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## **ASSESSMENT REPORT**

**Name:** Timmy  
**D.O.B.:** December 17, 2006  
**Age:** 3 years, 11 months  
**Disability:** Autism  
**Parents/Guardian:** Carol Ann and Robert  
**Clinic Start Date:** October 26, 2010  
**Reported By:** William Meyer  
**Date of Report:** December 2, 2010

### **Background and Brief History**

Timmy is a 3-year-old boy who lives at home in NY, with his mother, Carol, father, Robert, and his three older siblings, Steven, Joan, and Ellen. Soon after his first birthday, he was diagnosed with global developmental delays and pervasive developmental disorder (PDD) features by Dr. S. Following this, Timmy began receiving physical therapy, occupational therapy, speech and language therapy, and special education itinerant teacher (SEIT) services through early intervention. He also attended the A School for about 12 hours per week in a special education classroom. In June, 2010, at 3 years of age, he was diagnosed with autism.

Starting in July, 2010, Timmy began attending a small, self-contained class at the School for Early Development in NY from 9 am to 2 pm, 5 days per week. The school is a public school which provides special education services through special education itinerant teachers (SEIT), assistant teachers, aides and speech therapists. The classroom is based upon applied behavior analysis (ABA) principles and receives consultation services once a month from an outreach consultant from the Carbone Clinic, Laura Peterhoff, BCaBA. There are eight students, one teacher, and two aides. During the school day, Timmy receives speech therapy (90 minutes per week), physical therapy (30 minutes per week), and occupational therapy (60 minutes per week). In addition to his school services, he began receiving speech services provided by Trish from N.W.S. for 45 minutes, 3 days a week in his home, physical therapy provided by Robin once a week for 45 minutes in his home, and occupational therapy provided by an occupational therapist from K once a week for 45 minutes per session in his home. Beginning in September, 2010, Timmy began receiving ABA services with an emphasis on verbal behavior provided in his home by Sue for 5 hours per week.

On August 6, 2010, Timmy's parents met with Dr. Vince Carbone to discuss their child's appropriate educational services. His parents said that Timmy was a very lovable and gentle child who was easily distracted. They stated that Timmy had thousands of tacts but engaged in very little spontaneous language. His parents also reported that Timmy's mand repertoire existed mainly in the forms of pulling adults to desired items or pointing at the objects he wants. Dr. Carbone recommended that Timmy begin services with the Carbone Clinic. Timmy began services with the Carbone Clinic on October 26, 2010 for approximately 6 hours a week provided Tuesdays and Thursdays from 9:00 am to 11:50 am.

### **General Impressions**

Timmy was brought to the clinic each day by his mother or grandmother. As he walked into the clinic he needed reminders to stay by them. Twice, his older siblings accompanied them into the clinic. Timmy did not attend to any of his peers while seated in the lobby other than to observe a child playing a video game. While waiting in the lobby for his instructor to begin the sessions, Timmy stood in his the chair or hopped out of his chair to look and touch pictures on the wall. When Timmy was sitting in the chair, he rarely attended to his mother or siblings. He needed to be told by his mother to greet his instructor appropriately upon the arrival of the instructor. Transitioning away from his mother in the lobby to the play room led to problem behavior in the form of crying on the first day. He transitioned without any problem behavior on subsequent days. During transitions, Timmy would attempt to run down the hall towards the play room which was prevented by the instructor placing his hand on Timmy's chest to slow him down.

When Timmy was in the play room, he needed reminders to keep his body turned toward the instructor to stay oriented towards his instructor during a fun activity. He played with many different toys appropriately (e.g., trains, Buzz and Woody, music, trampoline, pretend kitchen, house, music, etc.) but did not ask for toys. He often reached for the item when the instructor held it in front of him rather than asking for the item. He also crawled or walked around or away from the instructor to obtain toys within the environment. Timmy did ask for toys when the instructor provided a model for what to say (e.g., "Say train").

During all of the sessions, Timmy transitioned from the play room to the table without any problem behavior. When an instruction was given by the instructor, Timmy responded quickly to the instructor's questions during the first table session of the first day at the clinic. During the final table session of day 1 and on subsequent days, Timmy began to respond slower at times to instructions and often did not respond at all. Timmy would turn around in his seat to watch another movie that was on in the room and often put his head on the table to avoid responding. Over the course of the assessment period his responding and attention were highly variable and he was often easily distracted by other things going on in the classroom.

When the sessions were over, Timmy would run to his mother or grandmother and greet them with a hug. He often would call out to them by name from the end of the hall. He needed reminders and gentle physical guidance to stay by his instructor and to sit in his chair with his buttocks touching the seat of the chair. Once seated, he was given edibles to stay seated

appropriately. Timmy would often say “good-bye, Will” to his instructor spontaneously but occasionally needed a reminder to look at him while saying it.

### **Assessment Instruments**

During the first nine sessions, from October 26, 2010 to November 30, 2010, several assessments were administered in order to determine Timmy’s current levels of performance and guide the development of appropriate program objectives. The assessments were administered in both intensive teaching and natural environment settings at the Carbone Clinic over the span of these nine mornings.

The Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP; Sundberg, 2008) VB-MAPP is an assessment that is based upon B.F. Skinner’s *Verbal Behavior* (1957), an analysis in the study of language. There are five components to the VB-MAPP (i.e., Milestones Assessment, Barriers Assessment, Transition Assessment, Task Analysis, and Curriculum Placement Guide) that are used to assess language and other skills, to determine appropriate educational placements, and to assist in developing instructional objectives. Timmy was administered the Milestones Assessment and Barriers Assessment. The Milestones Assessment is designed to provide a representation of the learner’s existing verbal and related skills. Language and learning milestones are sequenced according to typical development and are separated into three levels. Level 1 ranges from birth to 18 months old, Level 2 from 18 months old to 30 months old, and Level 3 from 30 months old to 48 months old. By assessing skill development across these milestones, more effective and appropriate instructional objectives can be identified. The Barriers Assessment provides an assessment of 24 common learning and language acquisition barriers confronted by children with autism or other developmental disabilities. By identifying these barriers, specific instructional practices can be developed to help overcome these issues and lead to more effective learning.

The Kaufman Speech Praxis Treatment Kit (Kaufman, 1998) was administered to assess Timmy’s echoic repertoire. The Kaufmann Kit separates words into categories based on similarity of sounds or sound combinations (e.g., final “t” sound, “r” blends, “low” pivot syllables) to determine if echoic skills break down for certain word types to more precisely determine instructional objectives. The Kaufman Kit contains a Basic Level of words and an Advanced Level of words. The Advanced Level was administered with Timmy. The assessment was conducted during intensive teaching sessions (i.e., table sessions). During the assessment, the instructor vocally modeled a word and Timmy was expected to repeat this word. The instructor then recorded if the word was said correctly or not. If Timmy’s echoic response did not match the instructor’s model, then the instructor transcribed his vocal production using a phonetic alphabet.

The Social Skills Checklist (McKinnon & Krempa, 2002) was also completed to assess Timmy’s social skill development. The Social Skills Checklist was developed to break down specific social skills within a module system. The first four modules (Joint Attention, Greetings, Social Play and Self Awareness) were completed.

The Developmental Play Assessment (DPA) Instrument (Lifter, et al., 1988; Lifter, 1996) was completed to assess Timmy’s play repertoire. The DPA was developed to assess the play activities of children with developmental delays and disabilities in order to determine what play skills they demonstrate and which should be targeted instructional objectives. The categories of play skills assessed using the DPA are indiscriminate actions, discriminative actions on single objects, takes-apart combinations, presentation combinations, general combinations, pretend self, specific combinations (physical attributes), child-as-agent, specific combinations (conventional attributes), single-scheme sequences, substitutions, doll-as-agent, multischeme sequences, sociodramatic play, and thematic fantasy play. Play skills are then scored and categorized as mastery (the occurrence of at least 10 instances of the category, with at least four different types represented, within a 30-minute sample), emergence (the occurrence of at least four instances of the category, with at least two different types represented, within a 30-minute sample), and absent (anything less).

Information provided by these assessments was used to develop appropriate and individualized goals, objectives, and specific teaching strategies. Skill areas targeted for development include mand (requesting), tact (labeling), listener responding (receptive language), visual performance, play/social skills, group, personal/self care, and intraverbals.

**Present Levels**

**Mand (Requesting)**

Timmy met full criteria for all five milestones in Level 1 and met half criteria for another milestone in Level 3 of the Mand domain. This indicates that Timmy’s mand repertoire is at the developmental age of about 18 months.

MAND		ASSESSMENT			
		1ST	2ND	3RD	4TH
		<b>TOTAL SCORE:</b>			
		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Does the child use words, signs, or pictures to ask for desired items or activities?</b>					
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	1. Emits 2 words, signs, or PECS, but may require echoic, imitative, or other prompts but no physical prompts (e.g., <i>cracker, book</i> ) <b>(E)</b>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	2. Emits 4 different mands without prompts (except <i>What do you want?</i> ) — the desired item can be present (e.g., <i>music, slinky, ball</i> ) <b>(T)</b>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	3. Generalizes 6 mands across 2 people, 2 settings, and 2 different examples of a reinforcer (e.g., mands <i>bubbles</i> from mom and dad, inside and outside, a red bottle and a blue bottle) <b>(E)</b>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	4. Spontaneously emits (no verbal prompts) 5 mands — the desired item can be present <b>(TO: 60 min.)</b>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	5. Emits 10 different mands without prompts (except, <i>What do you want?</i> ) — the desired item can be present (e.g., <i>apple, swing, car, juice</i> ) <b>(E)</b>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Comments/notes:					
<hr/>					
<hr/>					

Figure 1. Mand milestones for birth to 18 months (Level 1)

MAND				ASSESSMENT			
				1ST	2ND	3RD	4TH
				TOTAL SCORE:			
<b>Does the child mand for information, mand with different parts of speech, and give directions to others?</b>							
1ST	2ND	3RD	4TH	11. Spontaneously mands for different verbal information using a WH question word 5 times (e.g., <i>What's your name? Where do I go?</i> ) (TO: 60 min.)			
1ST	2ND	3RD	4TH	12. Politely mands to stop an undesirable activity, or remove any aversive MO under 5 different circumstances (e.g., <i>Please stop pushing me. No thank you. Excuse me, can you move?</i> ) (E)			
1ST	2ND	3RD	4TH	13. Mands with 10 different adjectives, prepositions, or adverbs (e.g., <i>My crayon is broken. Don't take it out. Go fast.</i> ) (TO: 60 min.)			
1ST	2ND	3RD	4TH	14. Gives directions, instructions, or explanations as to how to do something or how to participate in an activity 5 times (e.g., <i>You put the glue on first, then stick it. You sit here while I get a book.</i> ) (O)			
1ST	2ND	3RD	4TH	15. Mands for others to attend to his own intraverbal behavior 5 times (e.g., <i>Listen to me... I'll tell you... Here's what happened... I'm telling the story...</i> ) (O)			
Comments/notes:							

Figure 2. Mand milestones from 30 to 48 months (Level 3)

At the beginning of the assessment, Timmy frequently manded for items that were present in the natural environment as well as at the table by grabbing for them. Timmy would also walk several feet to obtain a toy that was near the instructor instead of emitting a vocal mand. Once Timmy declared his motivation for an item by looking at it or reaching for it, if the instructor provided an echoic prompt for the vocal mand topography, this was sufficient to evoke the correct vocal mand by Timmy. Many of these mands came under the stimulus control of both a motivating operation (MO) and the presence of the item once vocally prompted a few times earlier in the session. These mands usually contained single nouns or verbs (e.g., Buzz, Wood, spin) but occasionally contained adjectives, prepositions, or adverbs (e.g., “yellow bus,” “put rice on wheels,” “fast”).

Mand sessions were primarily conducted in a large room with a wide range of stimuli (e.g., toys, games, activities). Mand sessions also occurred while sitting at a table. Trial-by-trial mand data were recorded to assess the frequency, spontaneity, and variety of Timmy’s mand repertoire. Trial by trial data were also used to transcribe the quality of Timmy’s vocalizations emitted while manding. These vocalizations were transcribed and scored as adult form or not. The adult form is defined as any spoken word that contains all the phonemes of the adult form of that word under the control of relevant variables (i.e., the form of the word the verbal community reinforces). The data were calculated as a percent of mands that were emitted as adult form on the initial mand attempt. Furthermore, echoic prompting was provided following some mands that were initially not emitted as the adult form. These data were calculated as a percent of mands that improved following treatment. Improvement following treatment is defined as the addition of a phoneme from the adult form or the deletion of a phoneme not inherent in the adult form as compared to the vocalization during the initial mand attempt (i.e., a change in the quality of the vocal production that makes it easier for the listener to understand Timmy’s mand).

Early in the assessment period, the majority of Timmy’s mands were multiply controlled by an MO and the presence of desired items, as well as vocal prompts from the instructor. By the end of the assessment period, however Timmy frequently emitted mands for numerous items and actions that were not vocally prompted by the instructor. During the 9-day assessment, Timmy emitted 189 different mands, with an average variety of 21 different mands per session. Each session, Timmy emitted an average of 82 mands, which means Timmy emitted a mand on average every 2 minutes. Of the 82 mands, an average 25 of these mands were emitted under the stimulus control of an MO and a vocal prompt, an average of 53 of these mands were emitted under the control of an MO and the presence of the item, an average of 3 of these mands were emitted under the control of an MO alone, and an average of 1 of these mands were under the control of a conditioned transitive motivating operation (CMO-T). Each session, an average of 36% of Timmy’s vocal mands were emitted in the adult form on his initial mand attempt. Following treatment, 83% of his mands improved over the initial mand attempt. Occasionally, Timmy emitted a mand using an inappropriate autoclitic (e.g., using “a,” “an,” or “the” when the verbal community would not use it during that situation). These autoclitics accompanied 1% of Timmy’s mands. Timmy emitted an inappropriate mand topography (e.g., manding in the form of grabbing, crying, whining) an average of two times per session. Timmy also generalized six different mands across two different people, settings, and examples of the reinforcer.

**Tact (Labeling)**

Timmy met full criteria for all five of the milestones in Level 1, four of the milestones in Level 2, and one milestone in Level 3 within the Tact domain. He also met half criteria for one milestone in Level 3. This indicates that Timmy’s tacting repertoire is in the developmental range of 18 months to 48 months of age.

		ASSESSMENT			
		1ST	2ND	3RD	4TH
<b>TACT</b>		<b>TOTAL SCORE:</b> <input type="text"/>			
<b>Does the child tact people, objects, body parts, or pictures?</b>					
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1. Tacts 2 reinforcing items (e.g., people, pets, characters, or favorite objects) <b>(T)</b>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	2. Tacts any 4 items (e.g., people, pets, characters, or other objects) <b>(T)</b>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	3. Tacts 6 non-reinforcing items (e.g., shoe, hat, spoon, car, cup, bed) <b>(T)</b>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	4. Spontaneously tacts (no verbal prompts) 2 different items <b>(O)</b>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	5. Tacts 10 items (e.g., common objects, people, body parts, or pictures) <b>(T)</b>
Comments/notes:   					

Figure 3. Tact milestones for birth to 18 months (Level 1)

TACT	ASSESSMENT				TOTAL SCORE:
	1ST	2ND	3RD	4TH	
<b>Does the child tact nouns and verbs?</b>					
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	6. Tacts 25 items when asked, <i>What's that?</i> (e.g., <i>book, shoe, car, dog, hat</i> ) (T)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	7. Generalizes tacts across 3 examples of 50 items, tested or from a list of known generalizations (e.g., tacts 3 different cars) (T)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	8. Tacts 10 actions when asked, for example, <i>What am I doing?</i> (e.g., <i>jumping, sleeping, eating</i> ) (T)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	9. Tacts 50 two-component verb-noun or noun-verb combinations, tested or from a list of known two-component tacts (e.g., <i>washing face, Joe swinging, baby sleeping</i> ) (T)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	10. Tacts a total of 200 nouns and/or verbs (or other parts of speech), tested or from an accumulated list of known tacts (T)				
Comments/notes:					

Figure 4. Tact milestones from 18 to 30 months (Level 2)

TACT	ASSESSMENT				TOTAL SCORE:
	1ST	2ND	3RD	4TH	
<b>Does the child emit a wide variety of tacts, and do they contain several different parts of speech?</b>					
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	11. Tacts the color, shape, and function of 5 objects (15 trials) when each object and question is presented in a mixed order (e.g., <i>What color is the refrigerator? What shape is the valentine? What do you do with the ball?</i> ) (This is part tact and part intraverbal.) (T)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	12. Tacts 4 different prepositions (e.g., <i>in, out, on, under</i> ) and 4 pronouns (e.g., <i>I, you, me, mine</i> ) (E)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	13. Tacts 4 different adjectives, excluding colors and shapes (e.g., <i>big, little, long, short</i> ) and 4 adverbs (e.g., <i>fast, slow, quietly, gently</i> ) (E)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	14. Tacts with complete sentences containing 4 or more words, 20 times (E)				
<input type="checkbox"/> 1ST <input type="checkbox"/> 2ND <input type="checkbox"/> 3RD <input type="checkbox"/> 4TH	15. Has a tact vocabulary of 1000 words (nouns, verbs, adjectives, etc.), tested or from an accumulated list of known tacts (T)				
Comments/notes:					

Figure 5. Tact milestones from 30 to 48 months old (Level 3)

During the assessment, Timmy tacted at least 1,000 objects or pictures of items (e.g., train, swimming pool, nose, turtle) and actions (e.g., clapping, waving, jumping). He also generalized tacts across numerous exemplars of the same item. That is, he labeled multiple pictures as well as objects and pictures for most items (e.g., cars, trains, dolls). He tacted multiple colors (e.g., red, blue, green) and shapes (e.g., rectangle, square, circle) but only tacted big, little, hot, and wet as other adjectives. He also tacted two prepositions (i.e., on and under). He did not emit any two-component verb-noun or noun-verb tacts during the assessment. He also did not emit any tacts in full sentence but did occasionally emit appropriate autoclitics while tacting (e.g., a

plane, a doll, a bus). He occasionally emitted a spontaneous tact (e.g., Thomas, hat) while playing with an object.

**Listener Responding (Receptive Language)**

Timmy met full criteria for all five of the milestones in Level 1, all five of the milestones in Level 2, and two of the milestones in Level 3 for the Listener Responding domain. He also met half criteria for two of the milestones in Level 3. This indicates that Timmy’s listener responding repertoire is in the developmental range of 30 months to 48 months of age.

LISTENER RESPONDING		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child attend to and respond to the words spoken by others?</b>					
1ST	2ND	3RD	4TH	1. Attends to a speaker's voice by orienting toward the speaker 5 times (E)	
1ST	2ND	3RD	4TH	2. Responds to hearing his own name 5 times (e.g., looks at the speaker) (T)	
1ST	2ND	3RD	4TH	3. Looks at, touches, or points to the correct family member, pet, or other reinforcer when presented in an array of 2, for 5 different reinforcers (e.g., <i>Where's Elmo? Where's mommy?</i> ) (E)	
1ST	2ND	3RD	4TH	4. Performs 4 different motor actions on command, without a visual prompt (e.g., <i>Can you jump? Show me clapping.</i> ) (T)	
1ST	2ND	3RD	4TH	5. Selects the correct item from an array of 4, for 20 different objects or pictures (e.g., <i>Show me cat. Touch shoe.</i> ) (T)	
Comments/notes:					

Figure 6. Listener Responding milestones for birth to 18 months (Level 1)

LISTENER RESPONDING		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Is the child acquiring more advanced listener skills?</b>					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Selects the correct item from a messy array of 6, for 40 different objects or pictures (e.g., <i>Find cat. Touch ball.</i> ) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Generalizes listener discriminations (LDs) in a messy array of 8, for 3 different examples of 50 items (e.g., the child can find 3 examples of a train) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Performs 10 specific motor actions on command (e.g., <i>Show me clapping. Can you hop?</i> ) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. Follows 50 two-component noun-verb and/or verb-noun instructions (e.g., <i>Show me the baby sleeping. Push the swing.</i> ) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Selects the correct item in a book, picture scene, or natural environment when named for 250 items, tested or from an accumulated list of known words (T)
Comments/notes:					

Figure 7. Listener Responding milestones for 18 to 30 months (Level 2)

LISTENER RESPONDING		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child understand complex words and sentences involving the different parts of speech?</b>					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. Selects items by color and shape from an array of 6 similar stimuli, for 4 colors and 4 shapes (e.g., <i>Find the red car. Find the square cracker.</i> ) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Follows 2 instructions involving 6 different prepositions (e.g., <i>Stand behind the chair.</i> ) and 4 different pronouns (e.g., <i>Touch my ear.</i> ) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Selects items from an array of similar stimuli based on 4 pairs of relative adjectives (e.g., <i>big-little, long-short</i> ) and demonstrates actions based on 4 pairs of relative adverbs (e.g., <i>quiet-loud, fast-slow</i> ) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. Follows 3-step directions for 10 different directions (e.g., <i>Get your coat, hang it up, and sit down.</i> ) (T)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Has a total listener repertoire of 1200 words (nouns, verbs, adjectives, etc.), tested or from an accumulated list of known words (T)
Comments/notes:					

Figure 8. Listener Responding milestones for 30 to 48 months (Level 3)

When assessing Timmy's receptive language, it was determined that he has a total listener repertoire of at least 1200 words (nouns, verbs, adjectives, etc.). He selected the correct item from a messy array of 10 for well over 40 different objects or pictures (e.g., cat, plane, train, ball) and selected multiple examples of those objects and pictures. He also selected over 250 different items in arrays of over 10 (e.g., in books, pictures of scenes, and the natural environment). He performed more than 10 actions on command (e.g., clap, knock, stand up). Timmy also followed at least 50 two-component noun-verb and verb-noun instructions (e.g., crash the train, make monkey jump, eat the cookie) but did not follow three-step directions (e.g., Get your coat, hang it

up, and sit down). He selected items by color and shape from an array of 6 similar stimuli for many colors and shapes (e.g., red apple, round apple, blue block, square block, yellow kite, diamond kite). He followed instructions that involved prepositions for five different prepositions (i.e., on, off, in, under, and next to) but he did not follow any instructions that involved pronouns. Timmy followed instructions that involved the selection of four adjective pairings (i.e., big and little, long and short, tall and short, full and empty) but did not follow any directions that involved adverbs (e.g., fast, slow, quiet, loud).

### Listener Responding by Function, Feature and Class (LRFFC)

Timmy met full criteria for all five of the milestones in Level 2 and three of the milestones in Level 3 of the LRFFC domain. This indicates that Timmy’s listener responding by function, feature, and class is in the developmental range of 30 months to 48 months of age.

LISTENER RESPONDING BY FUNCTION, FEATURE, AND CLASS (LRFFC)					ASSESSMENT			
					1ST	2ND	3RD	4TH
					TOTAL SCORE:			
<b>Does the child understand as a listener words that describe or modify nouns and verbs by their functions, features, or classes?</b>								
1ST	2ND	3RD	4TH	6. Selects an animal or object from an array of 3, for 5 different sounds made by the corresponding items (e.g., <i>Meow says a...</i> , <i>Toot, toot goes the...</i> ) (T)				
1ST	2ND	3RD	4TH	7. Selects 5 different foods or drinks when each is presented in an array of 5 (along with 4 non-food or non-drink items) and asked the verbal fill-ins <i>You eat...</i> and <i>You drink...</i> (T)				
1ST	2ND	3RD	4TH	8. Selects the correct item from an array of 8, for 25 different LRFFC fill-in statements of any type (e.g., <i>You sit on a...</i> ) (T)				
1ST	2ND	3RD	4TH	9. Selects the correct item from an array of 10 (or from a book), for 25 different verb-noun LRFFC <i>what</i> , <i>which</i> , or <i>who</i> questions (e.g., <i>What do you ride?</i> <i>Which one barks?</i> <i>Who can hop?</i> ) (T)				
1ST	2ND	3RD	4TH	10. Spontaneously tacts the item on 50% of the LRFFC trials (e.g., says <i>dog</i> given the verbal statement, <i>Find an animal</i> , and a visual array containing a picture of a dog) (E)				
Comments/notes:								

Figure 9. Listener Responding by Function, Feature, and Class milestones for 18 to 30 months (Level 2)

LISTENER RESPONDING BY FUNCTION, FEATURE, AND CLASS (LRFFC)					ASSESSMENT			
					1ST	2ND	3RD	4TH
					TOTAL SCORE:			
<p><b>Does the child understand as a listener multiple words that describe or modify nouns and verbs by their functions, features, or classes?</b></p>								
1ST	2ND	3RD	4TH	11. Selects the correct item from an array of 10 that contains 3 similar stimuli (e.g., similar color, shape, or class, but they are the wrong choices), for 25 different WH question LRFFC tasks (T)				
1ST	2ND	3RD	4TH	12. Selects items from a book based on 2 verbal components: either a feature (e.g., color), function (e.g., draw with), or class (e.g., clothing) for 25 LRFFC tasks (e.g., <i>Do you see a brown animal? Can you find some clothing with buttons?</i> ) (T)				
1ST	2ND	3RD	4TH	13. Selects items from a page in a book or in the natural environment based on 3 verbal components (e.g., verb, adjective, preposition, pronoun), for 25 WH question LRFFC tasks (e.g., <i>Which fruit grows on trees?</i> ) (T)				
1ST	2ND	3RD	4TH	14. Selects the correct items from a book or the natural environment given 4 different rotating LRFFC questions about a single topic ( <i>Where does the cow live? What does the cow eat? Who milks the cow?</i> ) for 25 different topics (T)				
1ST	2ND	3RD	4TH	15. Demonstrates 1000 different LRFFC responses, tested or obtained from an accumulated list of known responses (T)				

Figure 10. Listener Responding by Function, Feature, and Class milestones for 30 to 48 months (Level 3)

When Timmy’s LRFFC repertoire was assessed, he emitted a correct response when asked to select animals, objects, and foods when provided with a vocal discriminative stimulus (SD) that contained statements about the features, functions, or classes of those objects (e.g., “Woof woof says a” (select dog), “honk honk goes a” (select car), “you eat” (select popcorn)). He selected the correct stimuli from large messy fields of 10 that contained at least 3 similar stimuli (e.g., selected apple from a field of 10 that contained a banana, orange, and grapes) but were wrong choices. When reading a book, Timmy selected and pointed to the correct answer when the vocal SD contained three verbal components (e.g., farm animal that says neigh, wear on feet in summer, zoo animal with a long neck). It was also observed that Timmy tacted the correct items on over 50% of the LRFFC trials.

### Visual Performance

Timmy met full criteria for all five of the milestones within Level 1, five of the milestones within Level 2, and one of the milestones within Level 3 of the Visual Perceptual/Matching-to-Sample domain. This indicates that Timmy’s visual performance is in the developmental range of 30 to 48 months.

VISUAL PERCEPTUAL SKILLS AND MATCHING-TO-SAMPLE		ASSESSMENT			
TOTAL SCORE:		1ST	2ND	3RD	4TH
<b>Does the child attend to and respond to visual stimuli and match objects or pictures?</b>					
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	1. Visually tracks moving stimuli for 2 seconds, 5 times <b>(TO: 30 min.)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	2. Grasps small objects with thumb, index finger, and middle finger (pincer grasp) 5 times <b>(O)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	3. Visually attends to a toy or book for 30 seconds (not a self-stim item) <b>(O)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	4. Places 3 items in a container, stacks 3 blocks, or places 3 rings on a peg for 2 of these or similar activities <b>(E)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	5. Matches any 10 identical items (e.g., inset puzzles, toys, objects, or pictures) <b>(E)</b>	
Comments/notes:					

Figure 11. Visual Perceptual Skills and Matching-to-Sample milestones for birth to 18 months (Level 1)

VISUAL PERCEPTUAL SKILLS AND MATCHING-TO-SAMPLE		ASSESSMENT			
TOTAL SCORE:		1ST	2ND	3RD	4TH
<b>Does the child match identical and non-identical objects and pictures?</b>					
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	6. Matches identical objects or pictures in a messy array of 6, for 25 items <b>(T)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	7. Sorts similar colors and shapes for 10 different colors or shapes given models (e.g., given red, blue, and green bowls and a pile of red, blue, and green bears the child sorts the items by color) <b>(T)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	8. Matches identical objects or pictures in a messy array of 8 containing 3 similar stimuli, for 25 items (e.g., matches a dog to a dog in an array that also contains a cat, pig, and pony) <b>(T)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	9. Matches non-identical objects or non-identical pictures in a messy array of 10, for 25 items (e.g., matches a Ford truck to a Toyota truck) <b>(T)</b>	
<b>1ST</b>	<b>2ND</b>	<b>3RD</b>	<b>4TH</b>	10. Matches non-identical objects (3D) to pictures (2D) and/or vice versa, in a messy array of 10 containing 3 similar stimuli, for 25 items <b>(T)</b>	
Comments/notes:					

Figure 12. Visual Perceptual Skills and Matching-to-Sample milestones for 18 to 30 months (Level 2)

				ASSESSMENT			
				1ST	2ND	3RD	4TH
<b>VISUAL PERCEPTUAL SKILLS AND MATCHING-TO-SAMPLE</b>				<b>TOTAL SCORE:</b>			
<b>Does the child complete complex designs, patterns, and sequences?</b>							
1ST 2ND 3RD 4TH				11. Spontaneously matches any part of an arts and crafts activity to another person's sample 2 times (e.g., a peer colors a balloon red and the child copies the peer's red color for his balloon) (O)			
1ST 2ND 3RD 4TH				12. Demonstrates generalized non-identical matching in a messy array of 10 with 3 similar stimuli, for 25 items (i.e., matches new items on the first trial) (T)			
1ST 2ND 3RD 4TH				13. Completes 20 different block designs, parquetry, shape puzzles, or similar tasks with at least 8 different pieces (T)			
1ST 2ND 3RD 4TH				14. Sorts 5 items from 5 different categories without a model (e.g., animals, clothing, furniture) (T)			
1ST 2ND 3RD 4TH				15. Continues 20 three-step patterns, sequences, or seriation tasks (e.g., star, triangle, heart, star, triangle..) (T)			
Comments/notes:							

Figure 13. Visual Perceptual Skills and Matching-to-Sample milestones for 30 to 48 months (Level 3)

During the assessment of the Visual Perceptual and Matching-to-Sample domain of the VB-MAPP Milestones Assessment, Timmy visually tracked moving stimuli for 2 seconds (e.g., trains), used a pincer grasp (e.g., to pick up goldfish), visually attended to a toy or book for 30 seconds (e.g., reading Blues Clues book), and placed three items into a container (form box). Timmy matched pictures to identical and non-identical pictures with 3 similar stimuli in the field (e.g., matched a picture of an apple when the field contained apples, oranges, and grapes) and matched non-identical objects to pictures and vice-versa in messy arrays of 10. He also sorted 10 different colors and shapes given a model.

### Play/Social Skills

To help in assessing these skill areas, observations were made of Timmy's play and social skills during NET. These observations were structured by the VB-MAPP Milestones Assessment and Task Analysis (Sundberg, 2008), the Developmental Play Assessment Instrument (Lifter, 1996; Lifter, et al., 1988) and the Social Skills Checklist (Krempa & McKinnon, 2002).

Timmy met full criteria for all five of the milestones within Level 1, four of the milestones within Level 2, and two of the milestones within Level 3 of the Independent Play domain. He also met half criteria for one of the milestones within Level 3. This indicates that Timmy's play and social skills are in the developmental range of 30 to 48 months range.

INDEPENDENT PLAY		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child engage in independent play behavior that is automatically reinforcing?</b>					
1ST	2ND	3RD	4TH	1. Manipulates and explores objects for 1 minute (e.g., looks at a toy, turns it over, presses buttons) <b>(TO: 30 min.)</b>	
1ST	2ND	3RD	4TH	2. Shows variation in play by independently interacting with 5 different items (e.g., plays with rings, then a ball, then a block) <b>(TO: 30 min.)</b>	
1ST	2ND	3RD	4TH	3. Demonstrates generalization by engaging in exploratory movement and playing with the toys in a novel environment for 2 minutes (e.g., in a new playroom) <b>(TO: 30 min.)</b>	
1ST	2ND	3RD	4TH	4. Independently engages in movement play for 2 minutes (e.g., swinging, dancing, rocking, jumping, climbing) <b>(TO: 30 min.)</b>	
1ST	2ND	3RD	4TH	5. Independently engages in cause-and-effect play for 2 minutes (e.g., dumping containers, playing with pop-up toys, pulling toys, etc.) <b>(TO: 30 min.)</b>	
Comments/notes:					

Figure 14. Independent Play milestones for birth to 18 months (Level 1)

INDEPENDENT PLAY		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child engage in independent play behavior that is automatically reinforcing?</b>					
1ST	2ND	3RD	4TH	6. Searches for a missing or corresponding toy or part of a set for 5 items or sets (e.g., a puzzle piece, a ball for a drop-in toy, a bottle for a baby doll) <b>(E)</b>	
1ST	2ND	3RD	4TH	7. Independently demonstrates the use of toys or objects according to their function for 5 items (e.g., placing a train on a track, pulling a wagon, holding a telephone to the ear) <b>(O)</b>	
1ST	2ND	3RD	4TH	8. Plays with everyday items in creative ways 2 times (e.g., uses a bowl as a drum or a box as an imaginary car) <b>(O)</b>	
1ST	2ND	3RD	4TH	9. Independently engages in play on structures and playground equipment for a total of 5 minutes (e.g., going down a slide, swinging) <b>(TO: 30 min.)</b>	
1ST	2ND	3RD	4TH	10. Assembles toys that have multiple parts for 5 different sets of materials (e.g., Mr. Potato Head, Little People sets, Cooties bugs, Kid K' Nex) <b>(O)</b>	
Comments/notes:					

Figure 15. Independent Play milestones for 18 to 30 months (Level 2)

INDEPENDENT PLAY				ASSESSMENT			
				1ST	2ND	3RD	4TH
				TOTAL SCORE:			
<b>Does the child spontaneously engage in independent play that is automatically reinforcing?</b>							
1ST	2ND	3RD	4TH	11. Spontaneously engages in pretend or imaginary play on 5 occasions (e.g., dressing up, a pretend party with stuffed animals, pretends to cook) (O)			
1ST	2ND	3RD	4TH	12. Repeats a gross motor behavior to obtain a better effect for 2 activities (e.g., throwing a ball in a basket, swinging a bat at a T-ball, foot stomping to launch a rocket, pumping a swing) (O)			
1ST	2ND	3RD	4TH	13. Independently engages in arts and crafts type activities for 5 minutes (e.g., drawing, coloring, painting, cutting, pasting) (O)			
1ST	2ND	3RD	4TH	14. Independently engages in sustained play activities for 10 minutes without adult prompts or reinforcement (e.g., playing with an Etch-a-sketch, playing dress-up) (O)			
1ST	2ND	3RD	4TH	15. Independently draws or writes in pre-academic activity books for 5 minutes (e.g., dot-to-dot, matching games, mazes, tracing letters and numbers) (O)			
Comments/notes:							

Figure 16. Independent Play milestones for 30 to 48 months (Level 3)

Timmy met criteria for three milestones within Level 1 of the Social Behavior and Social Play domain. This indicates his social skills are in the developmental range of birth to 18 months range.

SOCIAL BEHAVIOR AND SOCIAL PLAY				ASSESSMENT			
				1ST	2ND	3RD	4TH
				TOTAL SCORE:			
<b>Does the child attend to others and attempt to socially engage others?</b>							
1ST	2ND	3RD	4TH	1. Visually tracks and shows interest in people's movement at least 5 times (TO: 30 min.)			
1ST	2ND	3RD	4TH	2. Indicates that he wants to be held or physically played with 2 times (e.g., climbs up on his mom's lap) (TO: 60 min.)			
1ST	2ND	3RD	4TH	3. Spontaneously looks (glances) at other children 5 times (TO: 30 min.)			
1ST	2ND	3RD	4TH	4. Spontaneously engages in parallel play near other children for a total of 2 minutes (e.g., sits in the sandbox near other children) (TO: 30 min.)			
1ST	2ND	3RD	4TH	5. Spontaneously follows peers or imitates their motor behavior 2 times (e.g., follows a peer into a playhouse) (TO: 30 min.)			
Comments/notes:							

Figure 17. Social Behavior and Social Play milestones for birth to 18 months (Level 1)

During the assessment, Timmy's independent play skills were observed in the natural environment. Timmy manipulated and explored objects within the environment for at least 1 minute during a 30-minute observation period (e.g., he looked at toys, turned them over, pressed

buttons on them). Timmy showed variation in his play by independently interacting with many different items (e.g., trains, Buzz, Woody). He demonstrated generalization by engaging in exploratory movement and playing with the toys in a novel environment for 2 minutes of a 30-minute observation period. Timmy also independently engaged in cause-and-effect play for 2 minutes of a 30-minute observation period (e.g., trains, cars, tornado). He searched for missing items needed to play within a theme (e.g., searched for Woody, bowls needed to pour cereal) and used toys both according to their function (e.g., placing trains on the track and crashing them) and creatively (e.g., used blocks to make a diaper for a baby). He also assembled toys that had multiple parts (e.g., Mr. Potato Head, train tracks). Timmy engaged in pretend and imaginary play (e.g., waking Woody up from a long nap and feeding him breakfast). Timmy independently engaged in sustained play activities for at least 10 minutes (e.g., trains, rice bin, house). Timmy independently engaged in an arts and crafts activity for two minutes.

In the natural environment, Timmy was also observed to track and show the interest in people's movement at least five times within a 30-minute period. During that same observation period, he spontaneously glanced at other children five times. During a 60-minute observation period, Timmy indicated that he wanted to be held and physically played with twice (e.g., gave hugs to Mom).

The Developmental Play Assessment (Lifter, 1996; Lifter, et al., 1988) was also used to assess Timmy's play repertoire using novel toys with no prompting from the instructor. The play categories that were scored as mastered were takes apart and presentation combinations (e.g., taking out the pieces of a puzzle and placing them back again), general combinations (e.g., putting all the blocks in a truck), pretend self (e.g., bringing an empty cup to his mouth to drink), and specific combinations (e.g., stacking cups, stringing beads). The play categories that were scored as emerging were child as agent (e.g., combing a doll's hair), single-scheme sequences (e.g., combing a doll's hair and a horse's hair), and multischeme sequences (laying a doll down, putting a pillow under her head, and using a block as a diaper). Those categories of play that were absent were specific categories (e.g., places cup on a saucer), substitutions (e.g., puts a bowl on his head for a hat), sociodramatic play (e.g., plays house, assigning various roles), and thematic fantasy play (e.g., plays "Superman", assigning roles).

### **Motor Imitation**

Timmy met full criteria for all five of the milestones within Level 1 and four of the milestones within Level 2 of the Motor Imitation domain. This indicates that Timmy's motor imitation repertoire is in the developmental range of 18 to 30 month range.

MOTOR IMITATION		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child imitate the actions of other people?</b>					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Imitates 2 gross motor movements when prompted with, <i>Do this</i> (e.g., clapping, raising arms) (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Imitates 4 gross motor movements when prompted with, <i>Do this</i> (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Imitates 8 motor movements, 2 of which involve objects (e.g., shaking a maraca, tapping sticks together) (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Spontaneously imitates the motor behaviors of others on 5 occasions (O)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Imitates 20 motor movements of any type (e.g., fine motor, gross motor, imitation with objects) (T)	
Comments/notes:					

Figure 18. Motor Imitation milestones for birth to 18 months (Level 1)

MOTOR IMITATION		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child imitate the actions of other people?</b>					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Imitates 10 actions that require selecting a specific object from an array (e.g., selects a drumstick from an array also containing a horn and a bell, and imitates an adult's drumming) (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Imitates 20 different fine motor actions when prompted, <i>Do this</i> (e.g., wiggle fingers, pinching, making a fist, making a butterfly) (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Imitates 10 different three-component sequences of actions when prompted, <i>Do this</i> (e.g., clapping, jumping, touching toes; pick up a doll, place her in a crib, and rock the crib) (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. Spontaneously imitates 5 functional skills in the natural environment (e.g., eating with a spoon, putting on a coat, removing shoes) (O)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Imitates (or attempts to with approximations) any novel motor action modeled by an adult with and without objects (i.e., a "generalized imitative repertoire") (T)	
Comments/notes:					

Figure 19. Motor Imitation milestones for 18 to 30 months (Level 2)

During the assessment, Timmy was instructed to copy the motor movements of his instructor. He performed 20 motor movements of any type (e.g., clap hands, stomp feet, arms over head) that directly matched the motor movements of the instructor. He also imitated at least 10 actions that required selecting a specific object from an array of three (e.g., selected a cup from an array that also contained a spoon and plate, and imitated the instructor's drinking). Timmy imitated over 20 fine motor actions when prompted (e.g., wiggled fingers, opened and shut hands, pincer grip). Timmy also spontaneously imitated functional and novel motor movements (e.g., pretending to make Buzz breakfast, pouring rice into a sensory toy). Timmy did not imitate any sequences that involved more than two steps.

## Echoic/Vocal Imitation

Timmy's vocal imitation repertoire was assessed using the Early Echoic Skills Assessment (EESA) subtest within the VB-MAPP Milestones Assessment (Sundberg, 2008) and the Kaufman Speech Praxis Treatment Kit (Kaufman, 1998).

Timmy met the full criteria for all five milestones within the developmental range of birth to 18 months (Level 1) and for three milestones within the developmental range of 18 to 30 months (Level 2) of the Echoic/Vocal Imitation domain. He also met half criteria for one of the milestones within Level 2 in the VB-MAPP. This indicates that Timmy's echoic repertoire is within the developmental range of 18 to 30 months of age.

ECHOIC		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child immediately repeat (echo) vowel and consonant phonemes, singly and in combinations?</b>					
1ST	2ND	3RD	4TH	1. Scores at least 2 on the EESA subtest (T)	
1ST	2ND	3RD	4TH	2. Scores at least 5 on the EESA subtest (T)	
1ST	2ND	3RD	4TH	3. Tacts 6 non-reinforcing items (e.g., 3. Scores at least 10 on the EESA subtest (T)	
1ST	2ND	3RD	4TH	4. Scores at least 15 on the EESA subtest (T)	
1ST	2ND	3RD	4TH	5. Scores at least 25 on the EESA subtest (at least 20 from group 1) (T)	
Raw Score:					
Comments/notes:					

Figure 20. Echoic milestones for birth to 18 months (Level 1)

ECHOIC		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child immediately repeat (echo) specific words and phrases?</b>					
1ST	2ND	3RD	4TH	6. Scores at least 50 on the EESA subtest (at least 20 from Group 2) (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
1ST	2ND	3RD	4TH	7. Scores at least 60 on the EESA subtest (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
1ST	2ND	3RD	4TH	8. Scores at least 70 on the EESA subtest (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
1ST	2ND	3RD	4TH	9. Scores at least 80 on the EESA subtest (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
1ST	2ND	3RD	4TH	10. Scores at least 90 on the EESA subtest (at least 10 from Groups 4 and 5) (T)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Raw Score:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments/notes:					

Figure 21. Echoic milestones for 18 to 30 months (Level 2)

Timmy echoed 23 targets with the correct sounds and number of syllables from the targets presented in Group 1, which assesses simple and reduplicated syllables (e.g., “ah,” “wow,” “bee”). He echoed 23 targets with the correct sounds and number of syllables from the targets presented in Group 2, which assesses two syllable combinations (e.g., “yucky,” “mommy,” “oh boy,” “cookie,” “icky”). Timmy echoed 10 targets with the correct sounds and number of syllables from the targets presented in Group 3, which assesses three syllable combinations (e.g., “fee fi foe,” “in a boat,” “potato”). For those targets that did not meet full criteria from Groups 1, 2, and 3, Timmy echoed a recognizable response that contained incorrect phonemes. He echoed 6 targets with the correct sounds, syllables, and emphasis from the targets presented in Group 4, which assesses prosody of spoken phrases (e.g., “**ONE** bunny,” “in a **MIN**-ute,” “**TAKE** it”). He placed an emphasis on an incorrect syllable for three targets within Group 4. Timmy also attained prosody in whispering and using a quite/loud voice (e.g., bye-bye vs. **BYE-BYE**) but did not match pitch or duration of sounds in Group 5, which assesses prosody in other contexts. According to these results, Timmy’s raw score on the EESA was 79.5 points.

Timmy’s vocal imitation skills were also assessed over the course of several sessions utilizing the Kaufman Speech Praxis Treatment Kit (Kaufman, 1998). Timmy’s echoic repertoire was assessed across 21 different vocal production breakdowns/categories. Timmy correctly imitated over 70% of the words from the /k/ final (e.g., pack), /f/ final (e.g., off), /s/final (e.g., mouse), CbVCf-One and two syllable back-velars to tip-alveolar (e.g., kid), CfVCb-One and two syllable tip-alveolars to back velars (e.g., dig), /f/ initial (e.g., fan), /s/ initial (e.g., sun), /r/ blends (e.g., broke), /sh/ final (e.g., wash), /sh/ initial (e.g., shoe), /ter/ pivot syllable (e.g., butter), and “een” pivot syllable (e.g., walking) categories. He correctly imitated less than 70% of the words from the /k/ initial (e.g., cook), /g/ initial (e.g., game), /l/ initial (e.g., look), “low” pivot syllable (e.g., hello), /l/ blends (e.g., blue), /s/ blends (e.g., swamp), /ber/ pivot syllable (e.g., October), familiar complex bisyllabics (e.g., cookie), and familiar complex polysyllabic (e.g., hamburger) categories. The words that Timmy did not imitate contained phonemes or sound combinations he would not be expected to emit given his chronological age.

### Spontaneous Vocal Behavior

Timmy met full criteria for all five of the milestones within Level 1 of the Spontaneous Vocal Behavior domain. This indicates that Timmy’s spontaneous vocal behavior is above 30 months developmentally.

SPONTANEOUS VOCAL BEHAVIOR				ASSESSMENT			
				1ST	2ND	3RD	4TH
				TOTAL SCORE:			
<p><b>How often does the child spontaneously vocalize, and what is the nature of the vocalizations?</b></p>							
1ST	2ND	3RD	4TH	1. Spontaneously emits an average of 5 sounds each hour (TO: 60 min.)			
1ST	2ND	3RD	4TH	2. Spontaneously emits 5 different sounds, averaging 10 total sounds each hour (TO: 60 min.)			
1ST	2ND	3RD	4TH	3. Spontaneously emits 10 different sounds with varying intonations, averaging 25 total sounds each hour (TO: 60 min.)			
1ST	2ND	3RD	4TH	4. Spontaneously emits 5 different whole word approximations (O)			
1ST	2ND	3RD	4TH	5. Spontaneously vocalizes 15 whole words or phrases with appropriate intonation and rhythm (TO: 60 min.)			
Comments/notes:							

Figure 22. Spontaneous Vocal Behavior milestones for birth to 18 months (Level 1)

During the observation period, Timmy was observed spontaneously emitting at least 10 different sounds with varying intonation, averaging 25 total sounds per hour. He also spontaneously emitted at least five different word approximations (e.g., “music” and “block”). He also spontaneously vocalized at least 15 whole words or phrases with appropriate intonation and rhythm (e.g., “Wake up Woody!”).

### Intraverbal

Timmy met full criteria for four of the milestones in Level 2 of the Intraverbal domain. This indicates that Timmy’s intraverbal repertoire is within the developmental range of 18 to 30 months.

INTRAVERBAL		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child verbally respond to the content of the words of others?</b>					
1ST	2ND	3RD	4TH	6. Completes 10 different fill-in-the-blank phrases of any type (e.g., song fill-ins, social games and fun fill-ins, animal or object sounds) (T)	
1ST	2ND	3RD	4TH	7. Provides first name when asked, <i>What is your name?</i> (T)	
1ST	2ND	3RD	4TH	8. Completes 25 different fill-in-the-blank phrases (not including songs) (e.g., <i>You eat... You sleep in a... Shoes and...</i> ) (T)	
1ST	2ND	3RD	4TH	9. Answers 25 different <i>what</i> questions (e.g., <i>What do you like to eat?</i> ) (T)	
1ST	2ND	3RD	4TH	10. Answers 25 different <i>who</i> or <i>where</i> questions (e.g., <i>Whose your friend? Where is your pillow?</i> ) (T)	
Comments/notes:					

Figure 23. Intraverbal milestones for 18 to 30 months (Level 2)

Timmy emitted a correct response when completing at least 25 different fill-in-the-blank phrases from either songs, fun activities, or animal sounds (e.g., “ready, set...go,” “a sheep says...baa,” “hip hip...hooray”). Many of the intraverbals were song fill-ins (e.g., “Old McDonald had a...farm,” “Twinkle Twinkle Little...star”) but fill-ins to other non-reinforcing stimuli (e.g., “open the...door” and “pee pee in the...potty”) were emitted. He also emitted a correct response when asked “What’s your name?” Timmy emitted a correct response when answering at least 25 different “what” questions (e.g., “What does Mommy drive?” and “What spins a web?”)

### Classroom Routines and Group Skills

Timmy’s classroom routines and group skills were assessed at the clinic through direct observation and in school by Carbone Clinic Outreach consultant, Laura Peterhoff, BCaBA. Timmy met full criteria for four of the milestones in Level 2 and one in Level 3 of the Classroom Routines and Group Skills domain. He also met half criteria for one of the milestones in Level 2 and one in Level 3. This indicates that Timmy’s classroom routines and group skills are within the developmental range of 30 and 48 months.

CLASSROOM ROUTINES AND GROUP SKILLS		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child follow the daily routines in a classroom and appropriately participate in group activities, and respond in a group-teaching format?</b>					
1ST	2ND	3RD	4TH	6. Sits at a group snack or lunch table without negative behavior for 3 minutes (O)	
1ST	2ND	3RD	4TH	7. Puts away personal items, lines up, and comes to a table with only 1 verbal prompt (O)	
1ST	2ND	3RD	4TH	8. Transitions between classroom activities with no more than 1 gestural or verbal prompt (O)	
1ST	2ND	3RD	4TH	9. Sits in a small group for 5 minutes without disruptive behavior or attempting to leave the group (O)	
1ST	2ND	3RD	4TH	10. Sits in a small group for 10 minutes, attends to the teacher or material for 50% of the period, and responds to 5 of a teacher's SPs (O)	
Comments/notes:					

Figure 24. Classroom Routines and Group Skills milestones for 18 to 30 months (Level 2)

CLASSROOM ROUTINES AND GROUP SKILLS		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Does the child follow classroom routines and learn in a group-teaching format?</b>					
1ST	2ND	3RD	4TH	11. Uses the toilet and washes hands with only verbal prompts (E)	
1ST	2ND	3RD	4TH	12. Responds to 5 different group instructions or questions without direct prompts in a group of 3 or more children (e.g., <i>Everybody stand up. Does anyone have a red shirt on?</i> ) (O)	
1ST	2ND	3RD	4TH	13. Works independently for 5 minutes in a group, and stays on task for 50% of the period (O)	
1ST	2ND	3RD	4TH	14. Acquires 2 new behaviors during a 15-minute group-teaching format involving 5 or more children (T)	
1ST	2ND	3RD	4TH	15. Sits in a 20-minute group session involving 5 children without disruptive behaviors, and answers 5 intraverbal questions (T)	
Comments/notes:					

Figure 25. Classroom Routines and Group Skills milestones for 30 to 48 months (Level 3)

Timmy sits at a group snack or lunch table without negative behavior for at least 3 minutes. He puts away personal items, lines up, and comes to the table with no more than one verbal prompt. He transitions between classroom activities with no more than one gestural or verbal prompt. He sits in a group activity with three or more children for at least 10 minutes and attends to the teacher or presented material for 33% of the period, and responds to two teacher questions or instructions. Timmy responds appropriately without tangible reinforcement for 5 minutes in circle time at the clinic. After 5 minutes, reinforcement in the form of edibles is required to maintain Timmy's independent responding. Timmy responds to at least five different group

instructions or instructions without direct prompts in a group of three or more children. He also works independently for 2 minutes in a group activity involving three or more children, and stays on task for 50% of the period.

### Linguistic Structure

Timmy met full criteria for all five of the milestones in Level 2 of the Linguistic Structure domain. This indicates that Timmy’s linguistic structure is at the developmental age of about 30 months.

LINGUISTIC STRUCTURE		ASSESSMENT			
		1ST	2ND	3RD	4TH
		TOTAL SCORE:			
<b>Is the child’s articulation becoming clearer? Is his speaker and listener vocabulary growing, and is he beginning to emit more 2 and 3 word phrases and sentences?</b>					
1ST	2ND	3RD	4TH	6. The child’s articulation of 10 tacts can be understood by familiar adults who cannot see the item tacted <b>(T)</b>	
1ST	2ND	3RD	4TH	7. Has a total listener vocabulary of 100 words (e.g., <i>Touch nose. Jump. Find keys.</i> ) <b>(T)</b>	
1ST	2ND	3RD	4TH	8. Emits 10 different 2-word utterances per day of any type except echoic (e.g., <i>mand, tact</i> ) <b>(E)</b>	
1ST	2ND	3RD	4TH	9. Emits functional prosody (i.e., rhythm, stress, intonation) on 5 occasions in one day (e.g., puts emphasis or stress on certain words such as, <i>It’s MINE!</i> ) <b>(O)</b>	
1ST	2ND	3RD	4TH	10. Has a total speaker vocabulary size of 300 words (all verbal operants, except echoic) <b>(E)</b>	
Comments/notes:					

Figure 26. Linguistic Structure milestones for 18 to 30 months (Level 2)

Timmy’s articulation of 10 tacts can be understood by familiar adults who cannot see the item tacted (e.g., “James,” “Jets”). He emits 10 different 2-word utterances per day of any type other than echoic (e.g., “Push train,” “play movie”). He emits functional prosody on 5 occasions in one day (e.g., “Wake up **WOODY**”). Timmy also has a total listener and speaker vocabulary size of at least 1000 words.

### Reading, Writing and Math

In Reading, Timmy met full criteria for four of the milestones in Level 3. In Math, Timmy met full criteria for two of the milestones within Level 3 and met half criteria for one of the milestones within Level 3. This indicates that Timmy’s reading and math skills between the developmental age of 30 and 48 months. In Writing, Timmy did not meet any criteria for any of the milestones from Level 3. This indicates that Timmy’s writing skills are still emerging.

				ASSESSMENT			
				1ST	2ND	3RD	4TH
<b>READING</b>				<b>TOTAL SCORE:</b>			
<p><b>Does the child show interest in words and books, tact and LD letters, and read and comprehend a few words?</b></p>							
1ST	2ND	3RD	4TH	11. Attends to a book when a story is being read to him for 75% of the time <b>(TO: 3 min.)</b>			
1ST	2ND	3RD	4TH	12. Selects (LDs) the correct uppercase letter from an array of 5 letters, for 10 different letters <b>(T)</b>			
1ST	2ND	3RD	4TH	13. Tacts 10 uppercase letters on command <b>(T)</b>			
1ST	2ND	3RD	4TH	14. Reads his own name <b>(T)</b>			
1ST	2ND	3RD	4TH	15. Matches 5 words to the corresponding pictures or items in an array of 5, and vice versa (e.g., matches the written word <i>bird</i> to a picture of a bird) <b>(T)</b>			
Comments/notes:							

Figure 27. Reading milestones for 30 to 48 months (Level 3)

				ASSESSMENT			
				1ST	2ND	3RD	4TH
<b>MATH</b>				<b>TOTAL SCORE:</b>			
<p><b>Does the child demonstrate beginning math skills involving numbers, quantities, counting, and measurement? (Note: Related beginning geometry skills, such as shapes, are assessed in other sections)</b></p>							
1ST	2ND	3RD	4TH	11. Identifies as a listener the numbers 1-5 in an array of 5 different numbers <b>(T)</b>			
1ST	2ND	3RD	4TH	12. Tacts the numbers 1-5 <b>(T)</b>			
1ST	2ND	3RD	4TH	13. Counts out 1-5 items from a larger set of items with 1 to 1 correspondence (e.g., <i>Give me 4 cars. Now give me 2 cars.</i> ) <b>(T)</b>			
1ST	2ND	3RD	4TH	14. Identifies as a listener 8 different comparisons involving measurement (e.g., <i>show me more or less, big or little, long or short, full or empty, loud or quiet</i> ) <b>(T)</b>			
1ST	2ND	3RD	4TH	15. Correctly matches a written number to a quantity and a quantity to a written number for the numbers 1-5 (e.g., matches the number 3 to a picture of 3 trucks) <b>(T)</b>			
Comments/notes:							

Figure 28. Math milestones for 30 to 48 months (Level 3)

WRITING				ASSESSMENT			
				1ST	2ND	3RD	4TH
TOTAL SCORE:							
<b>Does the child draw, copy letters and numbers, and independently write his name?</b>							
1ST	2ND	3RD	4TH	11. Imitates 5 different writing actions modeled by an adult using a writing instrument and writing surface (T)			
1ST	2ND	3RD	4TH	12. Independently traces within 1/4 inch of the lines of 5 different geometrical shapes (e.g., circle, square, triangle, rectangle, star) (T)			
1ST	2ND	3RD	4TH	13. Copies 10 letters or numbers legibly (T)			
1ST	2ND	3RD	4TH	14. Legibly spells and writes his own name without copying (T)			
1ST	2ND	3RD	4TH	15. Copies all 26 upper and lower case letters legibly (T)			
Comments/notes:							

Figure 29. Writing milestones for 30 to 48 months (Level 3)

Timmy attends to a book when a story is being read to him for 90% of a 5 minute period. During the assessment, he read 20 uppercase letters correctly. He also read his own written name. When Timmy’s math skills were assessed, he selected and named numbers from one to five. Timmy receptively identified six different comparisons of stimuli involving measurement (e.g., more/less, big/little, tall/short).

### **Personal/Self Care**

Timmy’s personal/self care skills were not formally assessed but observations were conducted during the completion of daily routines. Timmy is not independently toilet trained and he wore a Pull-Up during sessions at the clinic. When asked if he needed to go to the “potty”, Timmy would give an appropriate response as to yes or no. Timmy never spontaneously mandated to go to the bathroom. When changing his Pull-Up in the bathroom, Timmy required partial physical prompts to pull his pants up and down. Following the toileting routine, Timmy required full physical prompts to go to the sink to wash his hands as well as physical prompts to complete the steps necessary during hand washing (i.e., getting soap, rubbing hands together, and getting a paper towel to dry hands. Adults also provided partial physical prompts to assist Timmy in removing and putting on his coat.

### **Barriers Assessment**

The VB-MAPP Barriers Assessment was conducted to identify potential factors that have impeded instruction and affected Timmy’s learning across the various skill domains that were assessed. Scores indicate that there are certain factors that present mild (score of one), moderate (score of two), persistent (score of three), or severe (score of four) barriers that may have affected Timmy’s progress within various instructional programs. These barriers have likely had a significant adverse effect on Timmy’s acquisition of new skills.

Some barriers received modified scores (e.g., defective tact, defective imitation, defective visual performance, and defective listener). Although these areas did not meet the published scoring criteria of the VB-MAPP Barriers Assessment, they were assigned a modified score of 1 because his performance in these domains is delayed (i.e., defective) as compared to his same aged peers.

Across all domains, emission of self-stimulatory behaviors (e.g., humming or singing), hyperactive behavior (e.g., flapping arms in the air), obsessive-compulsive behavior (e.g., placing track of a train in the same place repeatedly), prompt dependency (e.g., independent responding), and poor instructional control have made it difficult for Timmy to benefit from instructional activities. These barriers have directly impacted his tact, imitation, echoic, articulation, visual performance, listener, and intraverbal repertoires. During instruction Timmy did not attend to the instructional materials as much as he attended to other distracting stimuli within the environment, which has affected how quickly, accurately, and independently he learns new skills.

Acquisition of new skills has been further impacted by Timmy's limited variety of reinforcers, especially social reinforcers, his dependence upon the use of tangible reinforcers to acquire new skills, and the loss of motivation that is observed when the response requirement becomes too effortful. His lack of attention and limited social reinforcers have also directly impacted his learning from observation (i.e., incidental learning) during play or group activities, activities during which his typically developing peers would learn a great number of skills. Timmy's independent play skills also allow for him to engage in play without assistance from an adult or peer and thus avoid social interactions. Due to his limited variety of social reinforcers, Timmy further avoids eye contact. As a result of these factors, Timmy has developed impaired mand and social skills repertoires.

Identifying these barriers is important because an analysis of why and how learning has been impeded can lead to the development of more precise instructional practices that are designed to decrease the impact of these barriers. With Timmy it will be necessary early on in programming to place a large focus on teaching a mand repertoire and consistently implementing effective behavior reduction procedures so as to decrease the barriers presented by high rates of self-stimulatory and hyperactive behaviors and poor instructional control. Precise instructional practices such as utilizing a quick pace of instruction and a dense schedule of reinforcement, maintaining an appropriate balance of easy to difficult responses, implementing errorless teaching procedures that incorporate precise and systematic prompt and prompt fading procedures, and teaching to fluency (Carbone, Morgenstern, Zecchin-Tirri, & Kolberg, 2010). It will also be necessary to increase Timmy's attention during instruction, increase Timmy's accuracy and independence when responding, condition people and their attention as reinforcers, and improve his rate of acquisition of new skills. These instructional practices should be used to teach various instructional objectives within the mand, tact, intraverbal, visual performance, play, social skills, and listener responding domains. In addition, NET should incorporate a large focus on expanding Timmy's mand and social skills repertoire.

### **Suggested Goals (ABLLS)**

The following goals were selected from the ABLLS curriculum as suggested goals for instruction over the course of the next year.

#### **Mand**

F3: Request items when the item is present

F5: Spontaneous requests

F6: Request others to perform an action

F8: Requests missing items needed for a task

F13-15: Requests information using “What,” “Where,” and “Who/Whose”

#### **Tact**

G11: Labels adjectives

G12-G14: Labels item when told its function, feature, or class

G15-16: Labels function and class of an object

G18: Labels by indicating yes/no

G23: Two-component labels (nouns) with pictures

G25: Two component labels (noun verb)

G26: Two-component labels (noun adjective)

#### **Listener Responding/Receptive Language**

C27: Follow an instruction to go to a person

C28: Follow an instruction to give an item to a person or place item on an object

C29: Follow an instruction to walk to someone and get a named item

C30: Follow an instruction to go to a person and do an action

C44: Select associated pictures

C45: Follows a multiple component sequence instruction

#### **Listener Responding by Function, Feature, and Class**

No goals are suggested at this time.

#### **Visual Performance/Match to Sample**

B5: Sort non-identical items into categories

B6: Block designs on picture cards

B7: Block designs from picture

B8: Sequence pattern to match a visual model

B17: Extend a sequence pattern

#### **Play/Social Skills**

L4: Responds to approaches and attempts to interact from peers

L6: Imitates peers

L15: Asks peers for items (single)

#### **Motor Imitation**

No goals are suggested at this time.

**Echoic/Vocal Imitation**

No goals suggested at this time.

**Spontaneous Vocal Behavior**

No goals suggested at this time.

**Intraverbals**

H17: Answers “Where” questions

H19: Answers “Who/Whose” questions

H20: Answers “Which” questions

H21: Answers “When” questions

H22: Answers “How” questions

H23: Answers “Why” questions

**Classroom Routines and Group Skills**

M6: Follows group instructions-all do the same receptive response

M7: Follows instructions with a discrimination

10M: Responds to teacher SDs receptively or expressively

12M: Responds to group instructions without direct prompts

**Linguistic Structure**

No goals selected at this time.

**Reading, Writing and Math**

No goals selected at this time.

**Personal/Self help skills**

Toilet training

**Problem Behavior Reduction**

Across the 9-day assessment period, Timmy emitted an average of 17 episodes of problem behavior lasting for an average cumulative duration of 2 minutes and 21 seconds per session. Of the 156 total episodes of problem behavior, 1 occurred when Timmy was interrupted and transitioned from a reinforcing activity, 20 occurred when Timmy wanted something but did not request the reinforcer using an appropriate mand topography, 126 occurred when Timmy was presented with demands at the table, 8 occurred when Timmy was presented with instructional demands in the natural environment, 0 occurred when Timmy was denied access to a reinforcing item or activity, 0 occurred when sensory reinforcement was valuable, 0 occurred when the motivating operation (MO) was unclear (i.e., “Out of the Blue”), and 1 occurred when Timmy cried when a balloon was released loud and fast into the air (represented as “other” in the data below).

The following behaviors have been targeted for reduction: bolting, crying, flopping, whining, grabbing, screaming, and refusal to respond.

The following procedures will be used to reduce the frequency of these behaviors:

- MO Manipulations/Antecedent Curricular Revisions to abolish the reflexive conditioned motivating operation (CMO-R)
- Extinction of problem behavior
- Differential reinforcement of alternative (appropriate) behaviors
- Count and Mand Procedure for inappropriate manding during daily routines
- Interruption/Transition Protocol during Daily Routines
- Accepting No Protocol during Daily Routines

**Program Management**

- Schedule of Reinforcement: Variable Ratio (VR) 15
- 75% NET
- 25% ITT

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