GUIDE

A Language and Social Skills Assessment Program
for Children with Autism or Other Intellectual Disabilities

VB-MAPP

Verbal Behavior Milestones Assessment and Placement Program

Second Edition

Mark L. Sundberg, Ph.D., BCBA-D

TABLE OF CONTENTS

A Behavioral Approach to Language Assessment

The Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP) presented in this Guide and the accompanying Protocol is based on B.F. Skinner's *Verbal Behavior* (1957), a landmark analysis in the study of language. Skinner's book provides a comprehensible and sensible approach to language that is derived from the solid empirical foundation of learning principles, and has stood the test of time (Andresen, 1990; Schlinger, 2008). In addition to Skinner's study of language, his groundbreaking work in behavioral psychology and learning led to the professional field known as applied behavior analysis (Cooper, Heron, & Heward, 2007; Morris, Smith, & Altus, 2005; Skinner, 1953).

Applied behavior analysis (ABA) has provided many successful applications to the learning and language problems faced by children with autism or other intellectual disabilities (e.g., Guess & Baer, 1973; Halle, Marshall, & Spradlin, 1979; Koegel & Koegel, 1995; Krantz & McClannahan, 1993; Leaf & McEachin, 1998; Lovaas, 1977, 2003; Maurice, Green, & Luce, 1996; Wolf, Risley, & Mees, 1964). The VB-MAPP brings together the procedures and teaching methodology of ABA and Skinner's analysis of verbal behavior in an effort to provide a behaviorally based language assessment program for all children[1] with language delays.

About the VB-MAPP

There are five components of the VB-MAPP presented in this Guide. The first is the **VB-MAPP Milestones Assessment,** which is designed to provide a representative sample of a child's existing verbal and related skills. The assessment contains 170 measurable learning and language milestones that are sequenced and balanced across three language development age levels (0-18 months, 18-30 months, and 30-48 months). The skills assessed include mand, tact, echoic, intraverbal, listener, motor imitation, independent play, social and social play, visual perceptual and matching-to-sample, linguistic structure, group and classroom skills, and early academics. Included in the Milestones Assessment is the Early Echoic Skills Assessment (EESA) subtest developed by Barbara E. Esch, Ph.D., CCC-SLP, BCBA-D.

The second component is the **VB-MAPP Barriers Assessment,** which provides an assessment of 24 common learning and language acquisition barriers faced by children with autism or other developmental disabilities. The barriers include behavior problems, instructional control, impaired mands, impaired tacts, impaired echoic, impaired imitation, impaired visual perception and matching-to-sample, impaired listener skills, impaired intraverbal, impaired social skills, prompt dependency, scrolling, impaired scanning, impaired conditional discriminations, failure to generalize, weak

---

[1] The VB-MAPP can be used for any individual with significant language delays regardless of age. Several items need to be modified or dropped for older persons (e.g., some of the early skills in the play area, such as cause and effect play), but the core language and social skills remain the same. For ease of reading, "child" and "children" will be used throughout the manual.

motivators, response requirement weakens the motivators, reinforcer dependency, self-stimulation, impaired articulation, obsessive-compulsive behavior, hyperactive behavior, failure to make eye contact, and sensory defensiveness. By identifying these barriers, the clinician can develop specific intervention strategies to help overcome these problems, which can lead to more effective learning.

The third component is the **VB-MAPP Transition Assessment**, which contains 18 assessment areas and can help to identify whether a child is making meaningful progress and has acquired the skills necessary for learning in a less restrictive educational environment. This assessment tool can provide a measurable way for a child's individualized education program (IEP) team to make decisions and set priorities in order to meet the child's educational needs. The assessment is comprised of several summary measures from other parts of the VB-MAPP, as well as a variety of other skills that can affect transition. The assessment includes measures of the overall score on the VB-MAPP Milestones Assessment, the overall score on the VB-MAPP Barriers Assessment, negative behaviors, classroom routines and group skills, social skills, academic independence, generalization, variation of reinforcers, rate of skill acquisition, retention, natural environment learning, transfer skills, adaptability to change, spontaneity, independent play, general self-help, toileting skills, and eating skills.

The fourth component is the **VB-MAPP Task Analysis and Supporting Skills**, which provides a further breakdown of the skills, and serves as a more complete and ongoing learning and language skills curriculum guide. There are approximately 750 skills presented covering 14 domains of the VB-MAPP. Once the milestones have been assessed and the general skill level has been established, the task analysis and supporting skills can provide further direction for a particular child. There are two types of skills included in this section of the VB-MAPP. The task analysis skills can be identified as those that are directly related to the target milestone and represent earlier steps in reaching that milestone. The supporting skills contains a large number of language, learning, and social skills that a child needs to acquire in addition to the specific milestones. These skills may not be significant enough to identify as milestones or IEP goals, but each of them play an important role in moving a child's repertoire closer to that of a typically developing child. They also provide parents and teachers with a variety of activities that can facilitate generalization, maintenance, spontaneity, retention, expansion, and the functional use of skills in a variety of educational and social contexts.

The task analysis of the learning and language skills contained in the VB-MAPP presents an updated sequence of the verbal behavior curriculum that is developmentally balanced. Collectively, these four components of the VB-MAPP represent over 40 years of research, clinical work, field-testing, and revisions by the author and colleagues (Partington & Sundberg, 1998; Sundberg, 1980, 1983, 1987, 1990; Sundberg & Michael, 2001; Sundberg & Partington, 1998; Sundberg, Ray, Braam, Stafford, Rueber, & Braam, 1979).

The fifth and final component is the **VB-MAPP Placement and IEP Goals**, which correspond with the four assessments above. The placement guide provides specific direction for each of the 170 milestones in the Milestones Assessment as well as suggestions for IEP goals. The placement recommendations can help the program designer balance out an intervention program, and ensure that all the relevant parts of the necessary intervention are included.

Research Using the VB-MAPP

The VB-MAPP is designed to be an empirical measure of a child's language and social skills, and has been used for that purpose in several different published research studies (e.g., Grannan, & Rehfeldt, 2012; Gunby, Carr, & LeBlanc, 2010; Kaitlin et al., 2013; Lepper, Petursdottir, & Esch, 2013; Lorah et al., 2013; Vandbakk et al., 2012; Watts et al., 2013). It also can be used for purposes of providing outcome data on participants' progress with any type of language

intervention program (e.g., Dipuglia & Miklos, 2014, May; Sundberg, Hall, & Elia, 2014, May). Additional studies that have used the VB-MAPP in research can be found on the FAQs page at www.avbpress.com.

The Importance of Assessment

The primary purpose of an assessment is to identify the baseline level of a child's skills, and to compare it to those of his[2] typically developing peers. If an intervention program is warranted, the data from the assessment should provide the essential information for determining the basic elements of an IEP and a language curriculum. The assessment should provide guidance in terms of (1) what skills need to be the focus of the intervention (2), what level of the skill should the intervention program begin with, (3) what barriers to learning and language acquisition need to be addressed (e.g., non-compliant behaviors, echolalia, failure to generalize), (4) what type of augmentative communication, if any, might be best for a child, (5) what specific teaching strategies might be the most effective for the child (e.g., discrete trial training, natural environment training), and (6) what type of educational setting might best meet the child's needs (e.g., in-home, 1:1 classroom, small group, or full inclusion).

In order to obtain the maximum benefit from the VB-MAPP, it is essential that the assessor have a basic understanding of the principles of behavior analysis and Skinner's analysis of verbal behavior. It is beyond the scope of the current Guide to provide an overview of behavior analysis and the reader is referred to the many texts on this topic (e.g., Cooper, Heron, & Heward, 2007; Malott & Trojan, 2008; Martin & Pear, 2003; Miltenberger, 2004; Vargas, 2009). However, this chapter will provide a brief overview of Skinner's analysis of verbal behavior and how to use it to assess a child's language and related skills (for more detail on Skinner's analysis and its applications to education and special education, the reader is referred to Sundberg, 2007 and Vargas, 2009).

Skinner's Analysis of Verbal Behavior

Skinner (1957) proposed that language is learned behavior, and that the same basic principles of behavior that constitute the foundation of applied behavior analysis apply to verbal behavior. According to Skinner (1957), humans acquire their ability to talk and understand language much in the same way that they learn other behaviors such as reaching, grasping, crawling, and walking. The motor behavior involved in vocal cord movement gets shaped by the effects those movements produce on others (including the infant himself). A baby cries and adults attend to (i.e., reinforce) the child in various ways. Crying thus gradually becomes a form of social communication (for a more complete analysis see Bijou & Baer, 1965). Language has special properties in that it involves a social interaction between speakers (those doing the talking) and listeners (those responding to the speaker).

The Term "Verbal Behavior"

In searching for a name for his analysis of language, Skinner chose the term "verbal behavior" because he found the term "speech" too limiting (e.g., gestures can be communicative), and the term "language" too general (e.g., the practices of a whole community of speakers as in the "English langauge"). Thus, he chose "verbal behavior" and his usage of this term includes all forms of communication such as sign langauge, icon exchange (e.g., PECS), written language, gestures, or any other form that communicative responses might take. And, the focus is on individual speakers and listeners rather than the practice of a whole language community (e.g., speakers of English rather than the linguistic rules of English).

---

[2] For ease of reading, the male gender is used as a pronoun for the child being assessed throughout the VB-MAPP.

TACT – LEVEL 1

TACT 1-M	**Tacts 2 items with echoic or imitative prompts (e.g., people, pets, characters, or favorite objects). (T)**

Objective: To determine if a particular nonverbal stimulus (e.g., a child's mother) evokes the word "mama" (or an approximation). A child's first tacts may also be part mand in that young children tend to tact things that are reinforcing to them, such as their parents, siblings, pets, favorite characters, toys, etc. It may be hard to tell if the response "mama" is a mand or a tact, but that's okay because at this early stage the goal is to determine if the child discriminates between the nonverbal stimulus of his mother versus, for example, his father. If he calls everybody "mama" do not give him credit for this skill.

Materials: Use natural reinforcers and items that occur in the child's daily environment.

Examples: "Doggie," "mama," "dada," "Elmo," "Sponge Bob," "Dora," etc.

1 point score: Give the child 1 point if he names 2 items with or without echoic prompts when tested (e.g., "Who's that?" or "What's that?").

½ point score: Give the child ½ point if he names 1 item with or without echoic prompts when tested, but do not give him ½ point if he calls everything by the same name.

TACT 2-M	**Tacts any 4 items without echoic or imitative prompts (e.g., people, pets, characters, or other objects). (T)**

Objective: To determine if the tact repertoire is growing, and if an adult can evoke tacts during testing without echoic or imitative (for signers) prompts. These tacts may also still be part mand at this point.

Materials: Use common items and reinforcers in the child's natural environment.

Examples: "Spiderman," "Nemo," "car," "doll," "juice," "book," etc.

1 point score: Give the child 1 point if he names 4 items without echoic prompts when tested.

½ point score: Give the child ½ point if he names 3 items without echoic prompts when tested.

TACT 3-M	**Tacts 6 non-reinforcing items (e.g., *shoe, hat, spoon, car, cup, bed*). (T)**

Objective: To determine if the tacts are breaking free from motivation as a source of control, and that the tact repertoire is growing.

Materials: Use common items in the child's natural environment.

Examples: "Table," "chair," "book," "shirt," "door," "cat," "dog," "bowl," etc.

1 point score: Give the child 1 point if he tacts 6 items without echoic prompts when tested. Do not give the child credit for responses that are also part mand (e.g., he says "book" because he sees and wants the book).

½ point score: Give the child ½ point if he tacts 5 items.

The Barriers Assessment Scoring Instructions

The VB-MAPP Barriers Assessment is a tool that is designed to identify and score twenty-four learning and language acquisition barriers that might impede a child's progress (Table 6-1). The purpose of this assessment is to determine if a barrier exists. Once a specific barrier has been identified, a more detailed descriptive and/or functional analysis of that problem is required. For example, there are many ways that a mand repertoire can become impaired, and an individualized analysis will always be necessary to determine what the nature of the problem is for a specific child, and what intervention program might be most appropriate.

There are several general categories of barriers that can affect learning. First, many children with autism or other developmental disabilities exhibit strong and persistent negative behaviors that impede teaching and learning (e.g., tantrums, aggression, self-injurious behaviors). Second, any one or more of the verbal operants or related skills may be absent, weak, or in some way impaired (e.g., echolalia, rote intraverbals). Third, social behavior can also become impaired for a variety of reasons (e.g., limited motivation for social interaction or impaired mands). Fourth, there are several fundamental barriers to learning that must be analyzed and ameliorated to achieve significant gains (e.g., the failure to generalize, weak motivators, or prompt dependency). Fifth, there are a variety of specific behaviors that can compete with learning (e.g., self-stimulation, hyperactive behavior, or sensory defensiveness). And, finally, some problems may be related to physical or medical barriers that must be overcome, accommodated, or accounted for in some way (e.g., seizures, illnesses, sleep disorders, cerebral palsy, visual impairments).

An intervention program for a child with autism or other developmental disabilities should include both skills that need to be increased (e.g., mands, tacts, play and social skills), and behaviors or barriers that need to be decreased (tantrums, rote responding). Often, it is the case that the absence of skills and the presence of barriers are closely related, and a comparison of a child's scores on both the Milestones Assessment and the Barriers Assessment can provide direction for a more focused intervention program. For example, the Milestones Assessment may show that a child needs to learn to mand (see Figure 2-1), and this skill should be targeted for intervention with a focus on increasing the number of different mands that the child emits. However, the barriers assessment might reveal that a child is excessively prompt bound and scrolls (i.e., guesses) through words when learning new vocabulary (see Figure 6-1). These two barriers must be removed in order for the mand repertoire to grow and become functional for the child. Thus, the intervention program should contain a careful focus on freeing the existing mands from prompts and other unwanted sources of control and eliminate scrolling when manding. These problems must be fixed before new mands are added, because until they are, the mands will be of little true functional value to the child. In order to make the relation between Milestones and Barriers easier to assess, the two summary forms can be viewed side-by-side in the VB-MAPP Protocol (pages 4 and 5).

Table 6-1
Twenty-four learning and language acquisition barriers.

Negative behaviors

Instructional control (escape and avoidance behaviors)

Absent, weak, or impaired mand

Absent, weak, or impaired tact

Absent, weak, or impaired motor imitation

Absent, weak, or impaired echoic

Absent, weak, or impaired matching-to-sample

Absent, weak, or impaired listener repertoires

Absent, weak, or impaired intraverbal

Absent, weak, or impaired social behavior

Prompt dependent

Scrolling responses

Impaired scanning skills

Failure to make conditional discriminations (C^Ds)

Failure to generalize

Weak or atypical motivators

Response requirement weakens motivation

Reinforcement dependent

Self-stimulation

Articulation problems

Obsessive-compulsive behavior

Hyperactivity

Failure to make eye contact, or attend to people

Sensory defensiveness

Some of the barriers presented in this assessment appear in different configurations in other components of the VB-MAPP. For example, the Barriers Assessment contains an item identified as "Failure to generalize," and the Transition Assessment (Chapter 7) contains a measure on "Generalization of skills across time, settings, behaviors, materials, and people." While the measurements are similar (but not exactly the same), each fit within the context of the two separate assessments. Rather than referring the reader back and forth between the instruments, they appear in both of them.

The Transition Assessment Scoring Instructions

The VB-MAPP Transition Assessment is designed to provide an objective evaluation of a child's overall skills and existing learning capabilities. There are 18 measurable areas identified on the Transition Assessment that collectively can help educators and parents make decisions and set priorities. The decision to move a child to a different placement or different type of educational format must be determined by the child's Individualized Education Program (IEP) team. The Transition Assessment simply provides the team with quantifiable information relevant to that decision.

It is often difficult to determine what educational setting and instructional format may best suit an individual child. A common goal for many educators and parents of children with special needs is transitioning a child from a more intensive program to that of a regular educational setting, whether through integration (part-time placement) or inclusion (full-time placement). However, it is not uncommon to base transition decisions on personal beliefs, a movement, emotion, or economics, rather then on what type of educational setting and instructional format will be of the best value to the child. That is, one in which he will truly learn the best, rather than just be managed or kept busy. Transition problems can also be observed in the opposite direction as well, where a child is held in a 1:1 or intensive teaching program too long, when in fact he could benefit from the learning and social opportunities characteristic of a less restrictive setting.

The range of placement options available to an individual child varies across school districts. There are often a variety of choices within a large public school setting, but the breath of a special education program is usually dependent on the size of the district and resources available. Some districts may also make use of private programs and agencies that provide services. The choices for placement vary along a continuum of what is commonly identified as "restrictiveness." A highly restrictive setting—such as in-home, one-on-one intervention—requires extensive resources. In contrast, fewer resources are necessary for a child who can learn in an inclusion setting. The general goal, and intent of special education law, is to place a child in the least restrictive educational setting, where he will make the most meaningful and measurable progress. The choices may include, in-home programs, special day classrooms, classrooms specifically designed for children with autism, private schools, learning handicapped classrooms, communicatively handicapped classrooms, pre-kindergarten classrooms, regular education classrooms with support, and full inclusion in a regular education classroom. The availability of these or similar classrooms vary across individual school districts.

Interpreting the Level 1 Assessment: Curriculum Placement and Writing IEP Goals

The results of the Milestones Assessment, the Barriers Assessment (Chapter 6), and the Transition Assessment (Chapter 7) provide a comprehensive overview of a child and can be used to design an individualized intervention program. These three assessments identify what skills a child needs to acquire, and what language and learning barriers need to be reduced or removed in order to move the child forward. The VB-MAPP Supporting Skills list contained in the Protocol (pp. 38-72) can also provide further information about the many additional skills that can be incorporated into a daily program. Although the Supporting Skills list is not designed to be a formal assessment tool because of its size (approximately 500 skills), it can be used to identify skills that contribute to the development of a more complete intervention program. The Task Analysis list, also contained in the Protocol (pp. 38-72), can provide earlier steps towards meeting each milestone.

The next three chapters will describe how to read a VB-MAPP Milestones Assessment profile, and how to determine placement within a verbal behavior intervention program. The basic components of a verbal behavior program can be found in any number of available texts and book chapters (e.g., Barbera, 2002; Greer & Ross, 2008; Schramm, 2011; Sundberg, 2007; Sundberg & Partington, 1998; Vargas, 2009). The current chapter focuses on a child whose scores fall primarily in Level 1 of the Milestones Assessment. Following several general points about a Level 1 program, each milestone will be presented with specific recommendations for the next step after meeting that milestone.

How to Interpret the Overall VB-MAPP Milestones Assessment Results

The first step in reading a VB-MAPP Milestones profile is to identify the general level of the child. A child who scores primarily in the Level 1 area will require an intervention program quite different from a child whose scores fall primarily in Level 2 or Level 3. Many children may show specific strengths and weaknesses, and may score points in multiple levels. However, a child could be identified as primarily scoring in Level 1, Level 2, or Level 3. Since each level is designed to correspond with an approximate linguistic and developmental age, certain skills, targets, and teaching styles may be more effective with particular levels (e.g., intensive 1:1 teaching strategies versus natural environment and group teaching strategies). In addition, major programming issues may be of more concern at certain levels, such as whether to use augmentative and alternative communication (AAC) for children scoring in Level 1, or the nature and degree of the integration program for children scoring in Level 2, or the specific focus of an academic program for children scoring in Level 3.

The second step in reading a VB-MAPP profile is to analyze the scores in each of the relevant domains and their relation to the child's performance in other areas. The assessor should look at the strengths and weaknesses, and determine if there are particular strengths in one area that can be of special benefit to a child, or weaknesses that need to be addressed. For example, if a child with

MAND – LEVEL 1

MAND 0-M	Zero score

If a child fails to receive any points on the mand scale, then significant efforts are necessary to establish this important linguistic skill. In general, specific forms of reinforcement need to be identified along with the relevant MOs (i.e., what makes these items valuable). Next, a target response form needs to be selected (vocal, signs, or icons), and the basic transfer procedures involving prompting, fading, and differential reinforcement need to be implemented (e.g., Hall & Sundberg, 1987; Sundberg & Partington, 1998; Sweeney-Kerwin, Carbone, O'Brien, Zecchin, & Janecky, 2007). The decision to use augmentative communication may involve a number of factors and the reader is referred to the previous section for more information on that topic. This child may also have elevated scores on several of the barrier measures, such as response requirements that weaken the motivators, instructional control, behavior problems, or weak MOs in general. Part of the intervention program will need to address these problems as well, but the overall program should be based on a more careful and detailed individual analysis of this child by a qualified professional.

MAND 1-M	Emits 2 words, signs, or icon selections, but may require echoic, imitative, or other prompts, but no physical prompts (e.g., *cracker, book*).

If a child is able to mand but requires echoic, imitative, or pointing prompts, this can be a significant step for him. The main focus should be on fading out these prompts, as well as working on increasing the number of different mands. At this point it is better to increase the number of single word mands rather than attempting to put the mand in a sentence (e.g., adding "I want…"). In addition, avoid the temptation to teach general words (e.g., more, please, mine, yes) and focus on words for specific items or activities (e.g., milk, ball, push), and words that are more likely to be used frequently in the child's natural environment. A variety of additional activities for this level, and the upcoming levels, can be found in the VB-MAPP Mand Supporting Skills list contained in the Protocol.

MAND 2-M	Emits 4 different mands without prompts (except, *What do you want?*) the desired item can be present (e.g., *music, Slinky, ball*).

If a child is able to emit 4 different mands without echoic, imitative, or pointing prompts, this represents the beginnings of an early functional mand repertoire. At this point in mand training, the desired item can be present and efforts to get manding to occur in the absence of the desired item should be minimal. Much of a typical child's early manding is multiply controlled by both MOs and nonverbal stimuli (the desired item is present). The primary goal is to eliminate the prompts that give away the response form (physical, echoic, and imitative prompts) or intraverbal prompts of the response form (i.e., saying the spoken word for children who are using sign language). The attempt to fade out the desired item too quickly may result in an impaired mand repertoire for some children. The focus going forward should be on (1) generalization of the mands to different people, places, materials, and verbal prompts to mand, (2) increasing the frequency of daily manding, (3) increasing the number of different mands, and (4) getting some mands to occur without verbal prompts such as, "What do you want?" In addition, training on tacts and LDs should be occurring along wtih training on the other domains (unless there are some specific barriers that suggest otherwise).