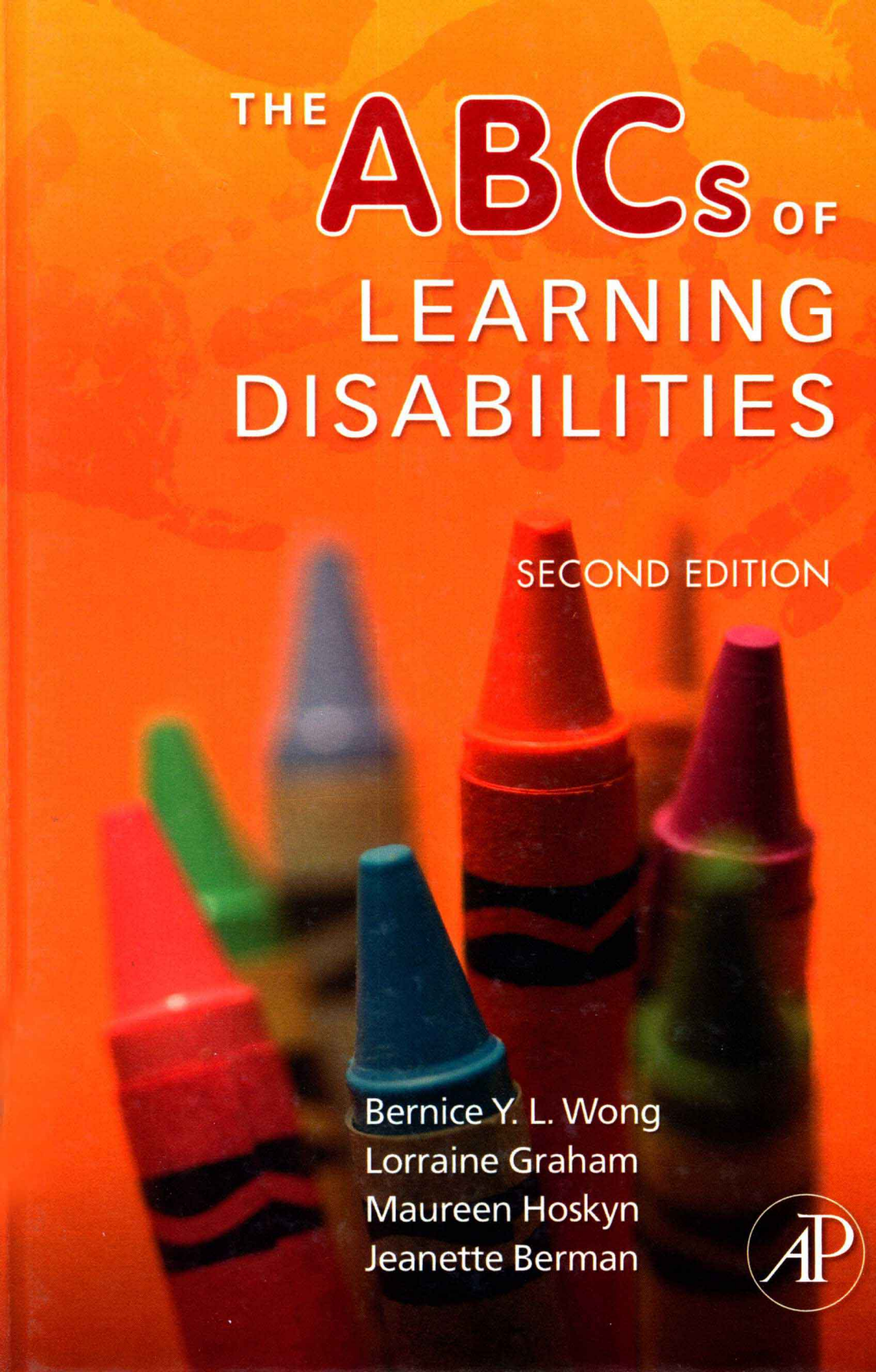
THE ABCs OF LEARNING DISABILITIES

SECOND EDITION



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The ABCs of Learning Disabilities

Second Edition

This book is dedicated to Sorcha and Jamie Harrop; Joy (Lorraine's mother); Tom, Corri, and Krysta Hoskyn; Kyle, Evan, and Rhianna Berman; Rod and Kristi Wong.

PREFACE

I wish to thank Nikki Levy for her persistence and persuasion in getting me to attempt a revised edition of *The ABCs of Learning Disabilities*. If not for Nikki, I would not have had the marvelous opportunity to gather three friends to contribute chapters to the revised edition of the book or the great enjoyment of thinking and writing.

It is with deep gratitude and appreciation that I list my contributors: Lorraine Graham, Maureen Hoskyn, and Jeanette Berman. Without them, this book would not have been completed. Each of them brought her individual expertise and perspective to the book. Words cannot express my appreciation of their concerted efforts to meet the deadline, especially Lorraine, who wrote while battling an ear infection that made her feel as if the room was spinning around.

The four of us enjoyed a division of labor. Maureen wrote Chapters 2, 3, and 8 on language and learning disabilities, memory and learning disabilities, and mathematics, respectively. Lorraine and Jeanette collaborated on Chapters 5, 6, and 7: self-regulation and learning disabilities, assessment, and reading. I wrote Chapters 1, 4, and 9: the history of learning disabilities, social dimensions of learning disabilities, and writing. Our writing has been facilitated by the fact that we wrote on areas that we enjoyed or in which we conducted research.

In writing the chapter on language and learning disabilities, Maureen had benefited from Tomasello's literature. In her chapter on working memory and learning disabilities, Maureen profited much from Lee Swanson's noted research on working memory. Similarly, Lorraine wishes to acknowledge the usefulness of Swanson, Harris, and Graham's book *Handbook of*

Learning Disabilities. In writing the chapter on the history of learning disabilities, I benefited much from three books: Mercer and Pullen; Hallahan, Lloyd, Kauffman, Weiss, and Martinez; and Hallahan and Mock. Jeanette thanks Carol Lidz for her ongoing inspiration, and Lorraine thanks Anne Bellert for their previous collaborative research on reading comprehension.

We also greatly appreciate the help of Nikki Levy of Elsevier, who has always been helpful, informative, and positive. Barbara Makinster (senior developmental editor with Elsevier) has always been understanding, patient, and helpful. And we thank Julie Ochs in the production department at Elsevier Academic Press and the copyeditor, Deborah Prato, for doing such a wonderful job with our book. Last but not least, we thank the following individuals for their help: Paul Yeung, a doctoral student at Simon Fraser University, and Devi Pabla, secretary to the associate dean in the faculty of education at Simon Fraser University.

To the student

In this revised edition of *The ABCs of Learning Disabilities*, you see the combined efforts of four authors, each writing on areas of her expertise. More important, we bring to our writing tasks much experience in teaching undergraduate students. The breadth of our teaching experience gives us a shrewd sensitivity to your instructional needs, and this sensitivity guides our writing.

In the chapters on reading, mathematics, and writing, you will notice the absence of the words *and learning disabilities*. This omission is deliberate. We wanted to emphasize that the instructional materials given in those chapters are designed for use in inclusive classrooms, with clear and specific pointers on adaptations for use with students with learning disabilities.

We have tried to smooth out differences in our individual writing styles, while maintaining a sense of humor and efforts to stimulate you to think about what you are reading. We hope you find this revised edition reader-friendly and useful.

Cheers and best wishes,

Bernice Wong

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1

Learning Disabilities: From Past to Present

This chapter traces the history of the learning disabilities field and presents the standard gamut of topics subsumed in the history of the field. These include, but are not limited to, the origins of the learning disabilities field, the influential definitions of learning disabilities, the characteristics of individuals with learning disabilities, the condition of attention deficit hyperactivity disorder, and the etiology of learning disabilities. The chapter concludes with an assessment of the current hot topic of the response to instruction model as an alternative to the IQ-achievement discrepancy model of diagnosing learning disabilities and boldly raises the question of the contributions of the research of response to instruction (RTI standard-protocol approach) to the learning disabilities field.

Since the beginning of the learning disabilities field, two primary issues—that did not shape but must be dealt with—have maintained their prominence: (1) the need to validate the hypothetical notion that learning disabilities are neurologically based and thus represent a genuine handicap and (2) the need to devise methods of effective identification, diagnosis, and intervention for individuals with learning disabilities (Torgesen, 1993). In tracing the history of the learning disabilities field, we follow the lead of Hallahan and Mock (2003) and divide it into several distinguishable periods that reflect diverse sources of influence on the development of the field.

THE INFLUENCE OF EUROPE (1800–1920)

During this period, European doctors and researchers began to investigate the relationship between brain injury and speech disorders. We focus

only on the legacies of those who had an impact on the learning disabilities field.

In the first decade of the nineteenth century, Franz Joseph Gall, a physician, made the assertion that separate areas of the brain controlled specific functions—in other words, that brain functions are localized. He based his assertion on the observations of his patients who had brain injury. Gall's notion of localization of brain functions was confirmed by the work of Bouillaud in the 1820s. Broca furthered Bouillaud's work through the use of autopsies and drew the conclusion that speech functions lie in the inferior frontal lobe. This area was subsequently called Broca's area. Moreover, Broca's name is linked to a specific type of speech dysfunction called Broca's aphasia: "a slow, laborious, dysfluent speech" (Hallahan & Mock, 2003, p. 17).

Another disorder called "sensory aphasia" was named by Wernicke based on his case studies of ten brain-injured patients with language disorders. In this type of aphasia, patients would talk fluently, but what they said was meaningless. Wernicke believed that the area responsible for this particular speech disorder was the left temporal lobe, the area that now bears his name. Wernicke published his case studies in 1874.

The relevance of the preceding work to the learning disabilities field is that they show unequivocally that brain damage to specific areas of the brain can result in specific kinds of mental/cognitive impairment. The progress made in research in language disorders spilled over to interest in disorders related to reading (Hallahan & Mock, 2003).

In 1896, the first case study of a child with congenital word-blindness (reading disability) was published by an English physician W. Pringle Morgan. Morgan's work inspired a Scottish ophthalmologist, Sir Cyril Hinshelwood, to study specific reading disabilities. He reported the first systematic clinical studies of this disorder in 1917. Some of his patients were adults who had suddenly lost their reading ability, while their other mental or cognitive abilities remaining intact. Hinshelwood studied a number of such cases and attributed this loss of reading ability to damage in specific regions of the brain. His opinion paralleled those about patients who lost their speech through brain damage of, say, Broca's area or Wernicke's area.

Hinshelwood also examined cases of children with severe difficulties in learning to read. His descriptions of these cases were careful, detailed, and compelling (see Torgesen, 2004, p. 9). He called such conditions "congenital word blindness" and believed it resulted from damage to a particular area in the brain in which visual memories for words and individual letters were stored. His speculation that damage to that region was the cause of congenital word blindness turned out to be wrong. But his contributions to the learning disabilities field are still relevant because he pointed out that these children's inability to learn to read juxtaposed with normal abilities in other intellectual skills, such as arithmetic. Moreover, Hinshelwood thought the

occurrence of cases of word blindness to be very rare, with an incidence rate of less than one in a thousand.

In summary, the twentieth century witnessed clinical research that showed connections between types of brain damage and specific loss of various speech and language functions in adults. Interest in these connections spilled over to children who had extreme difficulties in learning to read. Hinshelwood was the first to report cases of children with this congenital word blindness. Although some dispute Hinshelwood's relationship to the development of the learning disabilities field (see Torgesen, 2004), Hinshelwood made a very important contribution. He maintained that such children had intact cognitive functions outside of the reading domain, and it is this specificity of cognitive malfunction that is at the heart of learning disabilities!

THE INFLUENCE OF AMERICA (1920–1960)

Beginning in the late 1930s, before the field of learning disabilities was formally established, two separate but parallel strands of clinical and research interests emerged that left indelible marks on interventions or remediation of children with learning disabilities. One strand emphasized general cognitive abilities that are presumed to underlie successful performance on a wide range of tasks. This emphasis originated from the research of Goldstein and was continued by Werner and Strauss. The other strand emphasized auditory and language processes and focused more narrowly or specifically on reading. The individuals associated with it were Helmer Mykelbust and Samuel Kirk. We examine the work of these two strands of clinical research in the next few sections.

Kurt Goldstein, a physician, was the director of a hospital for soldiers who sustained head injuries from World War I. He observed these brain-injured soldiers and noticed a group of particular behaviors that included hyperactivity, indiscriminate reaction to stimuli, confusion with figure-ground perception, concrete thinking, perseveration, meticulosity, and emotional lability. At the Wayne County Training School for children with mental retardation, Werner and Strauss became interested in applying and extending Goldstein's clinical research to children. Strauss was a neuropsychiatrist, and Werner was a developmental psychologist.

Strauss and Werner divided the children in their training school into two groups: those with mental retardation resulting from a brain injury (exogenous mental retardation) and those with familial mental retardation (endogenous mental retardation). They found that compared to children with endogenous mental retardation, children with exogenous mental retardation showed more indiscriminate reactions to auditory and visual stimuli. They tended to be more impulsive, erratic, and socially unacceptable. Such

findings led them to conclude that the special education category of mental retardation is not a homogenous group. Their conclusion was supported by an additional finding that after four to five years of training at the Wayne County Training School, children with endogenous mental retardation gained by an average of four points in IQ, whereas children with exogenous mental retardation did not show any gains. This discovery of no gains in children with exogenous mental retardation to the given training spurred Strauss and Werner and their associates to design an educational environment that aimed to reduce their behavioral problems and promote better attention focusing. Consequently, they engineered educational environments that reduced irrelevant stimuli while enhancing relevant stimuli in learning for children with exogenous mental retardation. Their efforts culminated in the publications of two books: *Psychopathology and Education of the Brain-Injured Child* (Strauss & Lehtinen, 1947) and *Psychopathology and Education of the Brain-Injured Child: Progress in Theory and Clinic* (Vol. 2; Strauss & Kephart, 1955).

Strauss and Werner's influence in the learning disabilities field lies in providing a general orientation to teaching children with special needs. This general orientation subsumes three premises: (1) Individual differences in children's learning should be understood through analyzing the cognitive processes that facilitate or hinder learning, (2) instructional procedures should match the individual child's processing strengths and weaknesses, and (3) by strengthening their deficient processes, children with deficient processes might be helped to learn adequately (Hallahan & Cruickshank, 1973; Torgesen, 2004). After the inception of the learning disabilities field, these premises of the general orientation to educating exceptional children assumed special significance as the field attempted to stake out identity as a separate category within special education that would qualify children with learning disabilities for funding for special education services. The premises provided the necessary rationale and assertion that learning disabilities constitute a separate entity alongside other categories within special education.

Werner and Strauss's work was continued and extended by their associate Kephart, who elaborated on their theory that perceptual-motor skill development provides the foundation to higher mental learning—for example, conceptual learning. A logical consequence derived from this theory is that training in perceptual-motor skills should help children experiencing learning difficulties in school. Kephart (1960) subsequently wrote the book *Slow Learner in the Classroom*, which contains educational procedures for use in learning disabilities classrooms.

After Kephart, William Cruickshank became connected with the work of Werner and Strauss. He worked with children with cerebral palsy and observed that they showed the same kind of characteristics as children with exogenous mental retardation in the clinical research of Werner and Strauss.

Specifically, Cruickshank found that children with cerebral palsy showed more indiscriminate reaction to background in figure-ground perception studies than children without cerebral palsy. Thus, he recommended creating a similar educational environment for children with cerebral palsy where distractions were minimized. He went on to test the efficacy of his recommendation in a pilot study in Montgomery County, Maryland (the Montgomery County Project). Cruickshank and his associates (Cruickshank, Bentzen, Ratzeburg, & Tannhauser, 1961) published the pilot study in a book, *A Teaching Method for Brain-Injured and Hyperactive Children*. Hallahan and Mock (2003) wrote that under current diagnostic criteria, many children in the case studies in Cruickshank's pilot study would qualify as children with learning disabilities or children with comorbidity of learning disabilities and Attention Deficit Hyperactivity Disorder (ADHD).

Cruickshank has a special place in the history of learning disabilities because he provided the bridge between mental retardation and learning disabilities (Hallahan & Mock, 2003). Through him, the educational treatment of children with learning disabilities embodied Werner and Strauss's emphasis: reduction of environmental distraction and salience of relevant dimensions and tight structure. The academic instructional part of the treatment consisted of "readiness training, perceptual, perceptual-motor exercises, homework, and arithmetic" (Hallahan & Mock, 2003, p. 21). The educational program, however, neglected the cultivation of reading skills.

Auditory and language processes were the clinical and research interest of individuals in the separate but parallel strand, such as Helmer Mykelbust and Samuel Kirk, who were contemporaries of the preceding individuals. Mykelbust's background was research of the hearing-impaired, but he also alerted people's attention to children and adults who have auditory verbal comprehension problems. Kirk, in contrast, played a very important role in the development of the learning disabilities field.

Kirk was strongly influenced by the work of Orton and Monroe. In 1937, 20 years after Hinshelwood published his case studies on adults, Orton, an American child neurologist wrote about his theory of reading disability. Recall that Hinshelwood coined the term *congenital word blindness* for his case studies of children who could not read. He believed that damage to a localized area of the brain where visual memories for words and individual letters were stored caused congenital word blindness. In contrast, Orton proposed a theory that posits a delay or failure in establishing cerebral dominance as cause for a child's reading disability. He coined the term *strephosymbolia* to describe reversals (e.g., b/d, was/saw) that are commonly observed in oral reading of children with reading disability. Neither Orton's theory nor his focus on reversal being the prime characteristic of dyslexia (severe reading disability) had any foundation, but clinics and educational treatments similar to Hinshelwood's (Torgesen, 2004, p. 10) were successful.

Marion Monroe's work was influential in the early 1930s for developing a reading index, a practice of calculating the discrepancy between actual and expected levels of reading achievement; keeping meticulous records on case studies of children with reading disabilities; and advocating for a focus on patterns of reading errors rather than on the sum total or end score on a test. In short, she emphasized qualitative analysis of reading errors that could lead to remediation rather than quantitative analysis of test scores.

According to Hallahan and Mock (2003), Kirk's doctoral thesis showed the influence of both Orton and Monroe. After finishing his degree, Kirk went to work at the University of Illinois, where he set up the first experimental preschool for children with mental retardation. Recognizing the need for assessment tools, Kirk embarked on a test development with an ambitious goal: He wanted to develop an assessment tool that would not only pinpoint problems but would also lead directly into remedial programming and treatment. Thus was born the Illinois Test of Pyscholinguistic Abilities (ITPA; Kirk, McCarthy, & Kirk, 1961). The ITPA tested discrete processes. Children were given training in areas of deficiencies. The test enjoyed much popularity and widespread use in the 1970s, but the underlying theoretic assumption was flawed. The subtests test discrete cognitive processes, which suggests the test developers assumed areas in the brain function independently. The brain, however, does not function that way, but rather, interconnections appear to be the modus operandi. More important, research clearly showed that process training as advocated by Kirk and his associates did not transfer to reading achievement (Hammill and Larsen, 1974a; 1974b).

Kirk basically reinforced the notions of intraindividual differences in children with learning disabilities and discerning these children's strengths and deficits and to remediate the latter. These ideas hark back to Werner and Strauss.

To summarize, before the field of learning disabilities emerged in 1963, two separate but parallel strands of clinical research interests existed. One strand emphasized more general processes in learning and was represented by Werner and Strauss, whose research findings established the heterogeneous nature of children with mental retardation and the characteristics of brain-injured children. These included distractibility, peseveration, concreteness, indiscriminate response to stimuli, emotional lability, and figure-ground perceptual problems. Their work was subsequently extended by Kephart, a research associate, and Cruickshank, a researcher who was involved with children with cerebral palsy. The other strand emphasized auditory and language processes, which were represented by Mykelbust and Kirk. The legacies from these two strands of clinical research consisted of three principles in the education of children with learning disabilities and the need to balance attention to perceptual, perceptual-motor processes in training with attention to auditory and language processes. The three