

CHAPTER 1

Introduction to Section One

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This volume of the *Comprehensive Handbook of Psychological Assessment* is devoted to intellectual and neuropsychological assessment. The combination of these two areas is an apt one because both of them are concerned with adaptive function and cognitive ability. In practice, neuropsychologists often use intelligence tests, and clinical and counseling psychologists may use some tests that now would be described as neuropsychological tests in their practice. However, intelligence testing is done for a broad range of the general population, whereas neuropsychological testing is typically done in cases where there is known or suspected impairment of brain function. Therefore, Part One of this volume deals largely with assessment in populations of normal individuals. Part Two is more clinically oriented, stressing assessment of individuals whose brain function is known to be or suspected of being impaired.

The first two chapters of this section are theoretical in nature. Chapter 2 by Dr. Das is a broad-ranging review of theories of intelligence. The formulation of theories of intelligence goes back to ancient times, with beginnings in ancient Eastern and Greek philosophy. It remains an area of controversy to the present time, with several viable theories having contemporary acceptance. Lending support to the unity of this volume as a whole, this chapter makes it clear that some of the more recent theories of intelligence are neuropsychological in nature in the sense that an effort is made to associate intellectual function with specific brain functions and areas. Although there was an underlying assumption for many centuries that intelligence was controlled by the brain, there is now an attempt to be more specific with regard to identifying relationships between specific brain systems and different intellectual abilities. As a simple example, it is now thought that portions of the left hemisphere of the brain mediate much of verbal intelligence.

Chapter 3 by Dr. Ramsay and Dr. Reynolds deals with the relationship between intelligence and achievement. Put in more general terms, it takes up the issue of how well general intelligence or IQ predicts performance of activities in a natural environment. In children, these activities usually relate to educational matters, such as learning to read or perform mathematics. In adults, the relationship is mainly with vocational considerations, stressing the ability to do a particular job. This matter is important because if intelligence tests do not successfully predict behavior in the environment, their usefulness is questionable. Indeed, critics of intelligence testing have pointed to instances of poor prediction. Critics suggest that some individuals obtain high scores on these tests but do not do well in school or at work; whereas other individuals with lower intellectual levels may do quite well. Ramsay and Reynolds review numerous studies in which intelligence tests are correlated with academic achievement tests. They indicate that many methodological problems remain in this research, but report that a reasonable degree of correspondence exists between the two kinds of measures.

Intelligence is a developmental phenomenon, and assessment methods that are appropriate for the different stages of life must be constructed. As described in Chapter 6, Dr. Aylward's chapter, it is possible to evaluate ability levels in infancy and early childhood. Tests have been developed for children in their preschool years and for older children. Intelligence tests have most commonly been used in educational planning for school-aged children. A more recent development, resulting from the mandate for early educational intervention, is the need to assess the abilities of young children in their preschool years. Some tests, such as the various Wechsler adult intelligence scales, are suitable for a wide range of ages and may be used from early to late adulthood. Intelligence testing as we know it began with testing of

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school children by Binet, and the idea of testing adults for intelligence developed later. By studying changes in intelligence in childhood through adulthood, we have learned a great deal about the development of intelligence into old age. Longitudinal intelligence testing or the administration of intelligence tests to people in cross-sectional studies of different age groups has led to an extensive literature that is not without controversy, particularly with regard to the nature of intellectual decline with aging. Thus, intelligence testing is now accomplished across the life-span, and we have included chapters describing tests for infants, children, and adults.

Chapters 4 and 5 of this section are devoted to the most widely used standardized intelligence tests: The Wechsler intelligence scales in their child and adult versions and the Stanford-Binet. David Wechsler was probably the major influence in the introduction of intelligence testing for adults, and in the development of psychometric procedures and test contents that were appropriate for adults. Both the adult and children's scales have received several restandardizations and revisions to keep them psychometrically sound and contemporary in content. The various Wechsler intelligence scales are commonly used in educational, industrial, and clinical settings. John McFie (1975) said, "It is perhaps a matter of luck that many of the Wechsler subtests are neurologically relevant (p. 14)." This remark, made some years ago, presaged the extensive use during recent times of the Wechsler scales in neuropsychological assessment.

The history of the Stanford-Binet tests goes back to the early years of the twentieth century, and the test has gone through five revisions. The fifth edition has just been made available. The phrase "Back to the Future" used in the title of the Kamphaus and Kroncke chapter characterizes this new edition because it resembles the original Binet-Simon scales more than it does the presently available fourth edition. The Stanford-Binet continues to be used mainly with children, although it may be given to adults. It is probably more widely used in educational applications than in clinical or industrial assessment. Its theoretical basis and format have changed over the various editions, but it continues to be based, at least in part, on a "g" or general intelligence factor model.

The assessment of infants and young children is a specialized skill that requires the use of instruments specifically

designed for that purpose, and particularly extensive training of examiners. Such instruments as the Gesell Developmental Schedules, the Cattell Infant Intelligence Test, and the Bayley Scales of Infant Development have been used for many years to assess development in infants. The major emphases are on assessing development and possible maturational delay. In infants, prior to acquisition of language, assessment is done by observation, such as looking for visual tracking and reaching for objects, or seeking an object placed out of sight. Later in development, there is an interest in whether language and memory are normal for the child's age. Such areas as perceptual-motor coordination, number concepts, and imitative abilities are generally evaluated. The current trend is toward performing these assessments during the pre-school period, at increasingly earlier ages.

The chapters of Part One describe instruments for assessing intelligence from shortly after birth to old age. These evaluations are performed across the life-span and require different instruments and examiner skills. The different assessment instruments used vary not only in content but also in the underlying theory upon which they are based. Issues, such as the matter of whether intelligence is a unitary general ability ("g") or a combination of a number of intelligences, as proposed by Gardner (1999), are still debated. Currently, the conceptualization of intelligence within a neuropsychological framework is a matter of great interest. The relative roles of heredity and environment remain a hotly debated issue. The relationship between intelligence and achievement in natural environments has been intensively studied. Elsewhere in this book are discussions about the cultural fairness of cognitive tests. The considerations raised in these discussions have crucial implications for the use and interpretation of intelligence tests.

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