, especially in anticipating the reader's needs; (4) poor attention span caused by internal and external distractibility, though most often it is associated with visual processing rather than attention per se; and (5) children with NVLD display challenges in executive functioning such as perseveration or cognitive inflexibility, self-regulation, speed, and accuracy. These can be presented through the WISC-III or WISC-IV: the Processing Speed Index score can be lower than the Perceptual Reasoning Index but, contrary to much of the data on ADHD, both are lower than the Freedom from Distractibility Index and Working Memory Index of the WISC-III and WISC-IV, respectively.

Grodzinsky (2003) states that children with NVLD are very often seen as being hypoactive because their symptoms are similar to descriptions of Attention Deficit Disorder (ADD) or ADHD-Inattentive subtype. Another similarity is that children with the ADD or ADHD-Inattentive subtype are often described as having issues with executive functioning and slow or "sluggish" cognitive tempos (Teeter & Semrud-Clikeman, 1997), evidenced by their frequently low Processing Speed Index scores. These scores are frequently interpreted as the result of the slow grapho-motor speed and/or slow decision making speed observed in children with NVLD.

Children with NVLD are also observed to be quite inflexible or somewhat rigid in their thinking and way of doing a task, although they can function reasonably fine in familiar settings. Those children with NVLD who have higher intelligence do have a good sense of humor and can be comfortable using puns and word play.

In term of basic reading skill development, children with NVLD are often observed to be slow due to visual-processing inefficiency that impedes learning the orthographic features of letters and words. They perform poorly on rapid naming tests and/or sound symbol learning tasks (Grodzinsky, 2003). These tests tend to correlate with early alphabet learning, with which children with NVLD have difficulty. However, once they have over-learned or caught on the letters through repeated teaching, they become fluent readers.

For children with NVLD, written expression is often difficult, and more often than not, they are characterized as poor or variable spellers. They are also observed to be disorganized in their written language as well as untidy in their handwriting (known as cacographia) as they have trouble monitoring their written production.

In mathematics learning, children with NVLD may have some difficulty retrieving facts, but they generally have average conceptual ability.

#### ***NVLD Subtype IV***

Mamen (2002, 2006) has also identified the fourth subtype of NVLD that is concerned with a written-expressive-NVLD. It is manifested primarily as a handwriting disorder, which is often mistaken for poor penmanship – also known as cacographia, which is not a disorder at all (Chia, 2010). This fourth subtype, included within the broader NVLD framework, may well be related to the Developmental Coordination Disorder in the Maze subtest of WISC-III children, who also display gross motor difficulties (Mamen, 2006). Another subtest is the Grapho-motor Test, a subtest of the Aston Index-Revised (Newton & Thomson, 1976).

There are six main traits that characterize the fourth subtype of NVLD. Firstly, there is a noted obvious discrepancy between oral skills and written output. Significant deficits in fine motor, visual memory, and visual-motor integration skills help to distinguish children with NVLD Subtype IV from others as well as those who do not like to print or write, who do not practice, and/or who avoid written tasks because they take effort. Children with NVLD Subtype IV may not display highly significant discrepancies between their verbal comprehension and perceptual reasoning skills that characterize the other NVLD subtypes.

Secondly, on the administration of WISC-III or WISC-IV, while Verbal Comprehension Index is often the strongest of the index scores, the Processing Speed Index may well be significantly lower than all other index scores. Writing fluency, psychomotor speed/accuracy, and fine motor dexterity would also be expected to be deficient.

Thirdly, the main neuro-psycho-educational difficulty observed in NVLD Subtype IV is visual-motor integration, especially in timed situations such as on the WISC-IV Coding subtest. According to Mamen (2002), the Coding subtest yields a lower score than the Symbol Search subtest in NVLD Subtype IV. The test of visual-motor integration tends to be significantly weak

in this NVLD subtype. This dysfunctional condition is also described as dysgraphia, that is, difficulty in writing fluently, or copying letters or words rapidly, and hence, resulting in an output disorder. Moreover, the socio-emotional/affective aspect of this disorder results in behavioral traits that include low self-esteem, low frustration tolerance and/or anger management issues.

Fourthly, children with NVLD Subtype IV often find written work laborious and their written assignments (e.g., essays, journals, projects, written homework, and so on) are messy with minimal effort put in, and the assignments are often unfinished. Generally, genuine fatigue is noted in view of the effort they have expended in completing their writing tasks. These children with NVLD Subtype IV tend to be extremely slow while copying from the whiteboard. They copy letter by letter, even when they can read the words by chunks. This is because they cannot remember what the letters look like in the words they have read or seen. If these children are made to write faster than their own pace, they end up committing many errors, become very frustrated and often feel ashamed of their work.

Fifthly, children with NVLD Subtype IV experience few difficulties lining up in rows and columns but commit more errors during writing more-than-2-digit numbers when they are mentally manipulating the numbers in their heads.

Finally, children with NVLD Subtype IV also dislike or avoid coloring, drawing, and printing readiness activities, although these children produce detailed drawings when left to be creative. Their difficulties lie in the accurate representation on paper of what their eyes see, either directly (e.g., copying) or indirectly (e.g., from short- or long-term visual memory or from their “mind’s eye”).

## Conclusion

The review of these existing models of NVLD and its subtypes in this paper suggests that there are four main subtypes of the disorder. Therefore, NVLD should be viewed as a spectrum disorder or syndrome just like that of the Gerstmann Syndrome rather than as a specific disorder. It is also important to administer an accurate differential diagnosis for NVLD, a battery of relevant tests must be taken into consideration while keeping in mind the following three key issues: firstly, to know all the known subtypes of NVLD; secondly, to dismiss areas where there is no evidence of dysfunction; and thirdly, to formulate appropriate intervention programmes to treat difficulties that are identified during the diagnosis.

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## **Numeracy Literacy Challenges of Children with Special Needs in the Twenty First Century**

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### **Abstract**

*Parents of children with special needs generally turn to professionals with specialized knowledge to help their children's developmental needs, believing that professionals alone hold the key to make a difference. Unknown to most parents, numeracy literacy initial development is through prolonged and persistent exposure to sounds, adult modeling of the usage of the sounds and encouragement to participate in making the sounds in multiple social situations. Parents will need to actively provide multiple and repeated opportunities of diverse contexts for the gradual development of language used in numeracy as well as opportunities through trial and error in association of sounds to objects and concepts, where multiple cycles of experimentation, validation and verification lead to the development of number sense.*

*Keywords: cognitive modifiability, literacy, mediated learning experience, number sense, numeracy*

### **Introduction**

In the twenty first century, parents of children with special needs are faced with a buffet of diverse intervention approaches (Goin-Kochel, Mackintosh & Myers, 2009) and professionals with diverse skills that may help their children with special needs (Brookman-Fraze, 2004). Depending on the choice of educational and developmental philosophy adopted or choices available within affordability, many parents are observed to invest and rely on the professionals to help their child “catch up” with the missing developmental milestones. Moreover, the mass media and electronic games appear to have dominated the attention of most children during their development years in metropolitan cities (Lieberman, Bates & Jiyeon, 2009).

However the development of numeral literacy or number sense for all children, with or without special needs, will require human mediated learning experiences over prolonged and repeated exposure in diverse social contexts for social cultural and social cognitive constructivism of the meanings of signified and signifier in the semiotic domain of the lived in culture of the children (Chandler, 2002). Essentially, experience and education (Clements & Sarama, 2009) for enculturation and appreciation of constructs of society needs takes time. Children with special needs, especially those with behavioral or intellectual challenges, are often not provided with the

opportunity to be exposed and to experience the social cultural learning needed for the gradual development of literacy for integration into school and society. This is based on the assumption that family characteristic and child characteristic stressors often lead to poorer patterns of interaction and thus poorer child development (Guralnick, 2005).

## **Generic Development of Number Sense**

All children follow natural developmental progressions in learning and development (e.g. crawl, walk, run, skip and jump) in their own way and this includes the development of number sense. Clements and Sarama (2009), curriculum researchers in mathematics, have revealed sequences of activities and developmental paths, described as learning trajectories that are validated through their own research and others, for effective guidance of students to develop number sense for primary grade mathematics.

Essentially, young children love to think mathematically (Clements & Sarama, 2009). The motivation could be due to the need to describe the quantity of food desired, such as cookies or sweets, or to describe the dimensions of clothes and even volume of water they desire to drink. Good education allows play and exploration of the world, where mathematics is experienced and learnt informally, with fun and meaningfulness (Jonassen & Land, 2000). For example, learning of counting can initially proceed by “sing-song” of numbers one to ten, such as shown in “Sesame Street” programme on television. Verbal chants initially may have no meaning for the child but only as fun singing activity (Clements & Sarama, 2009). This does not matter initially as the goal is to allow the child to develop familiarity and ability to articulate the sounds of numbers. Persistent and repeated use of number songs for counting physical objects such as number of cookies for tea break, number of clothes being folded, number of stationery items and numerous other everyday situations, where counting is needed, will allow the child to gradually think of counting as a meaningful way to quantify number of objects observed or desired.

Generally, people learn meaning of words by association through “hearing those noises as they accompany actual situations in life” (Hayakawa & Hayakawa, 1990, p. 36). The natural development of the understanding of counting by the child requires multiple and repeated experiences where human modeling, patience and persistence are critical for enculturation and for imbibing the conventions used by society. Parents or caregivers are expected to fulfill this critical role of inculcating the social learning of language as well as mathematical concepts and to think of their children as apprentices. The child is expected to observe, follow and develop the expertise of the “master craftsman” of society by fulfilling the roles and duties of a responsible and independent citizen.

However, most working parents, especially those in metropolitan cities and those with behaviorally challenging children, may not be spending enough quality time or providing enough needed experiences for trial and error learning for their children to enable their development of number sense.

### Three Kinds of Knowledge (Kamii, 2000)

Kamii (2000) expounded that there are three kinds of knowledge children need for the acquisition of number concepts. Physical knowledge refers to knowledge of objects in external reality where their attributes (e.g. colour, weight, dimensions, shape, texture, sounds) are experienced with fidelity as well as through social knowledge of others describing them. Children in the twenty first century are getting more and more engaged in the digital media (Lieberman et al., 2009), resulting in increasingly lesser and lesser exposure to physical knowledge of our environment. This is based on the assumption of conservation of time, where spending more time in one area reduces time spent in other areas. Exposure to graduated experiences of the various physical attributes allows the development and fine-tuning of appreciation for description and manipulation in number sense. For example, appreciating the difference in weight between one kilogram and ten kilograms will allow the child to assess sensibly what is manageable to carry for a backpack trip, which is appreciating number sense in terms of weight.

Social knowledge and appreciation of language are socially constructed through multiple interactions with constructive feedback on expected and appropriate use in conventions by people of the community (Kamii, 2000). The ultimate source for social construction is partly through people and partly through constructive abstraction. Constructive abstraction refers to personal understanding and construction of mental relationships between concepts (e.g. good versus bad) and between objects (different or similar). Children with special needs generally lack critical interactions of socialization with peers through play. They also lack transactional interactions with people in the community through communal activities like buying food from supermarkets or restaurants. Thus, the opportunities for testing of perceived schemes of social knowledge during social interaction, where matching allows equilibrium and mismatch motivates adaptation and development so as to work towards equilibrium, are grossly lacking. “We actively create the meanings according to a complex interplay of codes or conventions of which we are normally unaware” (Chandler, 2002, p. 11) and equilibrium is a cognitive state in which we can explain new experiences by using existing understanding (Berk, 2010).

Logico-mathematical knowledge consists of mental relationships and these relationships have to be made by each individual (Kamii, 2000). For example, two beads which are exactly the same except for colour (one-green, one-red), will be perceived differently depending on how the person puts the objects into a relationship. Should shape and size be considered as the criteria, then there is no difference between the beads. However, if colour is to be the criterion, then the two beads are certainly different. The similarity and differences exist neither in the red bead nor in the green bead but in the empirical abstraction of the person making the comparison. Empirical abstraction involves focusing on a certain property of the object and ignoring the others. For example, when we abstract the colour of an object, we simply ignore the other properties such as weight and the material of the object. Constructive abstraction on the other hand “involves making mental relationships between and among objects, such as ‘the same’, ‘similar’, ‘different,’ and ‘two’ “(Kamii, 2000, p. 9), through the facilitation of the mediator of the knowledge when the attributes of the objects being focused on are highlighted.

## **Mediated Learning Experience (MLE)**

The interactive digital media of computers generally lack the abilities of humans to dynamically assess and intelligently adapt the communication and knowledge needed to address and match the needs of the other communicator. For example, the non-verbal communication language (e.g. frowns, scratching of the head, bewildered eyes, impatience, boredom) will either not be perceived or will not be perceived with as much fidelity as a face to face perceptive human mediator. The efforts to date in science and technology are working towards good approximation of real humans in terms of communication and human behaviour. Perhaps, it could be that humans are generally unpredictable in many ways, especially in terms of reactive behaviour to unexpected circumstances. Perhaps this may be appreciated through the knowledge that there is no existing system in the world that can accurately predict how the stock market will move in terms of profitability in response to world circumstances. Learning to be a fully functioning human will require another human who is fully functioning to provide guidance and mentorship. Learning of number sense as envisaged and experienced by humans will require another perceptive human mediator to provide quality mediated learning experience (Feuerstein, 1991) to effect the learning. Feuerstein et al. (1980) consider a mediated learning experience as the way in which stimuli emitted by the environment are transformed by a “mediating agent”, usually a parent, sibling, or other caregiver, in such a way that the child is able to perceive the stimuli in the way the mediator intended. The mediator selects stimuli that are most appropriate and then frames, filters and schedules for effectiveness and impact of intended meaning. There are three critical parameters for effective MLE.

### ***Mediation of Intentionality and Reciprocity (Feuerstein, Rand & Feuerstein, 2006; Kee, 2011)***

Professor Reuven Feuerstein, together with many other researchers (Kee, 2011) supports the belief that all humans are modifiable (Feuerstein, Rand, Feuerstein, 1988). Structural cognitive modifiability is achievable (Feuerstein, et al., 1988; Tan & Seng, 2008). Garland and Howard (2009) have found many neuroscience studies to provide evidence that the adult brain continue to form novel neural connections and grow new neurons in response to learning or training even into old age (Draganski et al., 2004). The mediator needs to believe that every person has the potential to learn and is able to learn. The quality to devise and innovate with creative initiatives so that the learner is able to perceive the intended information and knowledge with clarity and precision by transforming the stimulus to become salient and attractive to the child is the mediation of intentionality and reciprocity.

### ***Mediation of Transcendence***

Feuerstein et al. (1991) defined “transcendence as the orientation of the mediator to widen the interaction beyond the immediate primary and elementary goal, creates in the mediate a propensity to enlarge his cognitive and affective repertoire of functioning constantly” (pp. 21-22). Essentially the mediator needs to help the child to apply the knowledge of number sense in repeated and diverse contexts, for the child to internalize as well as generalize the learning of number sense.

### ***Mediation of Meaning***

Humans in general have the propensity to make sense of whatever is being taught (Berk, 2010). Mediation of meaning is the motivational component for the child that answers the “questions of

when, where, how, what, how much, by whom, etc.” (Feuerstein, 1991, p. 24). It satisfies the need for understanding and the drive for equilibrium (Eggen & Kauchak, 2013).

## Conclusion

The prevalence and ubiquitous nature of digital media in the twenty first century does not necessarily lead to development of number sense. Parents and caregivers with and without children with special needs ought to realize the critical role of enculturation and the development of number sense through effective mediated learning experiences.

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## A Cognitive Equation of Reading Process for Students with Autism

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### Abstract

*This paper is an excerpt drawn from the author's Master of Education dissertation. The author carried out an inter-correlational research study to examine how five different components, namely, Reading Experience, Word Reading, Sentence Reading, Reading Comprehension and Reading Attitude interrelate with each other. The author proposed a cognitive equation of reading process that illustrated the effects of these components on seventeen Primary 4 students with autism, currently attending mainstream schools. Among the five components, the inter-correlation reliability coefficient between Word Reading and Sentence Reading showed significant and positive relationship; Word Reading and Reading Comprehension showed moderate reliability while Reading Experience correlated reliably with Reading Comprehension. However, Reading Attitude was least correlated with the other components of the reading process. Based on the study findings and literature review, the author recommends pedagogical interventions for practitioners in mainstream and special schools.*

*Keywords: reading experience, word reading, sentence reading, reading comprehension, reading attitude, reading process, reading outcome, autism spectrum disorder*

### Significance of Reading

The focal point of reading is the change from orthographic (visual) to phonological (auditory) process. McNorgan, Alvarez, Bhullar, Gayda, and Booth (2011) established a correlation that is age-dependent where there is dependence on phonological processes initially and orthographic processes later.

Reading encompasses a two-prong process of decoding of words (*word knowledge*) and ability to understand the reading material (Topic Knowledge) (Sideridis, Mouzaki, Simos, & Protopapas, 2006). Reading is crucial for the expansion of general knowledge and vocabulary (Logan & Johnston, 2010). Conclusive investigations deem the ability and aptitude to read as significant for academic progress and success (e.g., Bernhardt, 1991; Carrell, 1991; Grabe & Stoller, 2002; Swalander & Taube, 2007; Urquhart & Weir, 1998). More importantly, the ability to read is the key enabler to learn other subjects like science, mathematics, history and geography.

Indeed, reading shapes the whole gamut of a student's learning journey which ranges from the capability to listen and understand stories during preschool years to the utilisation of higher order



reading skills for successful life skills acquisition in adulthood. Hence, it is critical that we fathom the reading process to effectively equip readers with the necessary skills.

## **What is Reading?**

Reading in itself is multifarious and intricate and includes varied skills spanning from the ability to recognize every individual word in a sentence to comprehending the intended meaning. Reading skills are highly interactive and follow a congruent pattern (McClelland & Rumelhart, 1981; Stanovich, 1980).

Personal objectives of a reader influence him as he progresses through the print materials. He forms perspectives throughout the reading process and responds with the notions depicted in the text (Ruddel & Unrau, 1994). Essentially, reading involves deciphering the entire text to make sense of the words and sentences, in tandem with the beliefs, views and prior knowledge of the reader (Sideridis et al., 2006).

However, several elements such as an inability to analyse the information effectively, a failure to tap on background knowledge, a deficient repertoire of vocabulary and weak reading fluency can hamper a student's understanding during the reading process (Gersten, Fuchs, Williams, & Baker, 2001).

## **Theoretical Framework of Reading Process**

This research study draws upon the philosophical point of reference of Thorndikes' *Principles of Teaching* (Thorndike, 1906) where reading extends past the early stages of reading to encompass interpretation and meaning derivation. During the reading process, a reader goes through evolving cognitive paradigm of assimilation and accommodation based on the type of text as mooted by Piaget (Broderick & Blewitt 2010).

One needs to apply the afore-mentioned theories in complement with the three theories (*namely, Theory of Mind, Weak Central Coherence, and Executive Function*) that describe the cognitive processing style peculiar to students with Autism Spectrum Disorder (ASD).

“Theory of mind” refers to the notion where students with ASD display diverse degrees of challenges when they need to infer or take perspective of the beliefs, viewpoints, ideas or thoughts of others. These students exhibit difficulties despite possessing a wide repertoire of vocabulary knowledge (Barnhill, 2004). The theory of “weak central coherence” explains why students with ASD focus on minute details instead of paying attention to the “big picture” (Happé, & Frith, 2006). Carlson and Moses (2001) refer to “executive function” as the manner in which students with ASD regulate and manage their actions, attention and thoughts. Understanding of these three theories is vital when formulating interventions that will aid reading comprehension for students with ASD (Carnahan & Williamson, 2010).

## **Development of Reading Skills in Children with ASD**

ASD encompasses a broad category of disorders, namely, Asperger disorder (syndrome), autistic disorder (and high functioning autism), childhood disintegrative disorder, Rett's disorder, and pervasive developmental disorder, not otherwise specified (Mesibov, Shea, & Adams, 2001). The hallmark features that distinguish students with ASD are distinct and identified by a triad of impairments comprising social impairment; impairment in reciprocal communication; and narrow, restricted, and stereotyped patterns of behaviours and interests (American Psychiatric Association, 1994).

For typical children, the ability to make sense of print by and large progresses in tandem with their ability to grasp the meaning of what they read (Nation, 1999). Conversely, researchers O'Connor and Hermelin (1994) and Wahlberg and Magliano (2004) reported that students with high-functioning ASD have deficits in comprehending written text.

Students with ASD demonstrate effective and sometimes exceptionally good word-recognition skills and poor comprehension capabilities, termed as hyperlexic (Minshew, Goldstein, Taylor, & Siegel, 1994; Nation, Clarke, Wright, & Williams, 2006; Niensted, 1968; Silberberg & Silberberg, 1967). However, Nation et al. (2006) expressed that not all students with ASD who have difficulties with reading comprehension are hyperlexic. Hyperlexic means reading without actual understanding, that is, the decoding skills of a student far exceeds the comprehension skills (Grigorenko, Klin, & Volkmar, 2003).

Several studies (e.g., Goldstein, Minshew, & Siegel, 1994; Minshew et al., 1994) have attested that students with high-functioning autism can achieve academic success as their language and cognitive aptitude are less impaired. In fact, some of these students have successfully attained tertiary education and work (Burack, Root, & Zigler, 1997; Gerhardt & Holmes, 1997). Thus, it is vital that these students develop their reading skills.

### **Students with Mild ASD in Mainstream Classrooms**

Dunlap, Kern, and Worcester (2001) and Griffin, Griffin, Fitch, Albera, and Gingras (2006) noted that more children with mild ASD and Asperger syndrome are progressively being placed and educated in general education classrooms.

Similar trends transpired in Singapore. In 2004, the Prime Minister, Lee Hsien Loong, declared and unveiled the vision of the government in his inaugural speech, "Government that will be open and inclusive in its approach, toward all Singaporeans, young and old, disabled and able-bodied. ..." (Ibrahim, 2004). Thereafter, a hallmark step forward towards inclusion was seen when the Prime Minister urged for the integration of those with mild disabilities into mainstream society, starting with the assimilation of students with mild disabilities into mainstream schools (Teo, 2004).

However, the challenges that students with ASD face with reading comprehension may affect their academic outcomes at the mainstream schools. Their impairments in communication and distinctive cognitive orientation

such as deficit in central coherence (Nation & Norbury, 2005) inevitably influence their performance in reading comprehension. As a result, they encounter unique challenges in acquiring reading mastery with understanding. Moreover, Kluth and Darmody-Latham (2003) reported that educators in the inclusive general classrooms are mostly uncertain on how to impart literacy skills to students with ASD.

In spite of these drawbacks, students with ASD can become adept at reading with well-targeted accommodations and interventions in reading instruction (O'Connor & Klein, 2004; Williams, Wright, Callaghan, & Coughlan, 2002).

## Purpose of Study

Currently, studies exploring the reading outcomes of students with ASD are limited in Singapore. Particularly, research on how the different components of the reading process interact with and affect each other for students with ASD is inadequate.

Gaining insights about the different reading components and their effect on the reading outcomes of students with ASD is of practical significance to special educators in mainstream and in special schools in Singapore. Most importantly, as a special educator in a school that offers mainstream curriculum, distinguishing the patterns of students' strengths and difficulties in reading will certainly help me to ascertain areas of reading components that require intervention (Singer & Ruddell, 1985).

## Reading as a Process

Reading is a complex and multi-dimensional process (Alfassi, 2004; Siegel, 1993). It entails a multifaceted set of process components with their respective skills and abilities. According to Siegel (1993), in acquisition of reading, five process components are crucial: phonology, syntax, semantics, orthography, and working memory (see Figure 1).

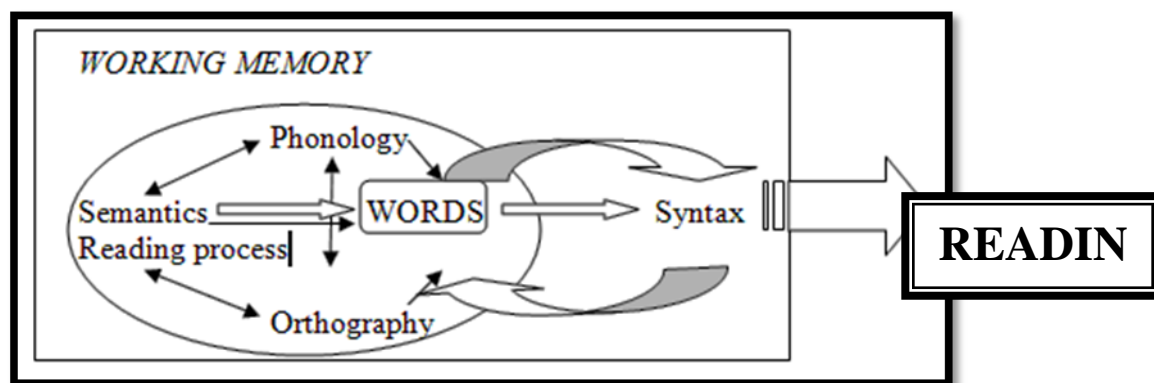


Figure 1. The Five Process Components of Reading (Siegel, 1993)

Moreover, reading is a complicated process that ranges from discrete to abstract features based on the extent of existing schema and life experiences. Several skills, inclusive of word recognition to grasp the expected meaning of the text, are involved regardless of the simplicity of the text (Nation et al., 2006). Reading also encompasses the reader's thoughts, feelings, beliefs, knowledge or lack of it and strategies for processing the data or text.

Reading is both a *psycholinguistic* process (Goodman, 1968), where the mind actively processes what is read and *sociolinguistic* process (Vygotsky, 1978), where several social related factors have an impact on what one reads, how one reads, how much one understands from reading and so on.

Effective and critical reading necessitates a holistic and a dynamic process. Models of reading process show the relationships among the various elements of reading in competent readers (Verhoeven, Reitsma, & Siegel, 2011). A widely accepted reading model stemmed from cognitive psychology and schema theory. The reader in this instance is an active participant who uses his own prior knowledge to build meaning from the text methodically. As personal background knowledge is used, all readers will naturally have diverse schemata shaped by their respective cultural backgrounds and belief systems.

This study was based on the cognitive model of reading process (Chia, 2007a) which is encapsulated in a cognitive equation according to Chia (2004, 2007, 2010):

$$RP \rightarrow S \{B[T(D + Cp) + M] + P\} \rightarrow RO$$

Where RP is Reading Process  
 S is Setting (where the reading task takes place)  
 B is the Background Knowledge and Prior Experience of the Reader  
 T is Thinking  
 D is Decoding  
 Cp is Comprehension  
 M is Motivation  
 P is Purpose  
 RO is Reading Outcome

As shown in the afore-mentioned equation, reading is a complex process comprising many interacting components. Figure 2 below shows the cognitive equation depicted in the form of a diagram.

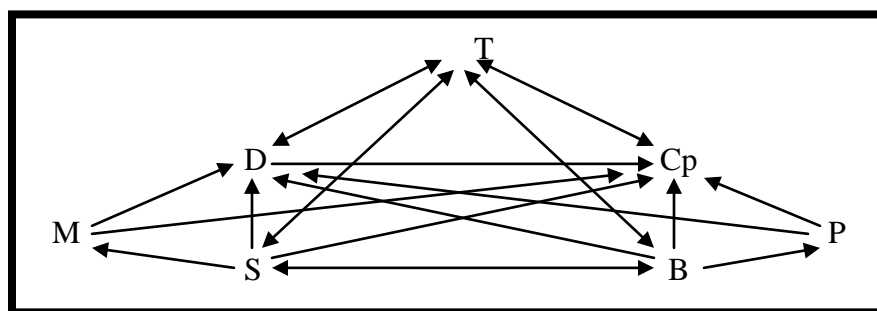


Figure 2. An Adapted Diagrammatic Representation of the Reading Process (Chia, 2004)

Chia (2004) states that the fundamental component in the cognitive equation of reading process is Thinking (Decoding + Comprehension), that is, T (D + Cp).

### ***Thinking***

There has been a surge in the emphasis on metacognitive cognizance that takes place during the reading process (Guthrie & Wigfield, 1999; Pressley, 2000; Pressley & Afflerbach, 1995). The checking of one's understanding (*metacognition*) of the text is indispensably imperative to attain a competent level of reading (Mokhtari & Reichard, 2002). Teachers have been encouraged to be cognizant of the thinking processes that happen during reading to assist students in their reading and comprehension tasks. With good focus and engagement during reading, students will be better able to gain positive outcomes (Paris & Winograd, 1990, p. 22).

Taken together, many studies (Gernsbacher, 1990; Graesser, Singer, & Trabasso, 1994; Kintsch & van Dijk, 1978; Trabasso & van den Broek, 1985; van den Broek, 1994; Wagner, Piasta, & Torgesen, 2006; Whitehurst & Lonigan, 1998; Zwaan & Rapp, 2006) that examined cognitive processes of reading comprehension emphasized the need to decode words and create a mental picture of the text in a systematic manner. The thinking processes and the generated representations form the cornerstone to build up background information that assists recalling or the answering of questions at a later stage.

Children use language for thinking (Neuman, 2006). Thinking is fundamental for decoding of words and for understanding the reading material. In the absence of thinking, comprehension is meaningless and the reader becomes hyperlexic. Children who are able to read but unable to derive meaning from what they have read will surely not benefit from their reading (Klinger, Vaughn, & Boardman, 2007). A competent reader is able to decode words correctly and fluently to understand the intended message of the text. This can happen for both meaning of words in isolation or in the context of the text (Huemer & Mann, 2010). The entire process can take place only when there is thinking on the part of the reader. Studies revealed that for many typical children, decoding and comprehension skills proceed in tandem (Mirenda, 2003; Nation & Norbury, 2005).

### ***Decoding***

Children begin to obtain basic decoding skills during the course of learning to read. Initial word recognition skills culminate to multi-letter units and complete words (Ziegler & Goswami, 2005). Decoding involves aural-visual and visual-oral decoding processes (Chia, 2007a, p.4).

Verhoeven and van Leeuwe (2008) investigated the functions of word recognition, vocabulary and listening comprehension skills, in relation to the progression of reading comprehension. They found evidence that the quantity and quality of word depictions are necessary for successful word identification during the reading process. Furthermore, their results proved that a rich repertoire of vocabulary, together with a high degree of listening comprehension skills, facilitate the assimilation of word-to-text.

When children are able to recognise words easily, they are able to focus their thinking processes on deriving the meaning of the words than merely recognising words. Reading can then facilitate the acquisition of new ideas and concepts (Samuels & Flor, 1997). Besides, accurate and fluent decoding of words is essential for the effective reading of content-area information (Bhattacharya, 2006). Additionally, word knowledge provides the platform for concept learning.

Miller and Keenan (2009) explored text memory in children who have difficulties with word reading and how this affects comprehension skills. They ascribed centrality deficit as the cause for the lack of thinking skills to link and associate ideas to form meaning from text. Essentially, these children use much of the cognitive processes for word decoding and hence that weakens their meaning-focused outcomes. However, the centrality deficit disappears when there is prior knowledge about the content of the text.

In addition, the progress of word reading links to reading experiences (Cain & Oakhill, 2011). Naturally, children who read widely come across a considerable number of words and have many opportunities to decode the words they encounter. Opportunities avail for them to improve their morphology expertise and spelling than those who do not read extensively.

Children with ASD decode words using similar phonological and orthographic representations as their typical counterparts (Newman et al., 2007). Yet, the language profile of children with ASD diverges greatly in terms of expansion in vocabulary and word proficiency. Some children with ASD have delays in acquiring their first words whilst others are able to achieve scores in vocabulary that are similar or above those scored by typical children (Kjelgaard & Tager-Flusberg, 2001; Lindgren, Folstein, Tomblin, & Tager-Flusberg, 2009; Luyster, Lopez, & Lord, 2007).

To understand the language learning by children with ASD, Kuhl (2007) established the effects of social factors on word learning and vocabulary enhancement. He found a positive relationship between social factors and development of language. Earlier investigators (McDuffie, Yoder, & Stone, 2006; Sigman & McGovern, 2005) mentioned that joint-attention and ability to form a common visual point are indicative of vocabulary development in children with ASD.

Recently, Luyster and Lord (2009) reported that children who have a wide repertoire of vocabulary are also socially skilled. However, the social cues are limited to learning new words only and without higher order skills like inference or ability to ascertain speaker intentions in an unstructured and complex social situation.

Collectively, the general direction is that children with ASD are able to use social cues like following an adult's gaze without really understanding the intention. Moreover, individuals who demonstrate comparable social profiles showed stark variability in their gamut of vocabulary skills (Lindgren et al., 2009). Thus, it is clear that social factors per se do not attribute to the disparity in the range of vocabulary skills. However, associative learning is one cited factor that contributes to word learning in children with ASD (Parish-Morris, Hennon, Hirsh-Pasek, Golinkoff, & Tager-Flusberg, 2007).

To sum it up, a general consensus amongst several researchers is that children with ASD are adept at decoding, given their strengths in rule-based and rote-learning (Calhoun, 2001; Frith, 2003; Lord & Paul, 1997; Mayes & Calhoun, 2003a, 2003b; Nation et al., 2006) but less skilled at comprehension which needs meaning-focused skills (Randi, Newman, & Grigorenko, 2010; Whalon, Al Otaiba, & Delano, 2009).

### ***Comprehension***

Word recognition is pertinent for reading. However, only word recognition will not suffice to attain reading comprehension (Nation 2001). The competencies required for effective reading comprehension extends beyond word reading abilities. A wide array of vocabulary knowledge, background knowledge and usage of cognitive strategies such as summarizing, questioning and monitoring personal understanding help a reader to assimilate key information and derive meaning from the text (Caccamise & Snyder, 2005).

During the reading process, many complex language interactions take place. The reader uses semantics (knowledge of meanings), syntax (language structure) and phonics (letter-sound associations) to draw meaning from text (Kiefer, 2001). The reader also taps on prior knowledge, use reasoning skills and apply meta-cognitive proficiency like self-monitoring (Nation 2001) collectively to aid understanding. De Corte, Verschaffel, and Van De Ven (2001) added that student and text related aspects influence the outcomes of reading comprehension. Text matters include type and intricacy of text and the degree of new information. Affective elements like self-awareness, insight and motivation are also essential for successful comprehension.

To progress from the phase of mere word-reading to reading with meaning marks a challenge for many, including typical fluent readers, due to multifarious cognitive demands of varying texts. When there are deficits in the important complementary skills during the reading process, students will inevitably struggle in reading comprehension (Scarborough, 2003, p. 98).

Reading to grasp the intended meaning of the text is particularly hard for students with ASD given their impairments in social interactions, communication and cognitive processing (Randi et al., 2010). Children with ASD have been found to have deficiencies in communication skills (Nation & Norbury 2005), a broad-spectrum of language difficulties (Tager-Flusberg & Joseph, 2003), challenges in verbal proficiencies (Mirenda & Erickson, 2000) and problems in assimilating varied information in the context of the material that they reading (Frith 2003). Tager-Flusberg (1981) noticed that students with ASD are more literal in their interpretation of language activities. They are able to attend to reading comprehension questions that need factual answers. Hence, Griswold, Barnhill, Myles, Hagiwara, and Simpson (2002) noted that it is not surprising that a number of students with ASD score within the normal scope on formal assessments of reading comprehension.

However, we know that reading comprehension expands beyond factual interpretations to ability to make inferences from the text. This is where students with ASD show great difficulty. Students with Asperger Syndrome answered virtually two thirds of the inferential comprehension questions erroneously (Minshew, Goldstein, & Siegel, 1995; 1997; Smith-Myles et al., 2002). In an investigation by Dennis, Lazenby, and Lockyer (2001) which corresponded with an earlier study by Happe (1994), they found evidence that, students with Asperger Syndrome and high-functioning autism were unable to deduce the meaning of words in context.

Several studies have collectively reported that students with ASD, regardless of where they are on the spectrum, will be severely impaired in deriving meaning from texts (Calhoun, 2001; Mayes & Calhoun, 2003a, 2003b; Minshew et al., 1994; Nation et al., 2006; Nation & Norbury, 2005; Wahlberg & Magliano, 2004) although comparative strengths are observed in word-

reading, especially those with high functioning autism (Frith & Snowling, 1983; Griswold et al., 2002; O'Connor & Klein 2004). Mayes and Calhoun (2003a, 2003b) conducted extensive studies on 280 children with ASD. Their results showed that all the children despite their IQ scores exhibited difficulties with comprehension. More specifically, investigations by Griswold et al. (2002) and Myles et al. (2002) showed that children with Asperger syndrome who attained word-reading according to their grade level, could understand factual texts but had difficulty with texts that require inference making skills.

These conclusions parallel many research works that have employed descriptive studies and standardized assessments of oral language tasks to ascertain the capabilities of students with Asperger syndrome and high-functioning autism to construe meaning from text. Students with ASD had great difficulties in answering questions that require them to predict, deduce, or take perspectives based on a given scenario (Griswold et al., 2002; Minshew et al., 1997). Recollecting information from nebulous texts posed a challenge for adults with high-functioning autism when compared to their typical peers (Wahlberg & Magliano, 2004). Moreover, these individuals displayed inadequate text monitoring during their reading (O'Connor & Klein, 2004).

The challenges that these students with ASD face corresponds to neuropsychological theories of mind (Baron-Cohen, Leslie, & Frith, 1985), weak central coherence and weak executive functioning (Martin & McDonald, 2003). Their struggles with taking perspectives, understanding and predicting behaviours or expressions affect their ability to infer from a given text (Baron-Cohen et al., 1985). Weak central coherence limits their skills in drawing meaning from a particular context that requires inferring capabilities (Martin & McDonald, 2003). The factor that helps one to adjust according to differing situations is the executive function. To be proficient readers, students with ASD need to adjust to varying scenarios in texts that they are reading with more flexibility (Martin & McDonald, 2003).

Additionally, students with ASD demonstrate acute word recognition skills coupled with impaired reading comprehension. Grigorenko et al. (2003) equated this pattern to hyperlexia. According to the researchers, students who demonstrate sophisticated word recognition abilities notwithstanding severe deficits in cognitive and linguistic skills are displaying hyperlexia.

Next, motivation (M) is another imperative component of the cognition reading process. The equation extends to  $T (D + Cp) + M$ .

### ***Motivation***

Besides capability, a competent reader needs the will or motivation to read. Students may be motivated to read for an external reward that they are anticipating or for sheer personal joy and pleasure that they derive from reading (Wigfield & Guthrie, 1997). Motivation to read can thus be termed as extrinsic or intrinsic motivation (Edmunds & Bauserman, 2006) respectively. Values, beliefs and behaviours that are observable throughout the reading process and sheer enjoyment from reading, encapsulates motivation (Cambria & Guthrie, 2010).

Some explorations support choice as a key to enhance motivation (Cordova & Lepper, 1996; Iyengar & Lepper, 1999). Students who have a choice to select their reading materials are more likely to focus better in reading (Worthy & McKool, 1996). In fact, as mooted by Guthrie and Wigfield (2000), utilizing self-determination strategy of choice making provides a sense of



ownership and commitment to reading. Another key factor that boosts motivation to read is self-concept (Gambrell, Palmer, Codling, & Mazzoni, 1996). Students who are encouraged positively to read from early years will have a positive self-concept (*students' views of reading mastery, the intricacy of reading, and their mind-set towards reading*) and feel good about reading. They will in turn read more due to the affirmative stimulus as can be explained through the concept of self-fulfilling prophecy. These self-motivated students become mature and effective readers.

A noteworthy inquiry by Taboada, Tonks, Wigfield, and Guthrie (2009) that employed multiple regression analyses on 205 fourth-grade students explored the prognostic power of motivation, background knowledge and student questioning on the effects of reading comprehension and its growth. Their statistically significant results revealed that background knowledge, student questioning and internal motivation contribute independently to reading comprehension. While acknowledging that each of the three components is necessary to enhance reading comprehension and growth, they agreed with Pintrich's (2003) notion that internal motivation is the key enabler. They reckoned that internally motivated students are able to make rich connections with the text that they read by tapping on their repertoire of background knowledge. Besides, these positively energized students demonstrate self-efficacy by asking higher order questions that lead to better comprehension. The researchers documented the positive cyclical effect with all the three components contributing positively towards better reading comprehension.

A reader does not read without an aim. Consequently, purpose (P) expands the equation into  $[T (D + Cp) + M] + P$ .

### ***Purpose of Reading***

Knowing about the purpose of reading helps students to focus, engage meaningfully and enhance concentration. The reader reads a particular text with an end in mind, be it to learn, expand knowledge or enhance his/her repertoire of vocabulary (Chia, 2007b).

Besides the purpose of reading, the reader uses his/her prior knowledge during the reading process. The cognitive equation broadens to:  $B [T (D + Cp) + M] + P$ .

### ***Background Knowledge***

We do not decipher every single word for its meaning when we read. We process the material in chunks and derive a bigger picture of what we read. This is plausible as we use our prior knowledge to gain meaning both consciously and sub-consciously. This background knowledge helps us to make predictions and synthesize the intent of the text.

Numerous studies (e.g., Kintsch, 1998; McNamara, 2001; Salmerón, Kintsch, & Canñas, 2006; van den Broek, Rapp, & Kendeou, 2005) have been conducted on specifically the role of prior knowledge on the reader. In those studies, background knowledge has been recognised and recorded as having a major impact in the reading process. Other investigations attribute the extent of a reader's grasp of meaning to the reader's schemata and text content (Brown, Palincsar, & Armbruster, 1984). The precise effect that background knowledge has in terms of its connectivity and its interface with varied texts like printed materials and hypertexts was further examined (McNamara, 2001; Salmerón et al., 2006). In fact, there was agreement

between Samuelstuen and Braten (2005) and Shapiro (2004) that prior knowledge forecasts success in reading comprehension better than word decoding skills.

Students can enhance their reservoir of prior knowledge by expanding their concept learning (Nichols, Rupley, Blair, & Wood, 2008). This is because concept learning forms the key enabler for acquisition of content knowledge and the former in turn facilitates progress in reading, learning and thinking. Furthermore, the association between prior knowledge and comprehension improves with age (Evans, Floyd, McGrew, & Leforgee, 2002).

The majority of students with autism are visual learners (American Speech-Language-Hearing Association, 2006). Teaching using visual aids like mind-mapping, Venn diagrams, charts and graphic organizers will help these students to organize and link salient points based on their prior knowledge so that they can relate to the material that they are reading. Wahlberg and Magliano (2004) observed better recall in adults with high-functioning autism when they presented the latter with abstracts and concrete titles before providing the actual reading material.

Finally, we know that reading process takes place in a setting (milieu) with varying conditions. The cognitive equation completes with  $S \{B [T (D + Cp) + M] + P\}$ .

### ***Setting***

The reading process does not occur in isolation. It takes place within a particular domain such as the home or classroom. These environments may or may not nurture or support the reading process. Further, the mood and experiences within these settings will vary depending on the purpose of reading, markedly, for assessment or for pleasure reading (Braunger & Lewis, 2001; Morrow, 1990). For instance, reading a text in a classroom may cause stress and reading anxiety. However, reading a storybook during choice period or silent reading may be more calming and stress-free.

Thus far, the entire equation  $RP = S \{B[T(D + Cp) + M] + P\}$  has been explained. The reading outcome (RO) will be contingent on “how well these factors (i.e., S, B, T, D, Cp, M and P) have been developed to play their respective parts” (Chia, 2007, p.7).

### **Focus of the Study: Students with ASD**

The cognitive equation discussed thus far applies to typical readers. The focus of this study is on readers with ASD. Students with ASD are progressively educated in general education classrooms. In order to accomplish the educational outcomes in tandem with their typical counterparts in these settings, students with ASD need to achieve literacy proficiency (Simpson, Boer-Ott, & Smith-Myles, 2003).

Readers with ASD exhibit different traits compared to typical readers. Students with ASD have common attributes like impairments in reciprocal social interaction, verbal and non-verbal communication, and a restricted repertoire of interests and behaviours (American Psychiatric Association, 1994).

However, several reports (e.g., Church, Alisanski & Amanullah, 2000; Craig & Telfer, 2005; Diehl, Ford, & Federico, 2005; Koppenhaver & Erickson, 2003) have documented that students with ASD tend to show evidence of asymmetrical aptitudes in language skills and development. To elaborate, an analysis by Charman, Drew, Baird, and Baird (2003) revealed severe delay in the vocabulary skills of preschool children compared to their nonverbal mental ages. In fact, Landa (2007), in addition to Rapin and Dunn (2003), discussed the challenges with language and particularly, communication skills that children with ASD face very early in their life. This is because their structural language differ widely (Kjelgaard & Tager-Flusberg, 2001).

Many children with ASD demonstrate restricted repertoire of vocabulary skills as adults (Howlin, Goode, Hutton, & Rutter, 2004) although the inconsistencies between verbal and nonverbal aptitudes lessen with maturity and age amongst those with high functioning autism (Joseph, Tager-Flusberg, & Lord, 2002; Rapin & Dunn, 2003). Nation et al. (2006) explored the outcomes of students with ASD across varied functioning abilities. They found a diverse mix of reading profiles amongst the 41 school-age students. 32 of the students had assessable reading skills. Still, about 12 of those who could read had weak word reading scores while approximately 20 performed ineffectively in reading comprehension. That was why they concluded that many children with ASD need assistance in language acquisition as not all of them become competent in word reading.

As a result, the cognitive equation of reading process for readers with ASD needs to be adapted. Hence, the author reckoned that the equation based on her investigation (Elangovan, 2012) has to be modified as:  $RP \rightarrow RE [(WR) (SR) + RC] + RA \rightarrow RO$

Where RP is Reading Process  
 RE is Reading Experience (to replace Background Knowledge and Prior Experience of the Reader)  
 WR is Word Reading (also known as Word Recognition, to replace Decoding)  
 SR is Sentence Reading (also known as Contextualised Word Reading to extend Decoding)  
 RC is Reading Comprehension (same as Comprehension)  
 RA is Reading Attitude (to replace Motivation and Purpose)

The excluded components in this new cognitive equation were S (Setting) and T (Thinking). It was difficult to measure Setting and Thinking. In any case, there is no known assessment tool to measure either of the two components.

### **Concatenation of Essential Reading Components**

Numerous studies (e.g., Barnhill, 2001; Nation et al., 2006; O'Connor & Klein, 2004) have explored only some of the components in isolation or in tandem with a combination of some of the variables proposed in the reading equation. Still, no studies have investigated all the variables in the reading equation simultaneously in relation to the final reading outcomes. Similarly, no study has examined the reciprocal ways in which the different components interact.

The present study examined how all the variables in the reading equation predict reading success for students with ASD. Based on the results, the researcher recommends early intervention strategies specific to the unique components in the reading process to facilitate reading success.

## **Salient Points about the Study**

The participating subjects were 17 Primary 4 children (13 boys and 4 girls) diagnosed with ASD. They are currently attending mainstream primary schools in different parts of Singapore. Their parents belong to Help@AutismReality – an online parent support group for children with autism.

For her study, Elangovan (2012) selected the participants through convenience sampling as the participants were willing to partake in the study and were readily available (Creswell, 2008). Moreover, convenience sampling allowed expeditious data collection. While the researcher acknowledges that the subjects may not be representative of the entire population, the sample provided the necessary and pertinent information in addressing the research question and hypotheses of this pioneer study.

The children were assessed on five reading tests, i.e., the *Rating Scale of Reading Experience* (Daniels & Diack, 1976), the *Word Recognition and Phonics Skills Test-Second Edition* (Moseley, 2003), the *Salford Sentence Reading Test-Revised* (Vincent & Crumpler, 2002), the *GAP Reading Comprehension Test-Third Edition* (McLeod, 1990), and the *Elementary Reading Attitude Survey* (McKenna & Kear, 1990).

## **Summary: What the Results tell us about Reading Ability of Students with ASD?**

### ***Correlation of Reading Attitude with the rest of the Reading Components***

The inter-correlation reliability coefficients between Reading Attitude and each of the other four components were rather weak.

The results of this study corresponded with findings from several studies (e.g., Capps, Losh & Thurber, 2000; Colle, Baron-Cohen, Wheelwright, & van der Lely, 2008; Diehl, Bennetto, & Young, 2006) that showed that persons with ASD face challenges in understanding narrative texts. This difficulty in turn affects their reading attitude.

### ***Correlation between Reading Experience and Reading Comprehension***

One of the important results is that Reading Experience correlated rather reliably with Reading Comprehension. The results are in tandem with past studies which reported that reading comprehension can be enhanced when students' background knowledge and repertoire of reading experiences are effectively tapped (Carr & Thompson, 1996; Dewitz, Carr & Patberg, 1987; Pressley & Afflerbach, 1995; Spires & Donley, 1998).

### ***Correlation of Reading Comprehension with Word Reading and Sentence Reading***

The results disclosed that Reading Comprehension correlated with Word Reading with moderate reliability and with Sentence Reading with low reliability.

The findings of this research parallels past studies (e.g., Goldberg, 1987; Nation et al., 2006; O'Connor & Hermelin, 1994; Patti & Lupinetti, 1993; Whitehouse & Harris, 1984) that have reported the paradox of positive word reading with weak comprehension. Students with ASD displayed that they have strengths in single-word reading comprehension, for both abstract and concrete words (Eskes, Bryson & McCormick, 1990). However, their degree of comprehension of the semantics of sentences is rather deficient as reflected in the results of this research study. These students have difficulty in integrating and synthesising text to understand the key message of a given text (Courchesne et al., 1994; Plaisted, 1999; Shah & Frith, 1993). 'Hyperlexia' discussed earlier, where supreme decoding skills combined with poor comprehension, is apparent in students with ASD (Healey, 1982).

### ***Correlation between Word Reading and Sentence Reading***

Word Reading and Sentence Reading correlated significantly with each other.

Congruent with past research (e.g., Grigorenko et al., 2003; Nation, 1999; Silberberg & Silberberg, 1967), children with ASD are able to progress in the usage of phonemic structure of words and display an extraordinary obsession with letters and prints despite challenges in language and communication. Earlier researchers (Calhoun, 2001; Frith, 2003; Lord & Paul, 1997; Mayes & Calhoun, 2003a, 2003b; Nation et al., 2006) conceded that students with ASD are adept at word reading. Good word reading would provide more opportunities for these students to gain higher levels of vocabulary and eventually sentence reading. Results from neuroscience investigations have confirmed that children with ASD are able to manage texts at the sentence level (Kana, Keller, Cherkassky, Minshew, & Just, 2006).

## **New Cognitive Equation for Students with ASD**

Based on the inter-correlations of the five reading components in this study, the cognition equation emerged as:  $RP \rightarrow \{RC [(WR) (SR) + RE] + RA\} \rightarrow RO$

- Where RA is Reading Attitude (to replace Motivation and Purpose)  
 RC is Reading Comprehension (same as Comprehension)  
 RE is Reading Experience (to replace Background Knowledge and Prior Experience of the Reader)  
 RO is Reading Outcome  
 RP is Reading Process  
 SR is Sentence Reading (also known as Contextualised Word Reading to extend Decoding)  
 WR is Word Reading (also known as Word Recognition, to replace Decoding)

## **Implications of the Study for Practitioners**

The stated findings have practical implications for students with ASD who have profiles similar to the 17 students in this study. To achieve educational goals and impart skills to students with ASD effectively, educators need to be well versed in their students' strengths and weaknesses. Specifically, educators need to take note of inherent abilities, cognitive and meta-cognitive abilities, sensory factors, adaptive behaviour capacities and socio-emotional behavioural abilities (Chia, 2007). According to Mirenda (2003), students with ASD will benefit from varied and comprehensive instructional interventions that match their literacy level. With better insights about the interactions among the five components in the cognitive equation for reading process for students with ASD, the author proposes specific interventions in relation to the components in the reading process.

### ***Strategies to Promote Reading Experience***

Promoting background knowledge is crucial for students with ASD. These students do not have many opportunities to gain from experiences whether in school, home or community (Kluth & Chandler-Olcott, 2008). Educators can enhance background knowledge through various modes.

Firstly, as students with ASD are visual learners as explained by Grandin (1995), use of picture walks and visual maps will promote understanding (Harvey & Goudvis, 2000). American Speech-Language-Hearing Association (2006) recommends use of visual aids such as semantic maps and Venn diagrams to organize texts and promote understanding.

Secondly, providing content overview prior to reading (Colasent & Griffith, 1998) is a useful tool. Concrete titles and abstracts can also help retrieve background knowledge (Wahlberg & Magliano, 2004).

Thirdly, priming, which is pre-practice, has proven to be a valuable strategy to aid classroom learning of children with ASD. Priming the background knowledge for a given reading text activates thinking process, and gear students to link what they know to new data, details and information. Priming comprise reviewing salient information, data or activities that a student with ASD will most likely face as challenges before the task is presented (Wilde, Koegel, & Koegel, 1992). Priming lessens anxiety, promotes predictability and enhances the prospects of accomplishment and success (Myles & Simpson, 2003).

Lastly, providing opportunities to write scripts grounded on experiences from personal lives will develop reading experience (Staskowski & Creaghead, 2001). These scripts will create a pool of general and prior knowledge base that the students with ASD can retrieve when reading texts.

### ***Strategies to Promote Reading Attitude***

Students with ASD will benefit from and enjoy from shared book readings (Kamps, Barbeta, Leonard, & Delquadri, 1994). Repetitive and regular reading of texts will facilitate schema building that forms the cornerstone for positive narrative and expository text understanding (Englert & Hiebert, 1984; Mandler & Johnson, 1977). Shared book reading sessions can facilitate generalizations through usage of everyday experiences that the students encounter.

Story retelling is another tool that can effectively harness the recognition of narrative schemas in a story (Roth & Baden, 2001), improve comprehension, organise oral narratives, and create positive reading attitudes. Story retelling can be done creatively through the use of visual cues like props, puppets, felt cutouts and pictures (Staskowski & Creaghead, 2001). As students with ASD are strong in visual cognitive processing (American Speech-Language-Hearing Association, 2006; Lanter & Watson, 2008), educators can facilitate retelling of stories by and making textual schemas clear through visual aids and cues.

### ***Strategies to Promote Word Reading and Sentence Reading Skills***

One way to enhance word and sentence reading skills of students with ASD is to encourage and stimulate phonological awareness. Many children with ASD have innate abilities in sight word reading. Students with ASD can effectively benefit from phonetic-analysis interventions and phonics instruction (Vacca, 2007). Phonics instruction teaches students to evaluate the structures of words and divide them into pronounceable sounds and syllables (Mastropieri & Scruggs, 2007). Hence, phonological awareness instruction in students with ASD will facilitate word and sentence reading skills (Lanter & Watson, 2008).

Teaching approaches such as rhythm and movement, tactile letter recognition, alphabet books, word and letter sorts, and sight word recognition will also help to extend phonemics awareness skills in students with ASD (Kluth & Chandler-Olcott, 2008).

Grandin (1992a) mooted using associative letter-to-sound pictures to educate students about grapheme-phoneme correspondences. Other studies (Eikeseth & Jahr, 2001; Fossett & Mirenda, 2006; Koppenhaver & Erickson, 2003) recommend picture-to-text matching. The linking of words to pictures strategy will expand sight word recognition, word reading and sentence reading.

### ***Strategies to Promote Reading Comprehension***

Students with ASD tend to read through given passages rapidly with minimal pauses or rereading (O'Connor & Klein, 2004). Teachers working with these students need to develop text-monitoring skills in them. The think-aloud strategy is an effective tool to help students to make predictions, inquire, clarify and summarise (Baker, 2002; Gately, 2008; Lanter & Watson, 2008). Practitioners can explicitly show students with ASD how to derive meaning from text while they read. Practitioners can utilise the technique of supportive dialogue prior to, during and after reading. They can explain how they retrieve their background knowledge in order to infer by associating the text to their experiences. They can also read the text aloud and model their own thinking process while reading. In order to demonstrate effective comprehension techniques, practitioners can halt where necessary while reading the text to share specific ideas, meanings or thoughts.

Another way to enhance reading comprehension skills in students with ASD is to use concrete poems (Chia, 1995, 1996b, 2009; Poh, 2009). The poems are articulated using letters that are visually depicted, arranged, and, even coloured. These pictures help those with ASD and specifically hyperlexia to make links between the target word and its symbolism.

O'Connor and Klein (2004), together with Wahlberg and Magliano (2004), found that text comprehension in students with ASD can be improved with the technique of cueing to recall prior knowledge and working out the anaphora. Graphic cues with the aid of visually cued

instruction will assist reading comprehension (Quill, 1997). This is because visually cued instruction can tap on the strengths of students with ASD. Miranda (2003) recommended integrating multiple instructional approaches according to the stages of literacy progress of students with ASD. These can include games, differentiated activities and use of technology. Similarly, Moore and Calvert (2000) suggested earlier that the use of information and computer technology tools like animations and graphics could enhance the interest and motivation of students with ASD to learn vocabulary.

In addition, to improve reading comprehension, Broun (2004) proposed that print materials should match as closely as possible experiences of students with ASD. This will assist them to comprehend the text better. Besides, employing strategies like graphic organisers, concept maps and mind-maps could assist in comprehension. Additionally, Faggella-Luby and Deshler (2008) performed a review of interventions and reported that reading comprehension develops positively when readers explicitly learn specific tactics. These include triggering experiences and background knowledge, summarizing the gist of the text and using questioning techniques.

Finally, to harness their special interest, educators could provide texts that will invoke students' personal interest and motivation. Nonetheless, these special interests should encompass age and socially appropriate texts (Kluth & Darmody-Latham, 2003).

## Conclusion

This study has revealed the specific components of reading process where students with ASD exhibit their strengths and weaknesses. The findings add to the existing literature as this is possibly the first study that explored all the 5 variables (*reading experience, word reading skills, sentence reading skills, reading comprehension abilities and reading attitude*) in the reading equation concomitantly in relation to the final reading outcomes.

These findings provide the platform for educational interventions to assist and enhance the reading skills of students with ASD in relation to their strengths and weaknesses. Still, while planning and implementing the interventions, it is essential to bear in mind the heterogeneous patterns of reading skills in students with ASD.

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## About the Author

Ms Saranya Elangovan was awarded the Society for Reading & Literacy (SRL) Research Award 2012 at the SRL Conference: Literacy for a Changing World held at the National Library Board on 1 June 2012. She has taught students with mild intellectual disabilities and autism since 2003. She is currently teaching students with autism in a mainstream focused school.

## SRL Research Award 2012

# Congratulations!

The Honorary President and the Executive Committee of the Society for Reading and Literacy wish to congratulate Ms Saranya Elangovan of Pathlight School for being the winner of the inaugural Society for Reading and Literacy (SRL) Research Award 2012 at the SRL Conference on Literacy for a Changing World 1-2 June, 2012, at the National Library Board HQ. Ms Elangovan's proposed research will be focusing on early development of word recognition in pre-school children.



**Photograph (from left to right):** Assistant Professor Noel K.H. Chia (Presiding Advisor, SRL Award Committee), Ms Serene Wee (Honorary President, SRL) and Ms Ms Saranya Elangovan (winner of the inaugural SRL Research Award 2012) at the SRL Conference 2012.

## Reflections of the Chinese Diaspora in US Picture Books

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### Abstract

*Previously the paper was titled “Themes and issues reflected in pictures books on the Chinese Diaspora in the United States.*

*Research in the field of multicultural children’s literature has shown such literature as being a vehicle to encourage tolerance and understanding among children. Multicultural children’s literature depicts different worldviews which allows children to see how non-mainstream groups live their lives. In the long term, it encourages positive attitudes toward difference. An area of multicultural children’s literature is on the Asian diaspora. The term diaspora reflects the movement of people, goods, information and ideas from one country to another. With the onset of migration, the immigrants often have to grapple with social and cultural issues such as displacement, loss of a shared identity, shared values and customs. With the rise of these issues, comes the notion of hybridity, that is, there are no pure identities. The immigrants also have to tackle cultural differences, language differences and struggle to make a living. In this paper, children’s picture books on East Asian diaspora published in the United States between the year 2000 and 2011 were surveyed. Fiction picture books were examined to see what issues and perspectives of the East Asian immigrants, particularly the Chinese diaspora were tackled in the picture books. An examination of the picture books revealed a close connection of the Chinese diaspora with their homeland, its people and cultural traditions. In many instances, the cultural practices thrive and in some instances, new cultural practices were formed. Aside from this, other themes emerged such as intergenerational relationships, cross-cultural misunderstandings which have a potential for greater conflict, issues of migrants assimilating into a new society, the creation of transnational identities and the passing on of traditions. By examining these children’s picture books, the reader is better able to appreciate and understand the complexity of issues faced by the Chinese diaspora of the United States. It is important that children read and be exposed to materials depicting their own culture and minority cultures as books can be a powerful tool for promoting cultural understanding as they supply the reader with images, ideas and models that they can relate to. Moreover it is crucial that children’s literature reflects the reality of our pluralistic, cosmopolitan society for a deeper appreciation of others comes when readers are able to see the diversity of cultures reflected in the literature available. However it is also noted that there is not enough of children’s literature published that tackles the everyday lives of the Asian diaspora given that the world is so globally connected and fluid enough to warrant the emergence of such literature.*

*Keywords: Children’s literature, Chinese, Diaspora, Multi-cultural literature, United States*



Research in the field of multicultural children's literature has shown that such literature may help to encourage tolerance and understanding of racial differences among children (Bainbridge, 1999). The term "multiculturalism", according to Gilton (2007), is a modern term originating only in the mid-twentieth century, synonymous with the word "minority", but by the 1980s it has come to be defined as "not dominated by whites"(Safire, 1992).

Multicultural children's literature depicts different worldviews which allow children to see how non-dominant groups live their lives. Gilton (2007) says "worldview is the way people perceive themselves, other people, and the world in general" but "non-dominant groups are seldom able to share theirs with the world outside their group", hence multicultural children's literature becomes a good means of sharing how ethnic minority groups are "culturally and socially different from the white Anglo-Saxon majority" (Norton, 1999), and making such differences acceptable to the children who read them. Loh (2006) has stated that "if literature is a mirror that reflects human life, then all children who read or are read to need to see themselves reflected as part of humanity". Multicultural literature thus provides a broader dimension of humanity to its readers, and encourages positive attitudes toward racial and social differences.

Therefore, it is important that children read and be exposed to materials depicting their own culture and minority cultures because "books can be a powerful tool for promoting cultural understanding," and "reading about diverse perspectives enhances multicultural awareness" (Loh, 2006) as reading supplies the reader with images, ideas and models that they can relate to. Moreover, it is crucial that children's literature reflects the reality of our pluralistic society (Higgins, 2002) so that children are better able to see themselves and their lives reflected in the books they read (Aoki, 1992).

An area of multicultural children's literature that is discussed in this paper is the Asian diaspora. Diaspora is a term that reflects the movement of people, goods, information and ideas from one country to another (Danico & Ng, 2004). The "concept entails remembering roots and history, interacting with people from the country or countries of origin, looking for surviving cultural traits, and studying and relating to people with similar roots who live in other parts of the world" (Gilton, 2007).

Danico and Ng (2004) argue that under the traditional view of migration, migrants had to grapple with many social and cultural issues such as displacement, loss of a shared identity, and loss of shared values and customs. They had to tackle cultural and language differences, and struggle to make a living. However, this view has changed somewhat since migration has become a widespread global phenomenon.

The nomadic nature of today's global economy makes travel fluid and accessible, giving rise to globalization. As economies become more integrated, and interconnectedness between countries increases, people are able to maintain ties with the land of origin or ancestral heritage, thus giving rise to transnationalism (Danico & Ng, 2004). Transnationalism "refers to people who maintain simultaneous contact with several lands such as their country of origin and the country to which they have gained entry" (Danico & Ng, 2004). This has important implications for multiculturalism and cultural diversity, as when different ethnic groups mingle and interact with each other, the cultural landscapes of the places where they are located are altered, leading to communities which are more international, more cosmopolitan, and more cross-cultural (Danico & Ng, 2004).

This paper conducted a survey of 26 children's picture books on the Chinese diaspora, published in the United States (US) between the years 2000 and 2010. The books were examined to identify the range of issues and perspectives of Chinese immigrants featured in them. The titles were then grouped according to their main themes. The following shows the categorization of the titles under the major themes.

- 1) Immigrant life and experiences (from mid-1800s to 1960s)
- 2) Food
- 3) Celebrations
  - a. Festivals
  - b. Birthdays
  - c. Weddings
- 4) Intergenerational relationships
- 5) Adoptions
- 6) Other experiences

### Immigrant life and experiences

A major theme that emerged across a number of picture books was the experiences of the Chinese migrants to America. The picture books that dealt with these themes are *Brothers* (Yin, 2001), *Coolies* (Yin, 2006), *Oranges on Golden Mountain* (Patridge, 2001), *Landed* (Lee, 2006), *Earthquake* (Lee, 2001), *Henry and the Kite Dragon* (Hall, 2004), and *Hannah is My Name* (Yang, 2004).

The Chinese, according to Wong (2006), were the first Asian group to migrate to the US in significant numbers, and their presence in the US dates beyond the past 150 years. It has been a long period marked "by episodes of prejudice, xenophobia and exclusion and more recently of contrasting and varying degrees of suspicion, tolerance or acceptance" (Wong, 2006).

The life of early Chinese immigrants in the US is well explored in the books *Coolies* and its follow-up *Brothers* written by the same author. In *Coolies*, a young boy, presumably living in modern day US, learns about his Chinese ancestors named Shek and Little Wong, who migrated to the US and worked on the construction of the transcontinental railway. *Brothers* is a follow-

up to *Coolies*, and describes how the younger brother of Shek and Wong, named Ming, arrived in San Francisco to join his brothers, who now owned a general store in Chinatown.

The two titles depict the life of early Chinese migrants in the mid-1800s, who went to the US due to the political unrest in their home country. These migrants left their homeland and worked as labourers, or ‘coolies’, which is a derogatory term used to describe low-skilled workers. Certainly, the migrant’s life was not easy, and both picture books illustrate the extreme hardships the Chinese had to endure in order to survive in the US.

The Chinese arrived in the US on overcrowded ships and had to work for Caucasian bosses who had many prejudices against them, as shown in *Coolies*, where the Chinese immigrants were “looked upon as mere weaklings” and their white bosses made fun of their appearance. The harsh working conditions of these workers were also depicted through both the illustrations and the story.

Both titles highlight the issue of racial discrimination faced by the early Chinese immigrants. In *Coolies*, the Chinese immigrants were not paid an equal salary as their non-Chinese counterparts. The Chinese immigrants questioned whether this was because of the “long queues and almond-shaped eyes”, that their mere appearance was repulsive. In fact, in the picture book, during the celebration of the two railway lines meeting at Utah, the contributions of the Chinese immigrants were not acknowledged as they were not even invited to attend the ceremony. In *Brothers*, the protagonist, Ming, was not allowed outside Chinatown, and his life in the general store was isolating because there were few Chinese customers who had any money to spend on purchasing goods. The segregation of communities along racial lines is clearly portrayed in both books.

These two titles can help shed some light on the development of Chinatowns in the US. Since the early concentration of the Chinese immigrants was mainly on the West Coast of the US (Wong, 2006), it was only natural that this led to the development of Chinese enclaves known as Chinatowns in cities such as San Francisco, as portrayed in these books. The Chinese segregated themselves in Chinatowns as these enclaves provided “protection from the discrimination and racism of the greater society” (Wong, 2006). It was a case of self-enforced exclusion from the larger society which viewed them with suspicion and even with hatred. Racism also largely stemmed from fear and resentment since the Chinese foreigners were viewed as competitors who were seeking employment for the very jobs that the white labourers were vying for (Wong, 2009).

The picture book, *Brothers*, develops positively with Ming befriending an immigrant Irish boy named Patrick, whose family accepted Ming, and encouraged him to learn English. However, the author does not shy away from highlighting the racism encountered either. Ming was not welcome outside of Chinatown, and his ability to communicate and reach out to those outside Chinatown was handicapped by his lack of knowledge of the English language. Similarly, in *Coolies*, the Chinese workers were not able to fight for their rights due to a lack of knowledge of the English language, and also the fear that their employment might be terminated as a result of their perceived insubordination.

Examining the two picture books, there is a marked contrast in terms of the colour of the illustrations for the two books. Looking at the book covers, Christ Soentpiet, the illustrator of both books, depicts two grim, serious-looking brothers in *Coolies*, holding hammers, looking into the far distance. Whereas the cover illustration of *Brothers* is red and joyful, showing two boys standing side by side, smiling broadly, one Chinese and the other Caucasian. The colour blue predominates *Coolies* highlighting the somber mood of the book in line with the hardships faced by the migrants. The picture book *Brothers* however reveals richer colours like deep red and orange, showing the hopeful mood of the migrant Ming. Furthermore, the cover of *Brothers* which is in red, is telling enough since red is an auspicious colour for the Chinese community.

An almost similar challenging migrant experience is depicted in *Oranges on Golden Mountain* (Partridge, 2001). Having left China out of dire poverty, the protagonist, Jo Lee, joins his uncle in California, a place also known to the Chinese as Golden Mountain since the discovery of gold. Jo Lee suffers hardships on his journey to the US and has to undergo great physical and emotional difficulties in a new land, eventually picking up a new trade (fishing). Jo Lee's daily hardships are simply but poignantly depicted through paper cuts, where his pain of leaving home and family to travel to California plus having to adjust to a new land are well captured.

Another migrant experience is recounted in *Landed* (Lee, 2006), through the eyes of a young Chinese boy named Sun, following the 1882 Chinese Exclusion Act. This was a law enacted by the US authorities to limit the number of Chinese immigrants to the United States following the Californian Gold Rush of the 1850s. Since the law was enacted as a direct result of "xenophobic and racist attitudes" (Wong, 2006) towards the Chinese, another problem emerged when Chinese immigrants tried to circumvent the law by creating "paper boys".

According to Wong (2006), a "paper boy" or "slot racket" was an immigration loophole that arose when the records of Chinese immigrants in the US were lost during the 1906 San Francisco earthquake and fire. As children of American-born fathers could claim citizenship, these "Chinese residents would claim American birth" (Wong, 2006) and report the birth of a child, thereby creating an entry slot which could then "be used by a relative or the birth papers could be sold to someone wanting to immigrate" (Wong, 2006). This scheme thus enabled many Chinese migrants to enter the US fraudulently.

*Landed* portrays this stressful period in the history of Chinese migration to the US. Through the eyes of the protagonist, Sun, readers learn how difficult it was for a child to prove himself in the eyes of the law. Sun had to prove that he was not a "paper boy" but the real child of his merchant father who was an American citizen. The book also illustrates how the early migrants were predominantly males, who arrived in the US with the expectation of making their fortune and accumulating enough wealth before returning home to China to live a better life. They had strong ties to their home country, and this is evident in *Landed*, where Sun's mother is described as still residing in China. There is also the expectation that Sun's marriage, according to his father, should take place in China when he came of age. All of Sun's three older brothers were already in the US, except for his mother. According to Wong (2006), such family arrangements resulted in an abnormal "mutilated family" and "split households".

The sojourner mentality among the early migrants, a common thread seen in *Coolies, Brothers, Oranges on Golden Mountain*, and *Landed*, was inevitable as the US laws during that period were discriminatory towards the Chinese immigrants. More importantly, the value system of the Chinese people was powerful and “enjoined everyone never to move away from his ancestral home” (Wang, 2003). Wang suggested that women were excluded from sojourning to ensure that the men would return. Hence “leaving home was feared and seeking settlement elsewhere was an unwelcome prospect” (Wang, 2003).

Experiences of the Chinese immigrant population in the 1900s are also depicted in picture books *Earthquake* (Lee, 2001) and *Henry and the Kite Dragon* (Hall, 2004), both based on true events. The issues that arose ranged from the confusion caused by displacement to prejudice and cross-cultural misunderstandings.

*Earthquake* reflects the experiences of a Chinese family living in Chinatown in San Francisco, who were forced to vacate their home due to the 1906 earthquake. The book tackles displacement and upheaval by showing how the family gathered what was most important to them, including portraits of ancestors and Kwan Yin (the Chinese Goddess of Mercy), and other necessary belongings before moving away.

The theme of prejudice and misunderstanding appears in *Henry and the Kite Dragon*. Set in the 1920s, the book explores how some Chinese children discovered that their neighbor, Mr Chin, had a wonderful gift of kite making. When the American Italian children from Little Italy, led by Tony, threw rocks at Mr Chin’s kites, the American Chinese children from Chinatown confronted them, only to discover in the end that it was all a misunderstanding due to preconceived ideas and prejudices on both sides.

Some racial tension may be observed in the book when the protagonist Henry Chu said, “Tony always made trouble for us Chinese kids” and later added that “Chinese kids never went into the park when Tony Guglione was there”. This lack of inter-cultural familiarity was what caused the misunderstanding over Mr Chin’s kites.

In *Hannah is My Name* (Yang, 2008), the author Belle Yang uses the picture book format to depict how she and her family migrated to the US from Taiwan in the late 1960s and the struggles they faced while waiting to obtain American citizenship. Settling in San Francisco, the protagonist, Na-Li, took on a new name, Hannah, to better fit in with her new home in the US. The family applied for green cards so that Hannah’s parents were able to work officially in the US, but in the interim period, Hannah’s father had to work illegally as a dishwasher at a diner, with the constant threat of being caught by the authorities looming over his head.

The immigrant experience here is presented realistically, tying in with the Immigration Act of 1965, which opened doors for the Chinese to migrate in large numbers to the US (Wong, 2006). Many, like Hannah’s father, took on work in the service industry, doing menial and low-paying jobs, especially if they were uneducated and lacked facility with the English language (Wong, 2006). Both the text and lively artwork rendered in gouache depict aspects of Chinese culture that this particular family found in the new land that they came to inhabit.

## Food

Another theme that emerged in some of the picture books was food, primarily Chinese food and cuisine. The titles that dealt with Chinese food are *Fortune Cookie Fortunes* (Lin, 2004), *Dim Sum for Everyone* (Lin, 2001), *Happy Belly, Happy Smile* (Isadora, 2009) and *Big Jimmy's Kum Kau Chinese Take Out* (Lewin, 2002). Park (2009), in her article in *The Horn Book Magazine*, said that when people migrate, many things are lost of their original culture but food is usually the last to go. She explains that “hunger for traditional food lasts longer, endures through more generations” than does the attachment to other things like dressing, religion or even language. This is because “our choice of food is neither trivial nor merely personal but has lasting social and cultural significance” (Park, 2009).

In the Chinese culture, food is plays a significant role because “few other cultures are as food oriented as the Chinese” (Chang, 1977). This fact is reflected in their greetings where instead of asking ‘How are you?’ , it is common for the Chinese to ask ‘Have you eaten?’, the logic being that people who have just eaten will be satisfied and content, thus feeling happy. Food also permeates all their social occasions with each occasion such as weddings, births, funerals, being accompanied by food and eating (Shek, 2005). Hence food plays a fundamental if not central role in defining the Chinese culture.

It is not then surprising to find why Grace Lin introduces Chinese dishes such as Dim Sum and fortune cookies through her two picture book titles, *Dim Sum for Everyone* and *Fortune Cookie Fortunes*. In the author’s notes, Dim Sum is described as a traditional dish in China which was brought over to the US in the mid-19<sup>th</sup> century by the Chinese immigrants. She also introduces the reader to a new tradition, fortune cookies, in her title *Fortune Cookies Fortunes*. Fortune cookies are said to be a uniquely Chinese American tradition, a by-product of the new world that the Chinese immigrants inhabited, since fortune cookies did not exist in China at all. It is also an indirect reflection of how the “Chinese way of eating is characterized by a notable flexibility and adaptability” (Chang, 1977) borne out of having to adjust to different situations and circumstances over the course of their history.

Chinese restaurants in Chinatown figure prominently in *Happy Belly, Happy Smile*, and *Big Jimmy's Kum Kau Chinese Take Out*. Both picture books introduce the reader to a variety of Chinese foods available in Chinese restaurants in the US. In *Happy Belly, Happy Smile*, Louie visits his grandfather’s Chinese restaurant and has a grand meal with him. The range and variety of Chinese cuisine presented is not only splendid but indicative of the rich cultural heritage the Chinese diaspora brought along with them when they migrated to the US.

In *Big Jimmy's Kum Kau Chinese Take Out*, a young Chinese boy takes the reader around his family restaurant specializing in take-outs. It is a world encompassed by cooks who are all addressed as ‘uncles’ by the young protagonist, filled with vegetables such as ‘Chinese cabbage’, kitchens filled with ‘gigantic bowls of noodles’, ‘pots of boiled rice’ and ‘woks that look like mini volcanoes’. Interestingly though, the young protagonist reveals at the end of the picture book that his favorite dish is Italian pizza.

These titles expose and familiarize readers to the variety and range of Chinese cuisine, showing the pride the Chinese community takes in their food preparation and in eating which is very close to their heart. But more importantly, through the introduction of Chinese food, readers can gather that when “ethnic groups mingle and interact with each other, they alter the cultural landscapes of the place where they are located” (Danico & Ng, 2004). Chinese food has become an important component of US life as Chinese restaurants introduce different Chinese cuisine, helping the non-Chinese become more cosmopolitan in their outlook and more culturally aware of a different community’s dietary habits.

## Celebrations

Aside from migration and food, another prominent theme that emerged in a number of titles is that of celebrations. These may be further subdivided into three areas: festivals, birthdays and wedding celebrations.

A number of titles highlight the Chinese New Year festival, which is an important and ancient tradition of the Chinese community. In the US, many readers may associate the New Year with 1<sup>st</sup> January, but the Chinese New Year festival follows the lunar calendar instead, and there are a host of symbolic activities undertaken during that time which are expected to bring good fortune and happiness to the Chinese people.

*My First Chinese New Year* (Katz, 2004) and *Bringing in the New Year* (Lin, 2008) capture the various Chinese customs associated with the Chinese Lunar New Year. These include sweeping the house to remove bad luck, decorating the walls with red paper, saying words of good luck and happiness in Chinese, getting a new haircut, making dumplings, and having lion dancers perform to bring in good luck. However, *Celebrate Chinese New Year with the Fong Family* (Campoy, 2006) portrays the intermingling of two communities - a Hispanic American family called the Sanchezs who are curious to understand how their good friends, the Fongs, who are Chinese Americans, celebrate Chinese New Year.

The Fong family invites the Sanchez family to their home as well as on a tour of Chinatown during Chinese New Year. Readers are introduced to basic Chinese New Year practices and customs, such as the giving of mandarin oranges, the importance of the reunion dinner on the eve of Chinese New Year, and praying to the ancestors.

In *A Gift* (Chen, 2009), during Chinese New Year, a young Chinese girl named Amy receives a pendant shaped as a dragon from her uncles and aunt who live in China. The author’s note at the end of the book explains the significance of the dragon in Chinese culture and points out that “Chinese New Year is the most important holiday in the Chinese culture”. While highlighting the festival, this book also shows the importance of family for the Chinese community, especially during the festive periods. Amy’s mother is described as feeling homesick during Chinese New Year since most of her siblings still reside in China. The picture book highlights how transcontinental ties are still strong and vibrant, and many migrants of today are “maintaining their ties to several nations, including the site of origin from which they left” (Danico & Ng, 2004).

*Thanking the Moon* (Lin, 2010) introduces readers to another fairly well-known but important Chinese festival, the mid-autumn moon festival. Food and family are important components of this festival as Grace Lin spends a significant portion of the picture book illustrating how a family comes together on a mid-autumn full moon night to enjoy observing the full moon with a variety of foods such as mooncakes, pastries, pomelos and paper lanterns. In the author's notes, Lin explains the importance of this festival in China which began as a harvest festival but now is seen as a thanksgiving holiday for the Chinese who celebrate the festival on the fifteenth day of the eighth lunar month. Families pay homage to the moon by eating various foods such as the mooncake, and children walk around with paper lanterns. This festival is another opportunity for the Chinese family to reunite and celebrate important virtues such as harmony and peace.

In *Henry's First Moon Birthday* (Look, 2001), readers learn of an interesting Chinese custom, which is the celebration of a child's one-month birthday, or first-moon birthday as it is known in Chinese. A young Chinese girl, Jenny, and her GninGnin, which is a Chinese term of address for a paternal grandmother, work tirelessly to prepare for Jenny's baby brother, Henry's, first-month birthday. Look introduces many traditional Chinese customs to the reader, such as the special food that GninGnin and Jenny make together for the special occasion like boiling chicken and making red eggs which are symbolic for luck and decorating the home with Chinese good luck words.

In *Uncle Peter's Amazing Chinese Wedding* (Look, 2006), through the eyes of a young girl, readers learn of age-old Chinese wedding customs such as gift-giving, bargaining by the bridegroom before he is allowed to see the bride, the tea ceremony by the couple, and bowing to the elders and the ancestors.

The need of the Chinese immigrants to maintain their culture, which is both rich and vibrant, is not only strong but consistent through these picture books. Celebrations for the Chinese diaspora are opportunities for members of the community to reenact their customs and traditions, thus giving new life to age-old practices. It is a time for family and friends to come together, where feasting is an important if not crucial component in the life of the Chinese immigrants.

## **Intergenerational relationships**

Intergenerational relationships and how they are managed by the Chinese immigrants are reflected in two picture books. In *Grandfather Counts* (Cheng, 2000), the author explores what happens when a Chinese grandfather migrates to the US to live with his daughter's bi-racial family. There is a learning process and a period of adjustment that both the grandfather and his family go through. A language gap also exists as the American Chinese children cannot communicate with their grandfather, who only speaks Mandarin. Through the gradual process of understanding and spending time together, trust eventually develops between the grandfather and his grandchild.

In *Goldfish and Chrysanthemums* (Cheng, 2006), a young girl, Nancy, lovingly recreates a goldfish pond in her parent's garden so as to cheer up her grandmother Ni Ni, who misses her own fishpond back in China. In the story, Nancy's parents are depicted as Chinese working



professionals, while the Chinese grandmother is the main caregiver of the family. Hence the bond between the grandchild and grandparent is strong in spite of the age and cultural gap.

Both titles highlight the complexities of managing intergenerational relationships which are complicated as it is but more so when they are in migrant families, since the grandparents in both these instances are from China and are required to adapt to their new environments in the US. By briefly tackling the social and cultural divide between the generations, these two books reflect how new generations of US-born Chinese grandchildren are naturally more acculturated to US society than their grandparents from China, making the intergenerational gap more pronounced.

## Adoptions

Adoption is another theme that emerged from the picture books. In *My Mei Mei* (Young, 2006), inter-country adoption is seen through the eyes of Mei Mei, who learns how she was adopted from China. Her longing for her parents to adopt another child from China and the joy she feels when such a sibling arrives is explored in this picture book. The author, Ed Young, explains how this picture book was an illustration of his own experience with adoption and how it personally affected him.

Author Rose Lewis explores inter-country and inter-racial adoption in two books, *Every Year on Your Birthday* (2007) and *Orange Peel's Pocket* (2010). In *Every Year on Your Birthday*, a Caucasian American mother shares her experience of adopting a Chinese baby girl from China. She recounts her different experiences during her child's birthdays over the years, such as celebrating her adopted child's American citizenship, her first wave, and even remembering her child's Chinese family back in China.

In *Orange Peel's Pocket*, the adopted child Chan Ming (also affectionately known as Orange Peel) is baffled when her classmates question her about her birth country, China. She tries to resolve this by asking adults in her community who are Chinese immigrants. Taking her Caucasian mother with her, Orange Peel visits Chinese members of the community such as Mr Fan the tailor, who tells her about Chinese silk; Ma Sang the antiques dealer, who reads her a poem on the beauty of China; Mrs Liu, a florist who tells her about Chinese flowers; Mr Yu, a noodle shop owner who tells her about noodles; and Jasmine who informs her that ice-cream originated from China.

A similar inter-country, inter-racial adoption experience is recounted in *Star of the Week* (Friedman, 2009). The protagonist, Cassidy-Li, is expected to present on herself to her kindergarten class in a weekly activity called 'Star of the week'. Using snapshots to create an autobiographical poster, Cassidy-Li speaks about her adoption in China, her family, her friends and her favorite activities. By not hiding her Chinese heritage, Cassidy-Li shows her pride in being Chinese despite not knowing who her birth parents are and why they gave her up for adoption.

Issues of personal and cultural identity, and a sense of belonging, are explored in these picture books, particularly when the adopted child is a Chinese child growing up in a non-Chinese family and environment. What is particularly noteworthy is that in the instances of inter-racial

adoptions featured in *Orange Peel's Pocket* and *Star of the Week*, racial prejudices against the Chinese as reflected in the titles on migration are not evident. For inter-racial adoptions to take place and be accepted, a significant social and psychological change must be evident in the US with regards to Chinese migrants. It would appear from these picture books that the Chinese diaspora have become more integrated with the host community over the years and are now being accepted as American citizens.

## Other Experiences

In *Gai See: What You Can See in Chinatown* (Thong, 2007), Roseanne Thong traverses a lively street market or 'Gai See' as it is known in Chinese, which is bursting with a myriad of activities and food. The streets of Chinatown are filled with all sorts of Chinese food which once again take a prominent position in this picture book. The foods include "cheong-fun", "tofu", "soya bean milk", "deep sea fish", "dragon fruit", "choi sum" and much more. A Chinese restaurant, a Chinese medicine store, songbirds, "wooden clogs", "paper money" as offerings to deceased ancestors, fill Chinatown, making it a lively and rich place for the Chinese community who are there to not only purchase Chinese food and products but also to gather and mingle with other members of their community.

A young Chinese girl's experience with shapes takes on a distinct Chinese flavor in *Round is a Mooncake* (Thong, 2000), a concept book. There are "round rice bowls", "square name chops", "square tofu, dim sum boxes", "rectangle inkling stones and Chinese lace" and much more. Learning about shapes thus involves learning about what is significant to that particular culture, especially important when the reader is not familiar with Chinese practices and customs. In a multicultural environment, this enables a simple text on shapes to reach out to many readers of different cultural and ethnic backgrounds, broadening their understanding of Chinese cultural objects.

Through this brief survey of 26 picture books, a number of images have emerged, reflecting a range of issues faced by the Chinese diaspora. The early Chinese immigrants faced many complex problems ranging from personal struggles and the prejudices of society, to natural disasters and even laws which restricted their entry. Acceptance and assimilation into a new society and culture was not an easy process, which eventually led to the growth of Chinatowns across the US. However, these Chinatowns became precisely the places where Chinese culture and activities could thrive, as seen in the picture books like *Brothers* and *Gai See: What You Can See in Chinatown*.

When the Chinese immigrants arrived in the US, they brought with them their "different customs, practices, foods, behavior and language expressions" (Danico & Ng, 2004), exposing their new homeland to many new and different experiences. These include Chinese lion dancing during the Chinese New Year, eating dim sum, eating mooncakes during the Mid-Autumn festival, giving hongbaos (red packets) during the Lunar New Year, and many other experiences. In time, a hybridity of cultures has gradually developed, with the mixing of cultures brought about by cross-cultural contact brought on by inter-racial marriages, inter-country adoptions, inter-racial adoptions and more.

These picture books reflect the cultural vibrancy of the Chinese diaspora in the US, enabling the reader - especially a child reader - to understand and appreciate the diversity of another community other than his or her own. Such multicultural literature “helps children appreciate the idiosyncrasies of other ethnic groups, eliminate cultural ethnocentrism and develop multiple perspectives” (Lu, 2008). This is particularly so for non-Chinese children in the US who have little or no contact with Chinese communities. Such literature becomes a means for non-Chinese children to be informed of diverse voices that exist in their society. Children can then realize that “beneath surface differences of color, culture or ethnicity, all people experience universal feelings of love, sadness, self-worth, justice and kindness” (Dowd, 1992).

For Chinese children, such picture books act as a mirror to see themselves in a broader perspective, especially when they are part of a minority Asian community in the US. Through the myriad images that have emerged through these picture books, Chinese children will gain a better understanding of their ancestral history in terms of the many struggles and sacrifices their community had made in the past to enable them to be where they are today. It also depicts the strength of the Chinese diaspora who have endured despite their hardships by taking on new challenges and opportunities in a new environment. What is remarkable is that across all the picture books there is the underlying thread of a community that has strong family bonds, augmented by a rich cultural and social history dating thousands of years back to China.

By reading stories about their own culture, Lu (2008) says “children have opportunities to see how others go through experiences similar to theirs, develop strategies to cope with issues in their life and identify themselves with their inherited culture”. Such books will empower children, especially new immigrant children, be they Chinese or otherwise, to realize they are important stakeholders in shaping their new homeland, with a valuable voice that is uniquely their own.

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### **About the Author**

Panna d/o Kantilal is a Senior Librarian with the National Library Board, Singapore. For over 13 years, she has been a collection development librarian, specialising in the selection of children's and young people's materials. She has had the pleasure of building the collections of many new and upgrading libraries, including the Woodlands Regional Library, Bishan Public Library, Serangoon Public Library to name a few. She is an avid storyteller as well.