Effectiveness of Scaffolding Interrogatives Method (SIM)

— A Strategy to Improve a Hyperlexic Child's Reading Comprehension: A Case Study

Noel Kok Hwee Chia, M.Ed, CET

INTRODUCTION

Research studies on hyperlexia and hyperlexic children (HC) are sporadic (Bronner, 1917; Monroe, 1932; Parker, 1917). Hyperlexia, also known as direct dyslexia (Tyre & Young, 1994), constitutes a condition where children with good word decoding facilities show very poor comprehension. Unlike dyslexic children whose phonological coding deficit compels them to rely on a context-driven process (e.g., prior knowledge), HC phonologically process a text with apparent ease, often well beyond their vocabulary usage, but without real comprehension (Tyre & Young, 1994). They can read, but words appear meaningless to them. Hyperlexia is "a reading disorder caused by severe deficiencies in comprehension in the presence of an extraordinary facility in decoding which has developed spontaneously and at a very young age" (Aaron, 1989; p. 158).

In Singapore, little is done to help HC. Currently two remedial approaches are used by learning support and specialist teachers to teach reading comprehension. The first, known as the paragraph-questions/paragraph-questions (PQ/PQ) method involves breaking a text into paragraphs, each of which is followed by one or two questions. Reading comprehension is assumed to be achieved when a reader correctly answers all questions. The other approach, known as *What Interrogatives Method* (WIM), uses only *what* questions at the end of a reading passage. Interrogatives such as *when, where, why,* and *who* are replaced with *what* (e.g. *what time* for *when, what place* for *where,* etc.). Both approaches offer only a temporary solution to obtaining correct answers to reading comprehension questions, and the greater problem of breaking down reading comprehension remains unsolved. Both approaches rely on the same textual structure of a given passage for understanding. There is a need to find a better way to teach hyperlexic children to read with comprehension. To do that, it is important to understand hyperlexia.

BACKGROUND

A hyperlexic nine-and-a-half year old Chinese boy, whom I shall call Hong Choon, came to my special needs clinic. He is the only child of professional parents, who expressed concern about his poor reading comprehension and written expression. Hong Choon's previous specialist teacher, at a private center for special education, provided the following information. He is not making any progress in reading and listening comprehension. He is good at blending and segmenting letter sounds in words and nonwords. His spelling skills are above his age level, but he is poor on abstract or relational thinking tasks, and poor in written expression. He currently attends a Montessori school for extra remedial help.

A clinical psychologist in private practice did a psychometric assessment (WISC-III) on Hong Choon. The child's Full-Scale IQ was 97 (Performance IQ 107, Verbal IQ 94). A speech and language therapist, who assessed him, found his reading age (British Ability Scale Reading Test) to be 13 years 3 months, and his spelling age (British Ability Scale Spelling Test) to be 12 years 9 months. I administered the GAP Reading Comprehension Test with the following results: his reading comprehension age was 7 years 3 months and his reading quotient (RQ) was 77. McLeod (1977) defines a retarded reader as one "whose reading level is lower than that which is normal for someone whose age is 80 per cent of the child's actual age" (p.5), or, with an RQ of less than 80. Based on McLeod's definition, Hong Choon is a retarded reader.

According to Hornsby (1995), a normal child's approximate expected reading age can be worked out from his full-scale IQ. For instance, an 8-year-old normal child with an IQ of 105 can be expected to have a reading age of 9. A dyslexic child is 1 to 2.5 years below his expected reading level. Hong Choon's expected reading age should be about the same as his chronological age. However, formal assessments found him to have a superior reading age of 13 years 3 months (BAS Reading Test) but a low reading comprehension age of 7 years 3 months (GAP Reading Comprehension Test). The boy displayed excellent decoding skills, about 3 years 9 months above his chronological or expected reading age, but his reading comprehension age was about 2 years 1 month below his expected reading age.

He was familiar with two reading comprehension strategies: the PQ/PQ method and the *What Interrogatives Method* (WIM). His specialist teachers had taught him to answer comprehension questions using these two strategies, both of which rely heavily on the textual structure of a passage. Still, he continued to perform poorly in reading comprehension. I devised a new strategy in which the reader reorganizes a text into a structured format to aid comprehension before answering questions. Hong Choon and I worked together at my special needs clinic for six months, every Wednesday from 3:00 to 3:30 p.m.

PREVIOUS RESEARCH

Research studies on hyperlexia are categorized under educational pathology or educational therapy.

Educational Pathology of Hyperlexia

Educational pathology focuses on two aspects of the nature of hyperlexia: symptomatic studies on the explicit characteristics of hyperlexia; and etiological studies on the origin and causes of hyperlexia via psychoeducational, neurological, and medical diagnoses (Healy, 1982). According to Aaron (1989), the historic development of research on hyperlexia has undergone three major changes.

1. The awareness phase

Early twentieth-century researchers described children who were fluent readers with poor comprehension in the following frameworks: mental retardation (Bronner, 1917; Mehegan & Dreifus, 1972); schizophrenia (Silberberg & Silberberg, 1968, 1971); autism (Parker, 1917; Philips, 1930); and neurophysiological anomaly or overt seizure disorders (Burd, Kerbeshiian, & Fisher, 1985; Whitehouse & Harris, 1984).

2. The recognition phase

The term "hyperlexia" was used to describe a reading ability that was out of proportion to comprehension ability (Silberberg & Silberberg, 1967). Children were classified as hyperlexic if "their measured reading level was above their expected word recognition level by the following amounts: 1.5 in grades 1 and 2, and 2.0 in grades 3 and above" (Silberberg & Silberberg, 1971; p. 158). When the definition was based solely upon the discrepancy between expected and actual decoding skills, some normal and superior readers were labeled hyperlexic (Aaron, 1989; Pennington, Johnson, & Welsh, 1987).

3. The conceptualization phase

Since 1971, hyperlexia has been redefined as a breakdown in comprehension in the presence of good decoding skills (Chia, 1996a; Cobrink, 1974; Healy, 1982; Richman, 1997). Two years ago I proposed the following four theoretical concepts of hyperlexia (Chia, 2000):

Theoretical concept of an accelerated cognitive ability

Early research studies describe hyperlexia as a unique syndrome of an accelerated cognitive ability (Elliott & Needleman, 1976; Niensted, 1968). Niensted's definition included all children with a one-year discrepancy between word recognition and comprehension scores.

Theoretical concept of bipolarity of reading disabilities

Several research studies have described dyslexia and hyperlexia as two distinctive reading disabilities, occurring at opposite extremes of the reading continuum with non-specific reading disabilities (NSRD) between them (Aaron, 1989; Gough & Tunmer, 1986).

Theoretical concept of hyperlexia as a dyslexic subtype

Some research literature has described hyperlexia as direct dyslexia—a dyslexic subtype with good word calling but inferior reading comprehension (Chia, 1996a; Tyre and Young, 1994). It represents a special instance within the larger category of dyslexic syndrome (DeHirsch, 1971).

Theoretical concept of hyperlexia as a generic class of reading disability

Other research studies have suggested that the symptoms of hyperlexia collectively characterize a syndrome different from dyslexia and other literacy disorders (Healy, Aram, Horwitz, & Kessler, 1982; Richman, 1997; Miller, 1997). Richman (1997) identified two main hyperlexic subtypes: (1) hyperlexic language disorder with or without autism; and (2) hyperlexic visual-spatial disorder. Healy et. al. (1982) conceptualized hyperlexia as a specific and identifiable syndrome with three key symptoms: spontaneous reading of words before the age of 5; superior word decoding skill; and impaired listening and reading comprehension.

Healy cautioned that hyperlexia should not be defined solely on the basis of a discrepancy between word recognition and comprehension skills. Her investigation on hyperlexia has set precedence for later studies to investigate comprehension deficit in depth, primarily from a psycholinguistic perspective. These studies address several important issues regarding hyperlexia, including the following: visual-spatial abilities (Aram, Ekelman, & Healy, 1984); the nature of the comprehension deficit (Snowling & Frith, 1986); the *intertextuality* between known and new information (Chi, 1995; Chia, 1996a); the relationship between hyperlexia and autism (Richman, 1997; Whitehouse & Harris, 1984); and the age of onset of early reading as a marker for hyperlexia (Aaron, 1989; Aram & Healy, 1987).

Intertextuality is the connection between what is read and what has been previously read, viewed, or heard. A text becomes understandable when the reader links the writer's knowledge of the world to his or her own. It becomes powerful when the reader ties written work to his or her personal experiences.

Educational Therapy for Hyperlexics

Current intervention programs for hyperlexia rely heavily on language and speech therapies. Group-based speech therapy has worked well with HC (Hayden and Pukonen, 1996; Kleiman, 1997; Osterling, 1996). It helps them develop social skills, language skills, and cognitive-social knowledge and enables them to participate more successfully in peer contacts and in their academic environment. Speech, language, and social interaction goals are targeted in a variety of group contexts, including theme-related activities, stories, games, crafts, and group routines (e.g. show-and-tell). Goals are set within language-based activities that are meaningful for hyperlexic children. These goals maximize motivation, functional communication, and generalization (Kleiman, 1997).

Another language-based therapy uses concrete poems to teach word meanings to HC (Chia, 1995, 1996c). These poems do not have line, meter, rhythm, rhyme, stanza, or even a title, but are expressed in the form of pictures. Their meanings are expressed in the way the letters are visually drawn, arranged, and, sometimes, colored. Concrete poems help HC make associations between a target word (drawn in a certain way) and its referent (the thing it represents). This enables the children to make sense of the words they read or see. Concrete poetry has a disadvantage, though. While it works with content words and is useful for teaching single word recognition, when sentences are introduced it becomes extremely difficult to rewrite every word in the form of a concrete poem.

There are only a few research studies on intervention strategies for teaching HC. They usually recommend the following general principles of educational therapy: use of written and visual models; patterned language; open-ended sentences; use of examples rather than direct explanations to elaborate a point; and teaching specific pragmatic rules (Kupperman & Bligh, 1997).

THE STUDY

Design of the Study

This study used the A-B—A-B reversal design, which is considered most suitable when the number of HC is small. The baseline A and the intervention B phases represent alternative instructional treatments. Because the design requires the repeated introduction and withdrawal of an intervention strategy, the functional relationship between the set of experimental procedures and x- and y-related dependent variables (child's textual organization) could be established and studied (Tawney & Gast, 1984).

The study would determine whether reorganizing the details of each sentence in a given passage into a structured format would aid the boy to understand what he read and to answer the comprehension questions correctly. The variable to be manipulated was textual reorganization.

In phase A, the boy applied the familiar *What Interrogatives Method* (WIM) (Treatment X) in answering comprehension questions. In phase B, he was taught to use the *Scaffolding Interrogatives Method* (SIM) (Treatment Y) to answer comprehension questions. The SIM requires textual reorganization of every sentence throughout a passage into some kind of a structured format using the SIM chart, before answering comprehension questions.

The Subject

The subject was the Chinese boy, Hong Choon, described in the *Background* section of this paper, whose parents gave consent for him to participate in this study.

Instruments

Two standardized assessments—the Neale Analysis of Reading Ability (Neale, 1995) and the GAP Reading Comprehension Test (McLeod, 1977)—were selected. The Shipman-Warncke Assessment Profile and Warncke Informal Comprehension Assessment (Warncke & Shipman, 1984) were administered but had to be cancelled because they were beyond the boy's ability level.

Neale Analysis of Reading Ability (NARA)—revised

This standardized diagnostic assessment (also the dependent variable) was administered to determine Hong Choon's age-equivalent scores for reading accuracy, fluency and comprehension. NARA Form 1 was used before the intervention program, and Form 2 was used six months later to avoid the practice effect. The two sets of age equivalent reading scores were then compared to determine the boy's progress in reading accuracy, fluency, and comprehension.

GAP Reading Comprehension Test

This modified cloze test has proven to be a valid measure of comprehension and is decidedly superior to conventional multiple-choice tests (Bormuth, 1967). It was used initially to identify whether the boy's reading comprehension was significantly retarded (Form B3), and later to determine the degree of improvement in reading comprehension after the intervention Form R3).

INTERVENTION PROGRAM

Treatment X: What Interrogatives Method (WIM)

Learning-support teachers have been using the WIM to teach reading comprehension to slow learners and dyslexics in mainstream schools. WIM substitutes the *wh*-interrogatives with the *what*-only interrogatives ("what time" for *when*, "what place" for *where*, "what reason" for *why*, and "what person" for *who*). It is therefore not necessary to know what each *wh*-interrogative means in order to answer it. Answering the *what* of a reading text is the focus.

Treatment Y: Scaffolding Interrogatives Method (SIM)

I devised the SIM and carried out several trials at the special needs clinic, with children whose reading comprehension was weak. SIM has a child read sentence by sentence, then chart each sentence in several columns of *what* interrogatives with sentential contents. The chart (see example on the next page) scaffolds the child's textual comprehension. When the child finishes reading the passage, textual meaning is built. The completed chart provides a new format of reorganized ideas based upon the original text, to aid comprehension.

Scaffolding Interrogatives Method (SIM)

Instructions: Read the story below, fill out the SIM chart, and answer the questions that follow.

1. One Sunday Tom rode his bicycle all morning in the park.
2. His friend Jack skated beside him for an hour. 3. Then

Tom and Jack saw an ice-cream man at the main gate of the park. 4. The ice-cream man sold them each a chocolate ice-cream cone. 5. It was twelve o'clock noon when a park warden told them to leave the park. 6. The boy's parents met them outside the park to take them home.

Scaffolding Interrogatives Method (SIM) Chart				
Sentence No.	Who? What person(s)?	What? What happened?	Where? What place?	When? What time?
1				
2				
3				
4				
5				
6				

1. What time (When) of the day did Tom ride his bicycle in the park? _____

2. What person (Who) was with him? _____

3. What place (Where) did the boys see an ice-cream man? _____

4. What did the park warden tell the boys? _____

5. What people (Who) met the boys outside the park? _____

6. What place (Where) did they go after that? _____

Materials

Whiteboard and erasable markers
Lesson schemes

The scheme consisted of twenty-four 30-minute lessons taught every Wednesday for 6 months. Each lesson was divided into two phases:

1. Phase A (Treatment X): The boy used WIM to answer comprehension questions.

2. Phase B (Treatment Y): He used SIM to answer comprehension questions.

Each phase covered four 30-minute sessions per month. Results from the two treatments were recorded on the boy's progress chart.

Work cards

48 work cards were selected from *Reading Comprehension*, published by Learning Development Aids (1983) for use during the 24 sessions in both treatments. They have been graded according to the age-equivalent reading scores ranging from 7 to 11 years, with an interest level of 8 to 14 years, covering a wide range of interest topics including fact,

fiction, and fantasy to appeal to the child. As Hong Choon, age 9 years 6 months, had a reading comprehension age of 7 years 3 months, only passages graded at reading ages of 7, 8 and 9 were selected. The 4 multiple-choice questions printed for each passage on each work card were replaced with *what-only* questions to suit the two treatment methods. Another twenty-two work cards were selected for preintervention and postintervention testing.

Intervention Procedure

Teacher

I was the child's teacher in both X and Y interventions, throughout the study.

Establishment of a baseline

Baseline data were gained from several reading comprehension tests given during the preintervention phase. Each test consisted of two short reading passages, with four comprehension questions. The number of questions correctly answered was then entered on Hong Choon's progress chart. Because human behavior varies from day to day, he was given several opportunities to exhibit his preintervention level of responses until a stable trend was seen in the data. All conditions were carefully controlled so that they differed from the later phases in only one way: intervention procedures (Treatments X and Y) were absent.

Instructional Treatments X and Y

The boy used either the WIM (Treatment X) or the SIM (Treatment Y) to answer comprehension questions.

Lesson Format

Duration	Phase A Activities	Phase B Activities
5 min	Read the first given passage aloud in its entirety.	
5 min	Reread the passage silently.	Reread the passage silently & fill in the SIM chart.
5 min	Answer the comprehension questions using the WIM (oral work).	Answer the comprehension questions using the SIM (oral work).
5 min	Read the second given passage aloud in its entirety.	
5 min	Reread the passage silently.	Reread the passage silently & fill in the SIM chart.
5 min	Answer the comprehension questions using the WIM (written work).	Answer the comprehension questions using the SIM chart (written work).

Data Collection

Data were collected from the standardized assessments to compare pre- and postintervention results. In addition to the data, Hong Choon's oral and written responses to the 8 comprehension questions during each session were collected and recorded on a progress chart. Just as baseline information could not be predicted on a single preintervention test, so intervention data for both Treatments X and Y were appraised through more than a single test. The responses were analyzed to discover how the textual reorganization had helped Hong Choon answer comprehension questions.

Evaluation of postintervention data

Just as the baseline was established during the preintervention phase through reading comprehension tests, a series of postintervention reading comprehension tests were administered until a stable trend was seen in the data. The mean scores at the preintervention and postintervention phases were then compared to determine whether there was a significant improvement in reading comprehension as a result of the intervention.

RESULTS OF THE INTERVENTION

The child's progress chart permitted a personalization of data analysis by providing an important understanding about his hyperlexic condition. It also provided suggestions for the advancement of knowledge on hyperlexia. The goal was to demarcate his level of responses at the beginning of the intervention and then to determine the degree to which treatments (X and/or Y) changed his responses. The A-B—A-B research design allowed the changes in responses to be compared with preintervention levels of response, using the subject as his own control, and was accomplished by collecting baseline data.

The following table shows the student's mean scores on the 8 comprehension questions of each session.

Phases	Pre-Intervention Phase	Intervention Phase		Post-Intervention Phase
Number of Sessions	6	12 [X]	12 [Y]	5
Mean Score of comprehension questions correctly answered	1	4.3	6.25	2.8
Number of questions asked	8	8	8	8

Although both interventions (X and Y) indicate a significant improvement in the boy's performance when answering comprehension questions, the SIM (Treatment Y) proved to be a more effective intervention strategy than the WIM (Treatment X), with a difference of 1.95 between the two mean scores.

At the postintervention phase, the boy's reading comprehension had improved, with a mean score of 2.8 correct answers. At the preintervention phase the mean score had been 1 correct answer.

RESULTS OF THE STANDARDIZED ASSESSMENTS

The Neale Analysis of Reading Ability-Revised and the GAP Reading Comprehension Test were administered as pretests and post-tests in January 1999 and June 1999 respectively.

Neale Analysis of Reading Ability-Revised (NARA-R)

Preintervention results (Form 1):

At the age of 9 years 6 months the boy was reading quite accurately (age equivalent reading accuracy of 13 years 0 months), and fluently (age equivalent reading rate of 12 years 2 months). His age equivalent reading comprehension score was only 7 years 2 months.

Postintervention results (Form 2):

Hong Choon's reading improved in terms of accuracy, rate, and comprehension with age equivalent reading scores of 13+ years, 12 years 7 months, and 8 years 3 months respectively.

Before intervention, his age equivalent reading comprehension score was in the 17th percentile rank of British norms. After the 6-month intervention, his reading comprehension age increased to 8 years 3 months (18th percentile rank) up by 1 year 1 month (up 1 percentile).

Gap Reading Comprehension Test (GRCT)

Preintervention results (Form B3):

A raw score of 4 correct written responses was below the "retarded" cutoff score of age 7. His reading comprehension age was 7 years 3 months. His reading quotient (RQ) was 76, which was below the reading retardation cutoff (RQ of 80). According to these criteria Hong Choon was considered to be "reading retarded."

Postintervention results (Form R3):

A raw score of 8 correct written responses was just 1 point below the "retarded" cutoff score of 9. The boy's age equivalent reading comprehension score was 7 years 10 months. His RQ was 78, still below the reading retardation cutoff (RQ of 80). Although his reading comprehension had improved, his hyperlexic language disorder was not eradicated.

The combined raw score (Forms B3 + R3) was 12 and the combined age equivalent reading comprehension score was 7 years 6 months. The combined "retarded" cutoff score was 22. Hong Choon's combined raw score (Forms B3 + R3)

was 10 points below the cutoff score. His combined RQ was 75, still below the reading retardation cutoff. The boy continues to show severe deficits in reading comprehension despite his improved equivalent reading comprehension scores.

SUMMARY

The pre- and postintervention results show that there was an improvement in the boy's performance on standardized reading comprehension tests after he was given the WIM and SIM interventions. In Treatment X (using the WIM), his reading comprehension improved over when he had not used the strategy at the preintervention phase. In Treatment Y (using the SIM), he showed greater improvement in answering comprehension questions. The results suggest that text reorganization gave the hyperlexic child an edge in answering questions about what he had read.

DISCUSSION AND CONCLUSION

Findings in this study show that Hong Choon's performance in reading comprehension improved after he was trained to use the SIM. Within 6 months of intensive SIM instruction, Hong Choon's reading age (based on NARA-R) rose 1 year 1 month and one percentile rank. His reading accuracy age moved up from the 91st percentile to the 99th. His reading rate increased five months, from 12 years 2 months to 12 years 7 months. Over the 24-week intervention, Hong Choon's age equivalent reading comprehension (based on NARA-R) rose 13 months. The boy's apparent improvement suggests that both WIM and SIM strategies were effective. The formative evaluation of the intervention results suggest that teaching reading comprehension through *what* interrogatives and textual reorganization was more effective than just using the *what* interrogatives alone in comprehension questions.

WHY THE HC DID BETTER WITH TREATMENT Y

The fact that a combination of *what* interrogatives and textual reorganization was more effective than *what* interrogatives alone supports the work of Chi (1995) and Chia (1995), which show that hyperlexia is not just poor comprehension ability; but a deficit of intertextuality in reading comprehension. What a child reads and how the child interprets a text depends on the degree of intertextuality he or she can achieve. This is achieved by establishing a structured relationship between a given text and the child's mental text retrieved from long-term memory (de Beaugrande, 1980; Kristeva, 1980). Reading, therefore, can be defined as a complex process in which intertextuality provides one of the key links for readers to make sense of what they encounter in the text (Chi, 1995).

Further, the results of the study also suggested that hyperlexia is a chronic disorder. Hong Choon was able to

apply the SIM to cope with his reading comprehension, but the method did not "cure" him of hyperlexia. However, it is a useful coping strategy to manage reading comprehension.

LIMITATIONS OF THE STUDY

All possible care was taken in this study to control for extraneous variables. The intervention program was carefully controlled to ensure that both Treatment X and Treatment Y were properly carried out and received the same amount of instructional time. In terms of reliability and validity of the results it would be important to repeat the same study with other hyperlexic children. More has to be done to clarify the syndrome so that better intervention strategies can be developed.

IMPLICATIONS FOR REMEDIAL TEACHING OF READING COMPREHENSION

While it is necessary to teach children to answer the different *wh*-questions, it is tedious for HC to answer them. It becomes a mental burden to decode them and then understand what each *wh*-question requires for an answer. It is easier to substitute *what* interrogatives for *wh*-interrogatives. The hyperlexic child only needs to know the *what* to answer all the other *wh*-questions.

Textual reorganization is useful as a reading comprehension tool, scaffolding the details of a text into a structured format that enables the reader to understand the reading material better. In order to comprehend, it is necessary for the hyperlexic child to assemble textual details into a conceptual framework

CONCLUSION

The child in this study, though he was taught to answer comprehension questions through using the WIM or the SIM, did not always comprehend the text he read. He was able to answer comprehension questions at a literal level. He could read to understand, remember or recall information explicitly contained in a given passage. This means reading the lines, but not *between* the lines (e.g., inference) or *beyond* the lines (e.g., evaluation or appreciation). When he did not apply the SIM, his responses to comprehension questions tended to be confined to repetition of irrelevant phrases or words taken directly from the text. It is important that the child has learned to scaffold details of a reading passage into a structured format in order to aid his reading comprehension.

REFERENCES

Aaron, P.G. (1989). *Dyslexia and hyperlexia: Diagnosis and management of developmental reading disabilities.* Dordrecht, The Netherlands: Kluwer Academic.

Aram, D.M., Ekelman, B.L., & Healy, J.M. (1984). *Reading profiles of hyperlexic children.* A paper presented at the meeting of the International Neuropsychology Society, Aachen, West Germany.

Aram, D.M., & Healy, J.M. (1987). Hyperlexia: A review of extraordinary word recognition. In L.K. Obler and D. Fein (Eds.), *Neuropsychology of talent and special abilities.* New York: Guilford Press.

Bormuth, J.R.. (1967). Comparable cloze and multiple-choice comprehension test scores. *Journal of Reading, 20*(1), 291–299.

Bronner, A.F. (1917). *The psychology of special abilities and disabilities.* Boston: Little, Brown and Company.

Burd, L., Kerbeshiian, J., & Fisher, W. (1985). Inquiry into the incidence of hyperlexia in a state-wide population of children with pervasive developmental disorder. *Psychological Reports, 57,* 236–238.

Chi, F.M. (1995). EFL readers and a focus on intertextuality. *Journal of Reading, 38*(8), 638–644.

Chia, K.H. (1995). Words without meaning. *Montessori Education, 17*(3), 18–19.

Chia, K.H. (1996a). Hyperlexia: A deficit of intertextuality in reading comprehension. *Education Today, 46*(2), 66–71.

Chia, K.H. (1996b). The tri-continua model of dyslexic syndrome. *Education Today, 46*(3), 33–40.

Chia, K.H. (1996c). Making sense of the word. *Montessori Education, 17*(4), 38–39.

Chia, K.H. (1996d). Your child as a comprehending reader. *Prep., 1*(4), 12–14.

Chia, K.H. (1997). The many facets of dyslexia. *The Family Tree* (May/June), pp. 22.

Chia, K.H. (2000). The four theoretical concepts of hyperlexia. *Health Digest, 12*(6), 30–37.

Cobrink, L. (1974). Unusual reading ability in severely disturbed children. *Journal of Autism and Childhood Schizophrenia, 4,* 163–175.

de Beaugrande, R. (1980). *Text, discourse and process.* Norwood, NJ: Ablex.

DeHirsch, K. (1971). Are hyperlexics dyslexics? *Journal of Special Education, 5*(3), 243–246.

Elliott, D.E., & Needleman, R.M. (1976). The syndrome of hyperlexia. *Brain and Language, 3,* 339–349.

Gough, P.B., & Tunmer, W. (1986). Decoding, reading, and reading disability. *Remedial and Special Education, 7*(1), 6–10.

Hayden, D.A., & Pukonen, M.(1996). Language intervention programming for preschool children with social and programmatic disorders. In J.H. Beitcham (Ed.) *Language learning and behavior disorders.* Cambridge, U.K.: Cambridge University Press.

Healy, J.M. (1982). The enigma of hyperlexia. *Reading Research Quarterly, XVII*(3), 319–338.

Healy, J.M., Aram, D.M., Horwitz, S.J., & Kessler, J.W. (1982). A study of hyperlexia. *Brain and Language, 17,* 1–23.

Hornsby, B. (1995). *Overcoming dyslexia.* London, U.K.: Vermilion.

Kleiman, J. (1997). *Group intervention for language disorders.* Toronto, Canada: Canadian Hyperlexia Association.

Kristeva, J. (1980). *Desire in language: a semiotic approach to literature and art.* New York: Columbia University Press.

Kupperman, P., & Bligh, S. (1997). *The syndrome of hyperlexia: Remediation techniques.* Elmburst, IL: Center for Speech and Language Disorders.

Learning Development Aids (1983). *Reading comprehension.* Cambridge, U.K.

Manzo, A.V., and Manzo, U.C. (1994). *Literacy disorders: Holistic diagnosis and remediation.* Orlando, FL: Holt, Rinehart and Winston.

McCormick, S. (1995). What is single-subject experimental research? In S.B. Neuman & S. McCormick (Eds.), *Single-subject experimental research: Application for literacy* (pp. 1–31). Newark, DE: International Reading Association.

McLeod, J. (1977). *GAP reading comprehension test.* Victoria, Australia: Heinemann Educational.

Mehegan, C.C., & Dreifus, R.E. (1972). Hyperlexia – exceptional reading ability in brain-damaged children. *Neurology, 22,* 1105–1111.

Miller, C. (1997). *Language learning and comprehension.* Ontario, Canada: Geocities.

Monroe, M. (1932). *Children who cannot read.* Chicago: University of Chicago Press.

Neale, M.D. (1995). *Neale analysis of reading ability* (Revised). Berkshire, U.K.: NFER-Nelson.

Niensted, S.M. (1968). Hyperlexia: an educational disease? *Exceptional Children, 35*(2), 162–163.

Osterling, A.M. (1996). *Facilitating language development in children with hyperlexia.* Unpublished paper presented at The Second National Conference on the Syndrome of Hyperlexia: Language, Social, Sensory and Educational Interventions, Oak Brook, IL.

Parker, S.W. (1917). Pseudo-talent for words. *Psychology Clinics, 11*, 1–7.

Pennington, B., Johnson, C., & Welsh, M. (1987). Unexpected reading precocity in normal preschoolers: Implications for hyperlexia. *Brain and Language, 30*, 165–180.

Philips, A. (1930). Talented imbeciles. *Psychology Clinics, 18*, 246–265.

Phua, L.P. (1999). More can be done for these children. *The Straits Times*, 30 April.

Richman, L. (1997). Peaceful co-existence: autism, Asperger's, hyperlexia. *The Newsletter of American Hyperlexia Association* (Winter issue), 14–16.

Silberberg, N., & Silberberg, M. (1967). Hyperlexia: Specific word recognition skills in young children. *Exceptional Children, 34*, 41–42.

Silberberg, N., & Silberberg, M. (1968). Case histories in hyperlexia. *Journal of School Psychology, 7*, 3–7.

Silberberg, N., & Silberberg, M. (1971). Hyperlexia: the other end of the continuum. *Journal of Special Education, 5*(3), 233–242.

Snowling, M., & Frith, U. (1986). Comprehension in hyperlexic readers. *Journal of Experimental Child Psychology, 42*, 392–415.

Tawney, J.W., & Gast, D.L. (1984). *Single-subject research in special education.* Columbus, OH: Merrill.

Tyre, C., & Young, P. (1994). *Specific learning difficulties.* Staffordshire, U.K.: QED.

Warncke, E.W., & Shipman, D. (1984). *Group assessment in reading: Classroom teacher's handbook.* Englewood Cliffs, NJ: Prentice-Hall.

Whitehouse, D., & Harris, J. (1984). Hyperlexia in infantile autism. *Journal of Autism and Developmental Disorders, 14*, 281–289.

Noel Chia is an Educational Therapist currently in private practice. He is also an associate lecturer at the Early Childhood Institute, Singapore, training and supervising preschool teachers in early childhood special education. A member of the Association of Educational Therapists for many years, he recently became a Certified Educational Therapist. He can be reached by writing to Block 669, Choa Chu Kang Crescent, #03-353, Singapore 680669, Republic of Singapore. e-mail: noelchia@yahoo.com.sg

Book Review

Carolyn McVickar Edwards, M.Ed

Learning Disorders & Disorders of the Self in Children and Adolescents

By Joseph Palombo, M.A.
W.W. Norton & Co., New York, 2001

In an anecdote that might have opened the book, social worker–psychoanalyst Joseph Palombo tells the story of Larry, a six-and-a-half year old emotionally disturbed boy, whose chaotic, disorganized attacking of his environment appeared to be the result of a sensory-integration problem so severe—and poorly diagnosed—that it was "almost as if his brain were detached from his body." One afternoon, midyear in his third year of once-a-week play therapy (he is now nine-and-a-half), he spontaneously initiates the "broken statue game" in which he asks Palombo to "glue him together." The game evolves with Palombo moving from spending the entire session gathering the "broken pieces and gluing them back" to Larry's body, to using "tools" to put together Larry's "broken robot," new tools on his "bionic man," and finally to giving Larry a "new heart," and a "new brain." Larry is happier than Palombo has ever seen him, calm in session, and improving his behavior at home and school. Unfortunately, he loses his nascent self-cohesion when a new special education teacher replaces this literally and figuratively organizing story with strict behavioral controls.

Like a homemaker writing a recipe for multicolored flavors of fruits, nuts, and marshmallows to build a perfectly coagulated jello, Palombo tries to jell for us the treatment dilemmas of doing psychotherapy with children whose sense of self, *as a result of their learning disorders*, is fragmented. Layering his understanding of Freudian psychoanalysis with Kohut's self-psychology and with recent narrative theory, Palombo says that the sense of self is the experience of having a particular set of neurological endowments in a unique environment. The ideal environment satisfies three vital needs: *self object*—when a caregiver is empathetically responsive to the child's psychic needs; *adjunctive*—when care giving or prosthetic contrivances extend efficacy in the world; and *compensatory*—when the child develops her own coping strategies not dependent on a person or tool. A child's neurological impairments may disable him from making full use of even otherwise ideal environments. He may not be able to form the self-cohesion that leads to a coherent self-narrative. A narratively accessible cohesion of self is a sign of self-consolidation, out of which comes resiliency, endurance, and the strength to tolerate the potentially traumatic everyday stress of having the learning disorder in the first place.

Sometimes obscured by a wooden and too-wordy prose is a tender and imaginative empathy for children and parents