

Third Edition

Mental Retardation

Nature, Cause, and Management



George S. Baroff

with J. Gregory Olley



MENTAL RETARDATION:

Nature, Cause, and Management
Third Edition

by

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PREFACE

This is the third edition of a text first published in the 1970s. Like its predecessors, it aspires to comprehensiveness and readability. Targeted to upper-level undergraduate and graduate students and to professionals in the field, the book examines three aspects of the disability of mental retardation—its nature, its causes, and its management or treatment. Organized similarly to the earlier editions, the first half of the book is devoted to the nature and cause of mental retardation, and the latter half focuses on its habilitative aspect. A new feature is the inclusion of a summary and discussion questions at the end of each chapter. Certainly, the most important new dimension is the addition of a second author, Dr. J. Gregory Olley. Dr. Olley is a behaviorally-oriented clinical psychologist with a broad experience in the diagnosis and treatment of the various behavior problems seen in the disorder. Dr. Olley, Associate Director of the Clinical Center for Development and Learning, the university-affiliated mental retardation program at the University of North Carolina at Chapel Hill, is the author of the sections on the diagnosis, cause, and treatment of the major behavior and psychiatric disorders found in mental retardation.

The initial chapter of the book provides an examination of the nature of intelligence and of the disorder that represents its greatest impairment, mental retardation. The exploration of mental retardation includes an analysis of its most recent definition by the American Association on Mental Retardation, its 1992 version, which, like its immediate predecessor, has been adopted by the American Psychiatric Association. The intent of the first chapter is to convey the effects of the disability on the adaptive potential of persons with mental retardation and on their family. It is a picture that can be marked by both chronic frustration and joyous accomplishment. Perhaps most common is the achievement of goals that surprise those of us struck more by apparent deficits than by latent potential.

The second chapter deals with a topic rarely addressed in the mental retardation literature, the impact of the disability on the “personality” and emotional well-being of the affected person. The intent is to represent the individual with retardation as a person, like ourselves, although

challenged by a disability that can create obstacles throughout life. The humanity of affected individuals is conveyed by first presenting a personality model useful for understanding all of us, disabled and nondisabled. The model is based on “needs,” physiological and psychological, that all of us share but whose gratification is particularly threatened by disability, whatever its nature. That these needs are commonly frustrated in persons with retardation is reflected, in part, in their relatively high rate of behavioral difficulties, the nature of which is addressed in the last two chapters.

Whereas the first two chapters convey the “nature” of mental retardation, Chapters 3, 4, and 5 are concerned with its causation, biological and psychological or psychosocial. The biological contribution is divided between genetic and nongenetic causes, the former presented in Chapter 3 and the latter in Chapter 4. Chapter 3 describes the major chromosomal and genetic forms of mental retardation with special attention to Down syndrome, Prader-Willi syndrome, and fragile X syndrome. Chapter 4 reviews the various forms of retardation that can arise in a presumably genetically normal embryo or fetus because of untoward events prior to birth, at birth, and during infancy and early childhood. Much attention is given to fetal alcohol syndrome, a form of retardation caused by exposure of the fetus to high levels of alcohol and wholly preventable. The chapter also includes descriptions of two neurological conditions often accompanied by mental retardation: cerebral palsy and epilepsy.

Chapter 5 explores the role of the psychological or psychosocial environment on cognitive development. It describes current thinking about the kinds of childhood experiences that are thought to encourage healthy cognitive and emotional development and, conversely, those that inhibit it. The latter part of the chapter reviews the research in early childhood education, such as Head Start, as its effects are revealed on the biologically normal infant and young child. Apart from assuring that children are brought into this world with their capacities undamaged by prenatal insult, our society has no greater responsibility than that of providing the kind of developmental experience that enables them to fully develop those capacities.

Chapters 6 through 10 are devoted to the habilitative services and “supports” that are intended to maximize the adaptive potential of the child, youth, and adult with mental retardation and to assist his or her family. Chapter 6 introduces the habilitative aspect by describing the current beliefs and “values” that underlie these services, especially those that encourage the full integration of persons with the disability into the general community. The lessons taught by our historical separation of disabled individuals from their families and home communities were painfully revealed in the exposés of our large mental-retardation institutions in

the 1960s. The ensuing scandal sparked the “deinstitutionalization” movement, one that has influenced the care of persons with psychiatric disorders as well as that of those with mental retardation.

Chapters 7 and 8 describe the services themselves. Chapter 7 presents those for children and youth, roughly divided between the preschool and school years. At the preschool level, the early childhood educational research related to children with retardation and other developmental disabilities is presented, especially with reference to its efficacy. The chapter content related to the school-aged child is organized around “special education”—its “what,” “where,” and “how.” The “how” dimension focuses on the instructional procedures that have proved most effective for children with serious learning difficulties. Also included is a description of such noneducational services as recreation, family support, and health.

Chapter 8 is devoted to the adult, and the topics covered are educational needs; vocational, “day,” and leisure services; the always vexing problem of “managing” the sexuality of persons who require varying degrees of supervision; health needs; and the special needs of older adults. With respect to the last topic mentioned, the aging of the general population is paralleled by that of those with disabilities, and increasing attention is being given to seniors with mental retardation.

The last two chapters are focused largely on the behavior problems seen in retardation. Chapter 9 describes the causation, diagnosis, and treatment of the most common challenging behaviors: aggression, repetitive movement disorder (stereotyped and self-injurious behavior), and obsessive-compulsive disorder. The chapter concludes with a brief discussion of the management of problematic sexual behavior.

The last chapter also deals with behavior problems, but here the focus is on those with formal psychiatric labels. Presented with regard to their nature and treatment are disorders of anxiety and mood, schizophrenia, Tourette syndrome, personality disorders, disorders of eating—pica and rumination—and substance abuse. The chapter also describes two other developmental disorders that include major learning difficulties: autism and the developmental learning disorders (learning disabilities). The majority of persons with autism also show mental retardation; those with learning disabilities, although grossly normal in intelligence, share with those with mental retardation academic learning problems, albeit much milder and more circumscribed.

In closing this preface, the senior author can only wonder at the enormous changes that have occurred in this field since his introduction to it in the 1950s. Perhaps most striking is the growing awareness on the part of the general population of persons with disabilities. Normally developing children have contact with their disabled peers in the classroom, and nondisabled adults meet their disabled counterparts in the workplace. The

barriers between disabled and nondisabled individuals are falling, to the advantage of both groups. The Americans with Disabilities Act is clear witness to the insistence of persons with disabilities that they are no longer willing to be treated as society's stepchildren. They want the same opportunity to participate in the life of their communities as is afforded to those of us who are not disabled, and their voices increasingly are being heard.

George S. Baroff

CONTENTS

Preface	ix
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1

The Nature of Mental Retardation

On the Nature of Intelligence	2
Issues Related to Classification as “Mentally Retarded”	8
Prevalence and Causation	12
Defining Mental Retardation	13
On the Nature of Intellectual Functioning in Mental Retardation	26
The Quality of Thinking in Persons with Mental Retardation	31
Adaptive Functioning: Problems and Potential	35
Mental Retardation as a “Developmental” Disorder	46
Impact of Mental Retardation on the Family	47
Summary	51
Possible Discussion Questions	52
Appendix	52
Notes	60

2

Personality and Mental Retardation

Overview	61
On Personality Itself	62
Applying the Personality Model to Persons Who Are Retarded	70
Summary	92
Possible Discussion Questions	93
Notes	94

3

Biological Factors in Mental Retardation: Chromosomal and Genetic

Overview	95
Some Basic Biological Concepts	95
Chromosomes and Mental Retardation	101
Genetic Disorders: Genes and Mental Retardation	124
Summary	150
Possible Discussion Questions	151

4

Nongenetic Biological Factors: Prenatal, Perinatal, and Postnatal

Overview	152
Prenatal Causes	152
Perinatal Hazards	170
Postnatal Hazards	174
Major Neurological Disorders Often Associated with Mental Retardation: Cerebral Palsy and Epilepsy	183
Summary	200
Possible Discussion Questions	201
Notes	201

5

Psychological Factors in Mental Retardation

Overview	202
Psychological Experience and Intellectual Development	202
Conditions of Gross Deprivation	205
Defining a "Favorable" Developmental Environment	209
Children Reared in Large Group-Care Settings	211
Children Reared by Retarded Parents	214
Foster Children and Adopted Children	217
Twin Studies	221
Prevention of Mental Retardation Through Early-Childhood Education	226
Summary	236
Possible Discussion Questions	237
Note	237

6**Introduction to Services and Supports**

Overview	238
The “Right” to Services and Supports	239
Normalization, Choice, and the “Quality of Life”	251
Summary	255
Possible Discussion Questions	256
Notes	256

7**Services and Supports to Children and Youth**

Overview	257
Prevention	257
Services to Preschool-aged Children	258
Services to School-aged Children and Youth	268
Summary	303
Possible Discussion Questions	304
Notes	305

8**Services and Supports to Adults**

Overview	306
Introduction to Adult Services and Supports	306
Educational Needs in Adulthood	308
Vocational and “Day” Services	320
Recreational and Leisure Services	328
Sexuality	333
Residential Services	339
Health Needs	345
Family-Support Services	348
Older Persons with Mental Retardation	349
Summary	357
Possible Discussion Questions	357

9**Maladaptive or “Challenging” Behavior: Its Nature and Treatment**

J. Gregory Olley

Overview	359
Behavior Problems and Mental Retardation	359

viii Contents

Diagnosing Behavior Disorders	361
Treatment Approaches	362
Severe Maladaptive or Challenging Behaviors and Their Treatment	370
Summary	394
Possible Discussion Questions	394

10

Psychiatric Disorders in Mental Retardation

J. Gregory Olley, George S. Baroff

Overview	396
Identifying Psychiatric Disorders in Mental Retardation	396
Major Psychiatric Disorders in Mental Retardation	398
Related Developmental Disorders	420
Summary	429
Possible Discussion Questions	430
References	433
Index	000

1

CHAPTER

The Nature of Mental Retardation

This is a book about *people*—children, youth, and adults who have difficulty in coping with activities of daily life because of *impaired general intelligence*. The extent of their difficulty is primarily related to the degree of intellectual impairment, although it also is much affected by both society's general attitude toward individuals with limited intelligence and the services provided to them. For those with *mild intellectual impairment*, the impact is greatest in the scholastic, vocational, and social domains. At levels of *moderate, severe, and profound* intellectual impairment, virtually every aspect of living is affected, the paramount consequence being to render the person incapable of assuming the degree of independence and personal responsibility expected for someone of his or her age.

The book covers each of the major dimensions of the disorder—its nature, its causes, and its treatment or management. The first two chapters examine its *nature*, the focus being on its intellectual, personality, and adaptive consequences and their impact on parents and siblings. In the next three chapters *causation* is explored, both biological and psychological. The remainder of the book is devoted to how we attempt to assist individuals with retardation¹ and their families, its *management* or treatment. This involves a description of the range of services developed for its prevention, detection, and habilitation throughout the life span—from infancy to older adulthood. The aim of habilitative services and “supports,” is to enable the individual to achieve his or her² level of adaptive competence and life satisfaction, a goal not different from yours and mine.

In this chapter we consider the nature of intelligence (it is the impairment in this capacity that is the essence of the disorder); issues related to who is classified as mentally retarded; the prevalence and causation of retardation; the most recent definition of the disorder, the 1992 version of the American Association on Mental Retardation (Luckasson et al., 1992); the nature of intellectual functioning in mental retardation; the quality of the thinking and adaptive functioning of those with retardation; the “developmental” nature of the disorder; its impact on the family; and adaptive potential in relation to chronological age and degree of retardation.

□ On the Nature of Intelligence

Because we all use the word “intelligence” and assume that its meaning is understood, it behooves us to consider what it really does mean to us. In a survey of the general population, three behaviors were equated with intelligence: *practical problem solving*, that is, reasoning logically, seeing all sides of a problem, keeping an open mind; *verbal ability*, that is, being a good conversationalist, enjoying good reading; and *social intelligence*, that is, being sensitive to social cues, admitting mistakes, and displaying interest in the world at large (Neisser, 1979). These popular conceptions also are shared by theorists on intelligence (e.g., Sternberg, Conway, Ketrin, & Bernstein, 1981) and in varying ways are incorporated in tests of intelligence.

Underlying “Factors” and “Processes”

Intelligence is manifested in our ability to learn, in the knowledge that we come to possess, and in our everyday coping behavior. But what underlies this most valued human capacity? We now consider what are regarded as the basic building blocks of “intelligent” behavior. These can be conceptualized in terms of *basic mental capacities* and *problem-solving processes*.

Basic Mental Capacities: The “Factorial” Approach

A product of the statistical technique of factor analysis, the factorial approach seeks to isolate the fewest common denominators or *factors* that account for the correlations between measures of intelligence. Two main factorial theories can be distinguished—intelligence viewed either as a relatively unitary phenomenon or as an amalgam of relatively independent abilities.

Intelligence as Relatively Unitary. The means by which modern researchers have sought to discover the fundamental ingredients of intelligence is through the statistical technique of factor analysis. In the

field of intelligence, it is used to isolate the fewest common denominators or factors that account for the correlations between measures of intelligence. Earlier views of intelligence tended to see it as a single or unitary phenomenon, one that manifested itself in virtually all aspects of cognition. Termed the *general* factor or *g* it was first identified by Spearman (1923, 1927) and characterized as the ability “to educe relations,” that is, to engage in deductive reasoning. It is this mental process, for example, that is utilized in understanding “analogies,” such as a lawyer is to a client as a doctor is to a . . . (Sternberg, 1981).

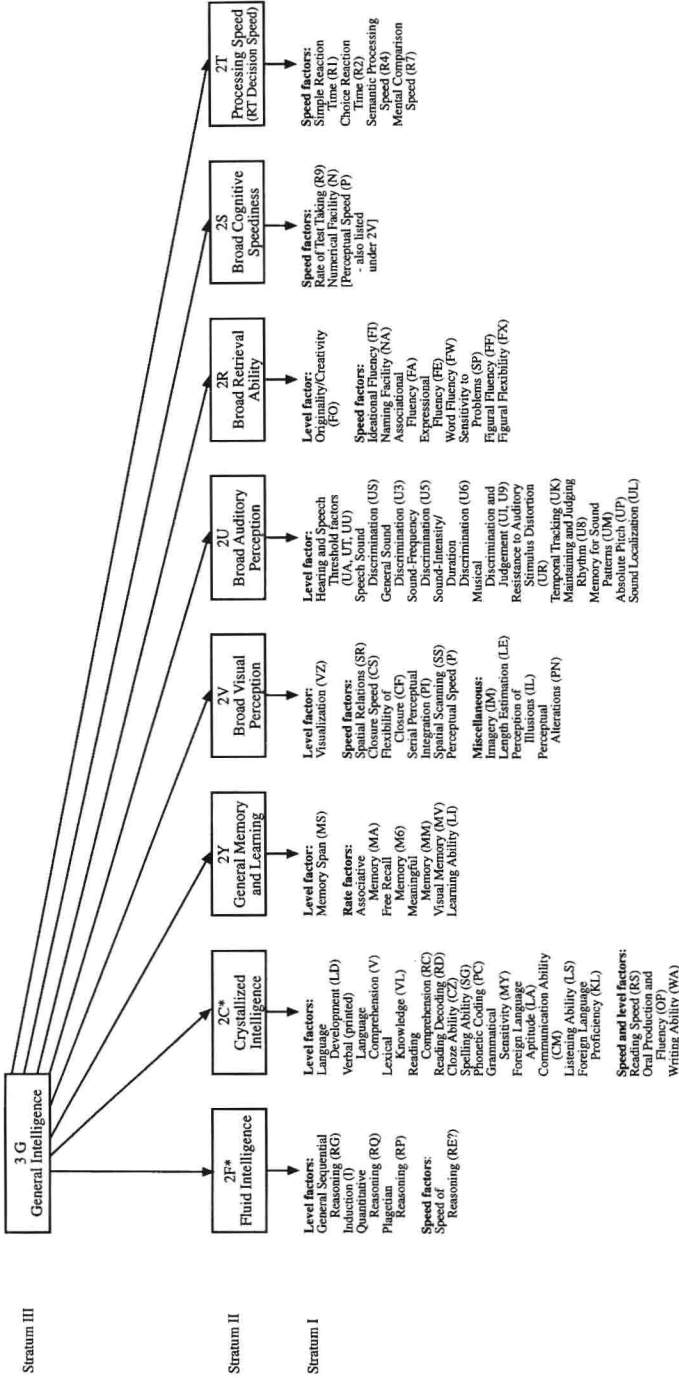
The prominence of *g* lies in the finding that various measures of cognitive functions that would be regarded as forms of “intelligence” tend to correlate with each other. This is not surprising because they share a common basis for the establishment of their “validity” as tests of intelligence: academic educability. Our capacities to read, write, and calculate, traditionally have been accepted as evidence of intelligence, and our intellectual ability commonly is judged by the speed and accuracy with which we perform these functions. In effect, intelligence tests share common content because they were validated on their capacity to predict school achievement.

But the significance of *g* is not limited to our academic capabilities. The capacity to reason pervades our mental lives, not only the serious work-a-day world but also in the recreational realm. The games we play, for example, commonly require the use of strategies, and in their employment we exercise the ability to reason.

In addition to *g*, Spearman recognized the existence of what he called “specific” abilities, but he left to future researchers to clarify their nature. Prominent earlier representations of specific abilities are those of the Thurstones’ (1941) “primary mental abilities,” Vernon’s (1950) two-factor model, and Guilford’s (1967) mental “operations.”³

Intelligence as Multifactorial. In contrast to the earlier view of intelligence as a largely unitary capacity, multifactor theories portray it as a melange of relatively independent abilities. The role of the general factor, *g*, continues to be recognized, and current models of intelligence include it as the uppermost stratum in a *hierarchy* of cognitive abilities. The general factor sits atop the hierarchy, and beneath it is nested a group of relatively unique specific or special abilities. The hierarchy of cognitive abilities, the ingredients of intelligence, may be represented at several levels of depth. Immediately below *g* are found a group of “broad” specific abilities, each of which itself subsumes more distinct or derivative abilities. This hierarchy is shown in Figures 1.1 and 1.2.

The model of intelligence shown in Figure 1.1 (Carroll, 1993) represents our current understanding of the nature of intelligence as this is revealed through factor analysis. With our cognitive abilities organized in terms of



* In many analyses, factors 2F and 2C cannot be distinguished; they are represented, however, by a factor designated 2H, a combination of 2F and 2C.

FIGURE 1.1. A three-strata hierarchical representation of cognitive abilities. (Reprinted with permission from J. B. Carroll, *Human cognitive abilities*, Cambridge University Press, 1993.)

three strata, *g* as “general intelligence” appears at the apex of the hierarchy in stratum III. At stratum II are found eight broad abilities, each receiving some contribution from *g* but also representing its own distinctive cognitive dimension.

Reading from left to right, the first two broad abilities are *fluid intelligence* and *crystallized intelligence*. The special contribution of Cattell (1971) and Horn (1968) fluid intelligence is equated with logical reasoning and crystallized intelligence with knowledge acquired through language. In its focus on logical reasoning, fluid intelligence largely would resemble *g*. Of these two forms of intelligence, the crystallized version is seen as very dependent on education; the fluid form may be more “native” or biological in its basis.

The other six broad abilities are *general learning and memory*, referring to immediate or short-term memory; *broad visual perception*, a mental ability central to spatial and mechanical understanding; *broad auditory perception*, sensitivity to various aspects of sound, such as speech sounds and rhyme; *broad retrieval ability*, the facile production of ideas, an ability pertaining to “creativity”; and two abilities related to “mental” speed—*broad cognitive speediness*, the speed of responding, and *processing speed*, reaction time and information-processing speed.

At stratum I, beneath each of the broad abilities are a large number of “narrow” or more specialized variants of the broad ability. At least 60 are now known (Carroll, 1997). Under fluid intelligence, for example, are found four kinds of reasoning—sequential, inductive, quantitative, and Piagetian. Of these, *g* was particularly associated with inductive reasoning. Crystallized intelligence encompasses a much wider number of narrow language-related abilities, such as language development, the understanding of language, knowledge of language structure, and reading decoding.

Specific Abilities and Intelligence Tests. The measurement of specific abilities has typified tests of intelligence. The most recent version of the venerable Stanford-Binet Intelligence Scale, its fourth edition (Thorndike, Hagen, & Sattler, 1986), is organized around the assessment of crystallized and fluid intelligence and memory. Figure 1.2 shows the cognitive hierarchy with *g* at stratum III, the three broad abilities at stratum II, and components of crystallized and fluid intelligence at stratum I. In fact, the characterization of the subtests within the scale conform to stratum I—verbal reasoning and quantitative reasoning under crystallized abilities and abstract-visual reasoning under fluid-analytic abilities. Note that “reasoning” is evaluated in both crystallized and fluid forms, the distinction pertaining to language in the former and the use of visual tasks in the latter.

A very similar array of “specific” abilities is found in the Woodcock-Johnson Psycho-Educational Battery (Woodcock & Johnson, 1989), an intelligence test widely used in school settings. The Kaufman Brief Intelligence Test (K-BIT) (Kaufman & Kaufman, 1990) is organized around two broad abilities—crystallized and fluid intelligence.

Before terminating this section, it should be noted that recent researchers have expanded the array of specific abilities to include such capacities as “practical” and “social” intelligence. The former is equated with competence in the everyday world (e.g., Sternberg and Wagner, 1986), and the latter with effectiveness in social or interpersonal situations. Although both are relevant to the problems confronting people with mental retardation, impairment in social intelligence is of special interest. Lack of sophistication and social awkwardness are prominent features of mental retardation. There is a diminished awareness and sensitivity to what is appropriate in social situations. This is also characteristic of persons with the developmental disorder of autism, in whom retardation is commonly present, and is found even in those whose intellectual functions are normal. In retardation, however, it appears to be a direct consequence of intellectual impairment, and much effort is expended in attempting to “teach” more appropriate social interactions.

Information-Processing Models of Intelligence

The nature of intelligence also has been explored through a study of the mental processes that we employ in problem solving. Particular attention has been given to so-called executive functions, the processes associated with considering the nature of a given problem and the resources and strategies necessary to its solution. Parenthetically, this is another approach to intelligence that has much relevance to mental retardation. Individuals with mental retardation tend to have great difficulty in generating the kind of strategies that we commonly employ in helping us to solve problems.

An intelligence test (PASS) based on an information-processing model that incorporates an executive function seeks to assess planning (an executive function), attention, and simultaneous and successive modes of understanding information (Das, Naglieri, & Kirby, 1994). The simultaneous mode tends to be tied to understanding through vision (Carroll’s broad visual perception) and the successive mode through language (broad auditory perception). Information-processing theorists have been active in mental retardation, and some of their findings related to retention of new information and to speed of responding are presented in a later section on the “quality of thinking” in persons with mental retardation.