One

ESSENTIALS OF MEMORY MEASUREMENT USING THE WRAML3 AND THE EMS: INTRODUCTION AND OVERVIEW

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Memory is fundamental in determining who we are, what we become and what we perceive our past to have been. It is sometimes overlooked that activities as varied as psychotherapy, job training, and forming friendships are dependent on reasonably intact memory systems for such interactions to succeed. Those who pause to reflect on it usually marvel that the phenomenon of recall is a "by-product" of electrical connections and chemical interactions within our brains. Many have awe for those few who can remember with complete clarity the activities of a day randomly chosen from many years ago or correctly reproduce days or weeks later material only briefly perused. Less dramatically, we ourselves can recount events such as annual holiday get-togethers over the last few years, with only slight distortions of the differing locations and happenings of those times. We can also be stunned when we evaluate someone and discover after a mid-session break that they do not remember meeting us or the tasks just completed.

Essentials of WRAML3 and EMS Assessment, First Edition.
Wayne V. Adams, David V. Sheslow, and Trevor A. Hall.
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Memory is so fundamental to cognition that it received prominent attention early by both test pioneers, Binet and Wechsler. It may be surprising to learn that Wechsler developed a memory scale (i.e., the *Wechsler Memory Scale* [Wechsler, 1945b]) before any of his standardized child- or adult-focused intelligence instruments! This book focuses on two recent additions to the long list of increasingly sophisticated memory tests that have since evolved. In the pages that follow, it is the intent of the authors to provide a solid understanding of the *Wide Range Assessment of Memory and Learning, Third Edition* (WRAML3) (Adams & Sheslow, 2021) and the *Everyday Memory Survey* (EMS) (Hall et al., 2021) so that their purpose, administration, and interpretation are clearly understood. Whether used as stand-alone measures or parts of a comprehensive testing battery, it is hoped that users will be able to better address relevant referral questions with greater diagnostic sophistication, leading to meaningful recommendations that bring about a better quality of life for those at the center of the assessment, as well as those working with them.

IS MEMORY ASSESSMENT NEEDED?

Is memory assessment really needed? That is a reasonable question to ask at the outset of this book. After all, psychologists have no shortage of test instruments available, but most users have a shortage of available time. When have you heard a trainee or seasoned clinician say, "I have too much time to evaluate this client?"

In the "real world," memory is largely an ignored phenomenon unless it is not working properly. Teachers who have had a severely brain-injured student return to the classroom, or families with an aging parent entering dementia know only too well the transformative impact of altered memory, not only on the affected persons but also on those who know and interact with them. And as discussed in Chapter 2, the paradox about memory is that while it has been studied for centuries, we still have limited understanding of how it actually works.

The increasing impact of neuroscience on psychology and the lay public (e.g., ads for medications that purport to have a positive impact on memory loss, and almost daily news stories around memory loss) have led to an increased awareness that memory is a critical aspect of human cognitive functioning. Rapid Reference 1.1 lists common

Rapid Reference 1.1

A Sampling of Common Pediatric and Adult Conditions Triggering Referrals for Psychological Assessments which Often Uncover Memory Deficits

Typical Common Referrals for Children and Adolescents	Typical Common Referrals for Adults
Traumatic Brain Injury	Traumatic Brain Injury
Sports Injuries	Sports Injuries
Motor Vehicle Accidents	Motor Vehicle Accidents
Abuse	Falls
Acquired Brain Injury	Acquired Brain Injury
Stroke	Stroke
Infectious/Inflammatory Conditions	Infectious/Inflammatory Conditions
Near Drowning	Near Drowning
Cardiac Arrest	Cardiac Arrest
Critical Care Intervention	Critical Care Intervention
Attention Deficit/Hyperactivity Disorder	Attention Deficit/Hyperactivity Disorder
Brain Tumor	Brain Tumor
Cancer Treatment	Cancer Treatment
Brain Infections	Brain Infections
Prenatal Alcohol/Substance Exposure	Alcoholism and Other Substance Abuse
Seizure Disorders	Seizure Disorders
Intellectual Disability	Thyroid Disorders
Autism Spectrum Disorder	Kidney Disorders
Genetic Disorders	Liver Disorders
Learning Disability	Hypoxia (e.g., cardiac arrest)
Substance Abuse	Medication Side Effects
	Dementia
	Mild Cognitive Impairment
	Normal Pressure Hydrocephalus

referral conditions that often lead to assessments typically yielding results showing that memory has been negatively impacted. Triggered by acute events or chronic conditions, the importance of obtaining an estimate of memory functioning as part of any comprehensive psychological assessment should not be underestimated.

To further press the argument that some kind of memory assessment in many cases is a reasonable inclusion, let us take a look at the very common referrals of Developmental Learning Disorder (LD) and Attention Deficit/Hyperactivity Disorder (ADHD). Such referrals of children and adults are made every day in schools, and to agencies and to those in private practices across the country, yet, few psycho-educational assessments typically include much by the way of memory assessment other than possibly a few short-term memory tasks. A dissertation study (Weniger & Adams, 2006), however, suggests that for those with LD or ADHD, memory deficits are fairly common, and for those with both conditions, memory deficits may be pervasive and even profound. Figure 1.1 shows the results of that study using the WRAML2. (Given the degree of overlap between WRAML2 and WRAML3, it is reasonable to expect similar results, but that assumption needs empirical replication.) You can see that for those with ADHD, generally immediate verbal memory performance is not that different than matched controls. As expected, the Attention/Concentration Index is lower than controls, and Visual Immediate Memory is a bit lower, primarily from lower performance on a task making perceptual-motor demands, a common finding in the literature (Ek et al., 2007; Pitcher et al., 2003). Of even more interest are the results for children with Developmental Reading Disorder; those children show uniformly lower performance on all the immediate memory indexes, including Working Memory. Of greatest interest though are the dramatically lower results of those children with both disorders (about 40% of those who present with ADHD), and these results were replicated even on the recognition memory tasks that assess a rather robust form of memory storage. If these data can be replicated, it would suggest that an ADHD or LD assessment that does not include some in-depth memory assessment is incomplete, especially given the academic

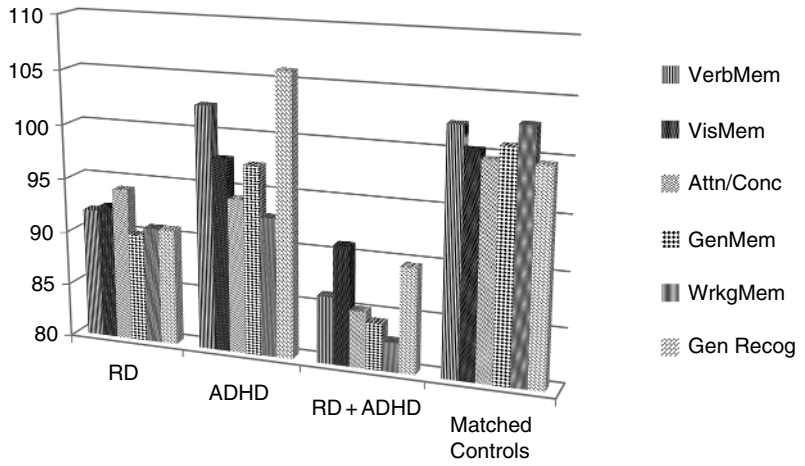

Figure 1.1 WRAML3 Standard Score performance of children with ADHD, RD (reading disorder), and both disorders, compared to matched controls.

Note: RD = reading disorder, ADHD = attention deficit hyperactivity disorder, RD + ADHD = having both the prior conditions, VerbMem = Verbal Immediate Memory Index, VisMem = Visual Immediate Memory Index, WrkgMem = Working Memory Index, and Gen Recog = General Recognition Index.

concerns (which are heavily memory related) that trigger most of these assessments. How often are memory compensatory strategies part of the recommendations for helping ADHD children (or adults) with reading delays?

On the other end of the population demographic are older individuals who are living longer than their parents and, as such, present with a higher frequency of concerns around potential effects of dementia, especially of the Alzheimer's type, as well as mild cognitive impairment. Unique to the older age group is the need for repeated assessments over time to tease apart "normal" decline in memory function vs. that possibly related to an additional degenerative process. Accordingly, comprehensive as well as abbreviated batteries of memory tests have increasingly become part of the older adult's assessment experience.

Because of the health and safety importance of turning neuropsychological test data into useful recommendations related to everyday functioning, as noted above, this book also includes the EMS,

a standardized self- and other-report survey of everyday memory performance. When used together, the authors feel confident that combining each test's results will greatly enhance the number and usefulness of the recommendations included in the typical psychological report and debriefing session.

ORGANIZATION OF THIS BOOK

In the chapters that follow, the authors hope to better familiarize you with both the WRAML3 and EMS. Chapter 2 provides a brief overview of research with which those assessing memory should have familiarity, both for appreciating the empirical basis upon which memory assessment was founded, as well as the neurological basics involved in this core set of cognitive processes. The subsequent chapters are devoted to the use of the WRAML3 and EMS, highlighting interpretation more than administration or psychometric details of the instruments since those are covered thoroughly in their respective manuals. As the chapters progress, you will find that the interpretive focus becomes more complex eventually including several case vignettes for illustration and discussion. Relatively few conventional case studies have been included since full psychological assessments tend to be lengthy, and therefore their case studies also tend to be lengthy and, at times, tedious, therefore often skimmed or skipped by the reader. Hopefully, including shorter vignettes will be easier to follow.

A later section of the book is devoted to the EMS that, as the name suggests, focuses upon perceived capability with memory tasks of everyday life. (Readers wondering why a pediatric version is not available will find the answer in the introductory EMS chapter!) The EMS is a measure intended to be used in conjunction with a formal memory test measure such as WRAML3, and provides a brief, structured opportunity for the client and their significant other to each furnish input on how well typical memory-laden daily life experiences are performed. The scale is intentionally concrete and grounded in everyday experiences to which almost all people can relate. By using EMS input from both the client and someone who knows the client well, areas of

perceived memory concern can be flagged. Once substantiated, tailored remediation recommendations can be offered in areas of identified concern, based on EMS findings, memory test results, and other relevant data uncovered during a comprehensive evaluation. One of the most common complaints heard from laypeople and especially from other professionals when sent a psychological report is, despite many pages of test results, there are few practical and specific recommendations that can be used to remediate the deficits that triggered the referral. For those working with adults, using the EMS and WRAML3 together will provide useful test results on a broad array of memory functions as well as provide ecologically meaningful targets for useful recommendations; hopefully, that will address the justifiable criticism.

The book concludes with a selection of common WRAML3 and EMS questions which have been presented to the authors by trainees, colleagues, or users contacting us personally or by email.

The authors have deliberately tried to keep the tone and content of this volume practical for both the experienced clinician as well as someone just starting a professional career in assessment. The reader will notice inclusion of the supplemental helps that those using the *Essentials* series have come to expect such as "Rapid Reference," "Don't Forget," "Caution," and "Test Yourself" inset boxes. In addition, the authors have included subtest administration checklists that can be used to help establish and maintain WRAML3 administration competency; these are especially intended for use by supervisors or the professionals themselves as they video and review practice administrations as is commonplace in therapy training, but, curiously, occurs much less in learning assessment skills.

Readers of this book will encounter several terms used for those being evaluated (e.g., client, patient, examinee, and participant) and those doing the evaluation (e.g., clinician, examiner, evaluator, and test user); in the pages that follow, the terms are used interchangeably reflecting terminology found in various clinical settings.

The authors have mercifully made no attempt to be exhaustive in their topical discussions other than those related directly to the two test instruments. For them, there is a thorough emphasis on practical

content and clinical utility. It is hoped that by utilizing this volume, the reader will become increasingly confident in how to use and interpret the WRAML3 and/or EMS, as well as feel more able to exploit the instruments' strengths and clinical subtleties to better assist those who are referred with suspected or known memory and learning issues.

Finally, the authors are aware that most readers will not pick up this book and read it from cover to cover in one sitting! Instead, it is more likely that on many occasions, specific chapters or subsections of chapters will be selected to answer specific questions or gain more background or understanding of some specific part of the WRAML3 or EMS. Consequently, there is some redundancy found whenever a section depends on principles or content stated earlier but is needed again for clarity for those who did not read the earlier narrative or for whom that reading occurred a while ago. We ask some forbearance from those whose interest will be so captured that they will read this volume right through from beginning to end. To their advantage, repetition is a proven vehicle for improving recall!