The MARIPOSA School
for Children with Autism

EMPLOYEE TRAINING MANUAL

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Beginning a Verbal Behavior Program

1. **What is ABA/VBA?**

ABA is the science of Applied Behavior Analysis. It provides a structure for looking at human behaviors, what causes them and how to make them increase or decrease. It also provides a basic structure for teaching new skills (behaviors we want to increase!) The basic information you need to know regarding the teaching procedures include: shaping, prompting, fading, chaining and differential reinforcement. VERY simplistic explanations are provided below:

a) **Shaping-** A process through which we gradually modify the child's existing behavior into what we want it to be. This is typically done by adjusting the requirements before reinforcement is given. For example, if a child is just learning to say words, he may just be asked to touch and item before receiving it. Later, we may require the beginning sound, a syllable and eventually the word.

b) **Prompting**- Assistance given by the teacher to promote correct responding. One of the primary differences between most traditional ABA programs and the VB model is the use of "errorless learning" in the VB model and "no, no, prompt" procedures in traditional ABA models. Prompts range in intrusiveness from physical guidance, to demonstration, verbal cues, visual cues, pointing, and within stimulus prompts such as proximity. We should always try to use the least intrusive prompt that will cause the behavior to occur. For example, when initially teaching a child to "touch" a given object or picture, you may need to actually move his hand to the object at the beginning.

c) **Fading**- This is a critical part of teaching children to NOT become dependent on prompts. Any prompts used are gradually removed as the child becomes successful until he can respond correctly with no prompts. To use the above example, if we wanted to teach a child to touch a ball we may start by physically moving his hand to the ball, and then provide less physical guidance by just touching his elbow, then pointing at the ball etc. until the child was able to successfully touch the ball when told to. (Most children would not require this many prompts to learn to "touch" an object)

d) **Chaining-** Basically this means that skills are broken down into their smallest units and are taught in small units that are "chained" together. Forward or backward chaining are both techniques that are frequently used in teaching a new skill. An example of forward chaining may be to teach a child to say a sentence, one word at a time. (Say "I", Say "I love", say "I love you!") If we taught the same sentence using backward chaining we would teach it from the end first! (Say "You", say, "love you", Say, "I love you".)

e) **Differential Reinforcement**- Reinforcement is perhaps the most important part of teaching! It involves providing a response to a child's behavior that will most likely increase that behavior. The term "differential" refers that we vary the level of reinforcement depending on the child's response. "Hard" tasks may be reinforced heavily whereas "easy" tasks may be reinforced less heavily. We must systematically change our reinforcement so that the child eventually will respond appropriately under natural schedules of reinforcement (occasional) with natural types of reinforcers (social).

2. **What is Discrete Trial Teaching?** Discrete Trial Teaching is ONE technique used in both traditional ABA and Verbal Behavior programs. The technique involves:

   a) breaking a skill into smaller parts
   b) Teaching one sub-skill at a time until mastery
   c) Providing concentrated teaching
   d) Providing prompting and prompt fading as necessary
   e) Using reinforcement procedures

   Each teaching session involves repeated trials, with each trial having a distinct beginning (the instruction), a behavior (child's response) and a Consequence (reinforcement or prompt- fade prompt)

Great Beginnings

It's critical to begin and develop the therapeutic relationship very carefully. It's critical that the child continue to enjoy being with people and see learning as a "good thing"!

The first job of the instructor is to teach the child that when they show up, good things happen! In behavioral terms, you must "pair yourself with reinforcers". This can be accomplished in many ways but the primary way is to carefully observe the child and interact with him in a way he finds enjoyable. Observe how he likes to be touched, what kinds of voices he enjoys, how he responds to different facial expressions, what toys he prefers to play with. Approach him when he appears bored and unconditionally offer him something he enjoys. Play with him without requiring any responding.   It's sometimes helpful to have a "special" food or toy that's only available when the instructor is present. This establishes the instructor as a form of "conditioned reinforcer". You'll know that you are being successful if the child appears happy when you arrive! Important factors to consider at this stage include:

a) Don't remove the child from an enjoyable activity when the instructor arrives. For example, it would be best not to have a favorite video on just before the instructor is scheduled to come!

b) Don't require a response. In other words, don't give the child any directions to "come here", "sit   down", "look at this" ect..

c) Interact in an animated and fun way to make the child WANT to be with you.

Requiring the first response

Using the Verbal Behavior model, the most important thing to teach the child is how to ask for things they want. (Manding) This is because the child is typically motivated to communicate for these things (has an "establishing operation"). We typically see a big "jump" in communication skills as a child learns to mand. They learn "I talk, I get" and that gives them a great deal of power.   Part of this teaching should already be occurring during the first stage. For example, if you see a child reach for a specific toy (car), you might say, "car". Hold onto the car for just a second to see if he will echo. If not, give the car anyway. If the child does not have an echoic response under instructional control, you might also try getting a fill-in response that can later be transferred to a mand. You might say, "Let's play cars!" the repeat, "Let's play ___ " and see if the child will fill-in the response.   Another useful technique is to have the desired item in view but unattainable without adult assistance and give the child a choice as the adult labels each. "Did you want car or book?" If the child does not respond even if you know he is able to say the word, it may be necessary to teach the child to be cooperative with other imitative activities as you're teaching verbal mands.   The following factors are important to consider when beginning to require responses:

a) Never require a response that you can't prompt- For example, don't say "Say car" while holding the car if the child does not consistently imitate. This is because we can't physically "make him" say the word. We don't want the child to practice NOT following instructions.

b) If you give and instruction, such as "sit down", you must physically guide the child to sit down if he does not do so. Again, we don't want him to practice NOT following instructions.

c) Be sure the first instructions you give are those that you are sure the child is capable to performing and reinforce heavily for compliance. First response requirements might be non-verbal imitation, "come here" (with another adult present to prompt) "sit down", "touch ___", match something, put a puzzle piece in etc.

d) Never use a reinforcer as a "bribe". This means, in essence, teasing the child by holding a reinforcer in full view and requiring a response before you give the child access to it. This does not mean that you can't use reinforcers as a "promise". For example, if you want the child to come over to you, have something he likes in your hand and give it to him when he comes!

e) Even for children who are vocal but these vocals are not yet under instructional control, pictures or signs may be helpful in teaching the child how to request things they can say(mand). This is because you can prompt a child to perform a sign or hand over a picture but you can't physically prompt speech. Typically, the child will quickly begin to use words functionally, if he is capable of producing them, once he understands the "rule" of manding (requesting).

Dealing with Negative Behavior

The child should never gain access to a reinforcer with negative behavior. This is often difficult at the beginning of a therapeutic relationship because, sometimes, the child may have been inadvertently reinforced for negative behavior. It's common for children to cry and scream when they have a need that is not being met. Because the child is unable to communicate in more effective ways, parents may have tried to figure out what the child wants when he is screaming by offering all of his favored items. This reinforces the screaming and tantruming! Ignoring the tantrum may temporarily increase the behavior (extinction burst) but it's critical that all those working with the child not "give in" to the tantruming behavior. Try to give no attention to the tantrum if the child is screaming because he wants something. Walk away, take a deep breath, and stay calm!   When the child calms down, use pictures, signs or show him things until you figure out what he wants. If you are aware of what the child wants, a counting procedure can be used. Say, "No crying" or a something similar and begin counting when the child stops crying, even if it's to take a breath at first. Start over each time the child begins to cry again. Once the child has stopped crying for a count up to a pre-determined number (3-10), give the child what he wants.

If the child is tantruming because you have delivered an instruction and he does not want to comply, calmly use the least intrusive prompt that you can to make sure he does as he was told. If you've asked him to sit and he screams, guide him gently to the chair, make him sit for a few seconds then let him get up (ONLY when he is not screaming!). The important thing about negative behavior is to learn from it. If the child is tantruming, it means the teaching procedures must be adjusted. Look at the reinforcers, the density of the reinforcement, and the difficulty of the tasks you are asking him to do in order to determine what needs to be adjusted. It's critical that negative behaviors are not reinforced but the most desirable thing to do is to use good teaching procedures so they do not occur.

The most critical things to remember at the beginning of a therapeutic relationship are to have fun, enjoy the child, and teach the child that learning is fun and communication is powerful! The child must learn that life gets better when he complies with requests!

Rules of Reinforcement

1. Reinforcers should be reinforcing. <u>What is reinforcing to one child may be aversive to another</u>! Things that a child finds reinforcing at one time may not be later!

2. Reinforcement should be contingent. <u>Reinforcers should only be available when a target behavior occurs so as not to diminish it's power</u>. (Non-contingent reinforcement can be offered in attempts to pair the instructor or an undesired activity with reinforcement.)

3. <u>A variety of reinforcers should be used</u>. This is to insure the reinforcer will keep its value as well as providing a way to give differential reinforcement.

4. Always <u>pair social reinforcers with primary reinforcers</u>.

5. <u>Continuously develop and identify new reinforcers.</u>   Look at the child's self-stimulatory behaviors to help you determine what he might enjoy.

6. <u>Use age appropriate reinforcers</u>. This will increase peer acceptance and increase the likelihood that the child will encounter these things in the natural environment.

7. <u>Unpredictability and novelty greatly enhance reinforcement</u>. Surprises are usually very enjoyable and highly motivating. A grab bag or surprise box may be helpful.

8. <u>In the beginning, reinforcement should occur immediately</u>. You must be sure the child associates his behavior with the reinforcement. Reinforcement is most effective when it occurs within ½ second following the behavior.

9. <u>A variable reinforcement schedule should be established</u> and followed consistently.

10. Reinforcement should be <u>faded over time</u> as a child learns the skill. Easy tasks should have a relatively "thin" schedule of reinforcement.

11. <u>Evaluate the timing</u> of reinforcement- Don't break the momentum of working to reinforce and work toward building a cluster of responses before giving a tangible reward.

12. Over time, change to reinforcers that are more natural and practical - social praise, "thumbs up".

13. <u>Do not use rewards as bribery</u>. Do not get the child in a habit of hearing in advance about the reinforcer he will receive.   Do not remind the child of the reinforcer he would be getting if disruptive behavior were not occurring. Do not offer additional reinforcers when behavior escalates in attempts to calm him down.

14. <u>Use differential reinforcement</u>. Provide the best rewards for the best behaviors or "hardest" work while saving the "OK" reinforcers for "OK" work or de-escalation of behaviors.

Terms and Definitions

(Note: These definitions are intended to assist those without an extensive behavioral background to be able to acquire a functional use of the conditions defined. As a result, they may not be "precise" from a behavioral standpoint.)

Establishing Operation (EO):
a) Temporarily increases the effectiveness or value of a reinforcer.
b) Temporarily increases the behaviors that have been consequated by that reinforcer in the past.

Things that affect an EO:
1) **Deprivation** - When you haven't had the desired item for awhile. (Increases value). Ex: When you've been on a diet, pizza becomes highly desirable.

2) **Satiation** - When you've had a great deal of the desired item recently. (Decreases value) Ex: If you eat pizza for lunch every day, you might not want it any more.

3) **Competing EO** - The value of some other behavior is stronger. (Decreases value).
    Example: The child really wanted to play with that toy but you asked so many questions that the value of escaping became stronger than the value of the toy.

    Examples:
    1. If you're low on cash, it temporarily increases the value of extra money and results in the types of behaviors (extra job?, extra work to earn a bonus?) that have allowed you access to money in the past.

    2. If a child has a favorite toy that he hasn't played with for a long time, the value of that toy is temporarily increased and results in an increase the types of behaviors (talking?, Screaming?) that have gotten them the toy in the past.

    3. If a child is in a loud, noisy environment that he finds uncomfortable, it temporarily increases the value of escaping and results in the types of behaviors (hitting?, biting?, screaming? Saying, "Let's go.") that have resulted in escaping in the past.

Reinforcement:
Something that happens (reinforcer) *after* a behavior occurs that increases the occurrence of the same behavior under the same conditions in the future.

1. **Positive Reinforcement:** Giving something the person finds desirable (reinforcer) after the behavior occurs and increases the occurrence of the same behavior under the same conditions in the future.

    Examples:
    a) A child wants a cookie and continues screaming as parents search for what he wants. The next time the child wants a cookie, he is more likely to scream to get it.

    b) A child wants to play with a ball so he signs "ball". The parent gives him the ball so the next time he wants the ball, he signs "ball" again.

2. **Negative Reinforcement**- Removing something (reinforcer) the individual finds aversive and increases the occurrence of the same behavior in the future.

   Examples:
   a) A child finds his brothers presence annoying. He bites the brother. His mother comes and takes the brother away. This increases the likelihood that he will bite his brother the next time he wants to get rid of him.

   b) A child finds "circle time" at school aversive and starts screaming. The teacher puts him in "time out". This increases the likelihood that the next time he wants to leave circle he will scream again.

Punishment- Applying something the individual finds aversive or taking away something the individual finds pleasurable right after the behavior has occurred that results in a decrease of the behavior.

Stimulus- Anything that a person can experience through their senses. Anything that can be seen, heard, smelled, felt, or tasted. Different people can experience the same sensation in different ways. A stimulus that one person might experience as pleasurable another may experience as painful or aversive. Some stimuli cause neither pain nor pleasure and have not been associated with anything else (neutral). A stimulus can become associated with another event when it is followed by either reinforcement or punishment. Then it is considered a discriminative stimulus (Sd). In other words, when that stimulus is present, it indicates the availability or possibility of reinforcement or punishment. When a stimulus is associated with the unavailability of reinforcement, it is called an S-Delta condition.

   Examples:
   o **Neutral Stimulus**- Daddy says, "touch the dog" and this is the first time the child has ever heard this phrase. The child hears the words but they are not associated with anything either positive or negative.

   o **Discriminative Stimulus**- A child is sitting on his father's lap and looking at a book. Daddy says, "find the dog" and takes the child's hand guiding (prompting) him to touch the dog. When the child touches the dog, daddy hugs him and says "That's right!". The child finds this quite pleasurable (reinforcing) so when daddy turns the page and says "Find the dog" again, the child again touches the dog, not waiting for his daddy to guide him. Because the behavior of touching the dog has been followed by reinforcement in the past, hearing "find the dog" when the dog is present suggests the possibility of reinforcement if he touches the dog again.

   o **S- Delta**- To continue the example above, if the child touched the "cat" instead, Daddy does not give him a hug and say, "That's right!" Now the behavior of touching the cat is associated with the *unavailability* of reinforcement whenever he hears "touch the dog".

Behavioral Classification of Language (Skinner)

Mand – Requesting; asking for something. A "pure mand" occurs purely as a result of the EO or desire to have the item rather than having to be asked, "What do you want?".

Examples:
>   Can I have a cookie?
>   Where's mommy?

Receptive- Following directions or complying with requests of others.

Examples:
>   "Find Cookie Monster." *(Child touches)*
>   " Please put your plate in the trash." *(Child complies)*
>   What says Choo Choo? (Child touches train.)

Tact- Labeling/naming an item, action or property of an item that is PRESENT or something with which the individual comes into contact. A "pure tact" does not relate to having an EO or desire for the item.

Examples:
>   "What's this called?" *(Child names item)*
>   "How does the dog feel?" *(Child says "soft"),*
>   " Which one says choo choo?" *(Child says "train")*
>   "What do you see?" *(Child says "A bird flying in the sky.")*

Intraverbal- A response to something a person says which relates to an item, action or property which is NOT PRESENT. (Answering questions or carrying on a conversation.)

Examples:
>   "Twinkle, Twinkle, little" _____. *(Child says, "star")*
>   "What says 'choo choo'?" *(Child says "train")*
>   "What did you do at school today?" *(Child says, "I painted a picture!")*

Echoic- Repeating exactly the same thing that another person said.

Examples:
>   "Do you want to go outside?" *(Child says, "Do you want to go outside?")*
>   Mom says "car". *(Child says "car".)*

FFCs- These letters refer to "features", "functions", and "classes". Once a child is able to ask for, identify and label items in their environment, FFCs are taught so the child can learn associations or "intraverbal connections" between the words. Features are parts of items and descriptions of items. Functions are the actions that typically go with the items or what one does with the items and classes are the group(s) the items can belong to.   Receptive, tact, and intraverbal responses are all taught so the child can learn to answer questions and talk about things when they are not present.

Examples: <u>Banana</u>
<u>Features</u>: yellow, peel, long,
<u>Function</u>: eat it, peel it,
<u>Class</u>: food, things we eat

During the initial phase of teaching, the child's response is to touch, name or respond with the item name when the FFC is said. After approximately 30 different items have been taught, the reversal is then taught allowing the learner to define and describe things.

yellow
peel ————————————————————————— **Banana**
long
eat
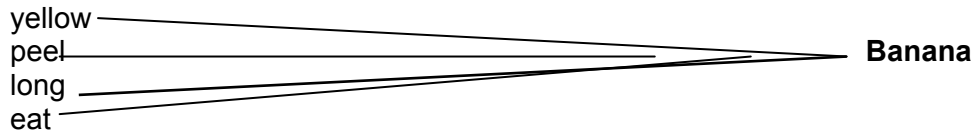
Conversations are typically a combination of mands, tacts and intraverbals with occasional receptive responses.

Example:

Sam: "Hi! How are you?" (**mand**)

Fred*:* *"*I'm OK, but I've been pretty busy!" (**tact, intraverbal**) "I feel like I'm ready for a vacation!" (**tact**) "How about you?" (**mand**)

Sam: "Actually, I just got back from vacation!" (**Intraverbal**). "I'm ready to get back to work again!" (**tact**)

Fred: "Really! Where'd you go?" (**mand**)

Sam: "We went to the beach for the week." (**intraverbal**) "Do you want to see my pictures?" (**mand**)

Fred: "Sure!" (**intraverbal**)

Sam: "Hand me that bag over there." (**mand** - Sam, **receptive** -Fred) "It has my pictures in it." (**tact**) "This is the house we stayed in." (**tact**) "And here's one of the kids burying me in the sand." (**tact**)

Fred: "Did you like the house you stayed in?" (**mand**)

Sam: "Yeah, it was great!" (**intraverbal**)

Fred: "Could I get the number of the agent?" (**mand**) "I'd like to stay there too!" (**tact**) "Write it on this paper for me please." (**Mand** - Fred, **Receptive** - Sam).

Evaluating the Child's Response to the Environment

Many children respond differently to a variety of sensory input (stimuli). Understanding the patterns of each child's response to the environment can assist parents and instructors in determining the types of toys or activities the child may enjoy as well as assist in determining the types of stimuli that should and should not be used to teach or reinforce the child. Observe the child carefully and describe his/her reaction to different stimuli.

Sound

1. How does the child respond to loud vs. quiet sounds? Does the child respond differently if he expects the sound or if the sound is sudden and unexpected?

2. How does the child respond when you vary the pitch of your voice? How does he/she respond to very low pitches vs. high pitches? Does he appear to prefer male or female voices?

3. How does the child respond to music? Does he attempt to sings songs even if words can't be understood?

4. Can the child imitate tapping patterns on a drum or xylophone? Can he repeat the correct number of taps or rhythm of taps?

5. Does the child speak at an appropriate volume? Does his volume change depending on the situation?

6. How many syllables are in sentences that the child can consistently imitate?

7. How does the child respond to "talking toys"? Does he tend to "stim" on them (i.e. pushing a button over and over) if left alone?

8. Can the child fill-in words to rhyming books or songs without a great deal of "teaching"?

Visual Stimuli

1. Can the child identify photographs? How does he respond to line drawings? If you vary the contrast of colors in line drawings (i.e. brown on tan vs. black on white), or highlight the background, does he respond differently?

2. How does the child respond to different lighting? Does he perform differently under fluorescent lighting, soft lighting or bright lighting?

3. Does the child respond differently to moving vs. still stimuli?

4. Does the child respond differently to visual stimuli if he his moving?

5. Does the child tend to "stim" on spinning or moving objects?

6. Can the child complete puzzles? If so, what types? Can he put puzzles together upside down?

7. Can the child take toys apart and put them together?

8. Does the child anticipate the route to familiar places? Can he find familiar objects if they've been moved?

9. Does the child respond to one small part of a picture rather than the total picture?

Movement, Touch and Awareness of Body in Space

1. Does the child appear to be "always in motion" or more sedentary?

2. Are movements repetitive or random?

3. How does the child respond to swinging, spinning or dancing in your arms?

4. Is there a difference in the way the child responds to sudden movements vs. slow, steady movements?

5. How does the child respond to small spaces? Large spaces?

6. Does the child walk on top of objects rather than around them?

7. How does the child respond to different textures in clothing or toys?

8. How does the child respond to hugs vs. light touches? Is there a difference in the way he responds to slow steady massage vs. short staccato touches? Does he respond differently to touches on various parts of his body?

9. Will the child tolerate teeth brushing and face washing? Does he often put things in his mouth?

10. Does the child eat a variety of textures of foods?

11. Does the child tend to "stim" by physically manipulating objects or body parts?

12. Is the child able to sequence a number of movements together to perform a task?

13. Can the child sequence a number of different actions with toys?

14. Is the child's overall muscle tone floppy or stiff? Does this change when the child makes purposeful movement?

Taste

1. Does the child eat a wide variety of flavors of foods? Does he appear to prefer spicy, salty, sweet or bland foods?

2. Does the child ever lick or mouth items before interacting with them?

Smell

1. Does the child appear sensitive to perfumes, cleaning agents or other chemicals?

2. Are there particular smells the child appears to enjoy?

3. Does the child frequently smell things before interacting with them?

4. Does the child appear to "stim" on smells?

Teaching the Child To Play

Frequently when parents are told that the first thing we want to do is teach their child to ask for things they want, they will say "But he doesn't want anything!". All children want something and there are things we can do to increase both the variety and number of things they want. It is imperative that we "teach" the child to enjoy many things so that we can increase the opportunities for teaching as well as give them activities to participate in that are more fun (reinforcing) than "stimming".

The importance of teaching a child to enjoy "play" cannot be over emphasized. While it is certainly possible to teach a child to point to pictures, imitate actions and imitate words in artificial or contrived situations, it is not likely that the child will use these skills in a functional manner unless we teach him using the types of things that he is likely to encounter in the "real world". In addition, if these "real world" items (toys, games, people) are not reinforcing to the child, we will only have an "EO" for the child to talk when he's in this artificial environment (sitting at a table) with artificial stimuli (pictures) and artificial reinforcers (videos, candy, treats). Therefore, an ongoing "goal" in any program should be to pair established reinforcers (foods, touches, smells etc.) with new items to create more and more things the child enjoys (conditioned reinforcers).

To help determine the types of toys or activities a child might enjoy, we can look at the types of self-stimulating behaviors he engages in and investigate the way he reacts to a variety of sights, sounds, tastes and movements in the environment (stimuli). The attached questions will help guide you as you learn about each unique child. You may not know the answers to some of the questions at this time. To answer the questions, try presenting various sights, sounds, touches and tastes and see how the child reacts. Once the questions are answered, use the information to help you determine the best types of toys or activities to introduce to the child. Some suggestions are provided based on the information you gather.

The most important thing to remember is that any time you introduce a new toy or activity, you want to "pair" it with "reinforcement". In other words, doing something the child might not enjoy a great deal in combination with something you know he does enjoy. This same idea holds true no matter what new activity you're introducing.   Any reinforcer can be used to "pair". For example, if the child enjoys being held tightly, pair this activity with reading a book. If he likes to watch things spin, choose toys or activities that have spinning parts. If he likes silly voices, use them while playing with him. If he likes music, sing or exaggerate the inflection on your voice while interacting with him.

After we have the child "hooked" or enjoying the activity, we can teach him to ask for the activity or perhaps ask for various pieces or parts within the activity. If the child is non-verbal, you can teach them to ask for the activity using signs or pictures. During the next session, we will be discussing ways to determine the most appropriate augmentative system to use. You can also being to pause before the last word to see if the child will "fill-in" the last word. This is partly an intraverbal response but also partly a mand if the child is responding so the activity will continue.

Many of the first toys and activities chosen to introduce to the child may be considered "stimmy" toys. For example, tops, spinning wheels, gears, or ribbon sticks.   In other words, if left alone with the toy, the child may choose to watch it or interact with it over and over in a repetitive way. It is important not to let the child "play" with the toy in this fashion because, as we've discussed previously, self-stimulating behaviors tend to reinforce themselves. We don't want to increase the

child's self-stimulating behaviors by allowing them unlimited access to these toys. What we are trying to do is pair the reinforcer (stimmy toy) with talking and interacting with you. These are toys that should be kept up and away in a special place to only be played with when engaged with an adult. It is important that the instructor maintain control over the toy or parts of the toy to keep the child from "stimming" and ignoring the instructor! If you find one toy or activity the child is interested in, try to find others that may offer the same or similar sensory stimulation to the child.

Another set of toys or activities to look closely at are those which combine some "cause and effect" with pretend play. For example, car washes that really squirt water, stoves that make bubbles when you cook or toy sinks that squirt out real water when they're pushed. If the child enjoys the "cause and effect" part of the toy, you can often get the child to respond to you by controlling that part of the toy yourself. For example, if the child wanted to see the bubbles from the stove, he's more likely to request, "cook" if you're holding onto the burner knob!

One of the biggest mistakes people make is to sit down with the child to "play" and start asking a lot of questions. This isn't play, it's testing, and the child may find it aversive. Instead, you want to avoid placing demands on the child and just enjoy the toy with him/her. For example, many children enjoy "silly" voices and exaggerated intonation patterns, especially children who also prefer music. If this is the case, you might sing or say the same series of words as you play with the toy with a "melodic" tone to your voice. For example, if you were bouncing the child on a therapy ball, you could say, "bouncy ball, bouncy ball, all fall down". Roll the child off the ball as you say "down". If this is done repeatedly and the child is enjoying the activity, it is likely that you will begin to notice him looking at you expectantly when you get close to saying "down". Begin pausing before saying down and you may find the child filling-in the word "down" for you! Try to avoid simply narrating what you see the child doing and instead participate in it. For example, if the child is rolling a train on a track, get another train and pretend to crash into his train or chase his train around the track. If he appears to be repeating the same activity over and over, interrupt him in a playful manner. For example, if the child is running in circles around the room, swoop him up into the air and "fly" him around the room instead.

Some children just need to be around a new toy for a while before they will begin interacting with it. If the child has this type of history, just leave the toy in the room for a few days untouched. Gradually begin playing with the toy yourself, when the child is in the room but a distance away. Let the child see you put the toy in a location where it's visible but not accessible. Wait until the child comes to you while you're playing with the toy rather than going to him with it. Just because a child runs from a toy the first time it's presented doesn't mean that he won't enjoy it later.

Be aware that some children get very "stuck" in having to play with a toy or hear a story in the exact same way every time. Because of this tendency, a toy that the child appeared to love while playing with mommy isn't the least interesting when playing with daddy! If this appears to be happening with a child, carefully watch the person he seems to be enjoying the toy or activity with to help determine what the child is reacting to. Perhaps it's a silly voice or the way a specific word is said. While we don't necessarily want to encourage this apparent need for "sameness", we can use the information to determine how we might make the same toy just as fun (reinforcing) for the child but in a different manner.

Remember that some children become increasingly excited when interacting with some toys, especially "stimmy" toys. If the child appears to become very active and seems to be unable to focus on what you're doing, take a break and do a different type of activity that involves different stimuli. For example, if a child begins jumping up and down and clapping while playing with a top

you might ask him to sit then take a break and go read a book in a small contained space or go make "kid sandwiches" with pillows. You have to be careful not to unintentionally reinforce any negative behaviors by reacting to the child's behavior. Use the information but wait to switch to another activity when the child is exhibiting a desirable behavior.

Beginning Play

The following teaching techniques have been found to increase the child's interest in people and/or toys. Remember the goal at this point is that the child "allows you" to enter his play and you become part of the reinforcement he is getting from the situation.

1. <u>Build anticipation.</u> Repeat the same words or sequence of movements over and over in the same manner then pause.
   > Ex: Play "Peek–a-Boo". Say, "ahhhhhh Boo!" as you gradually move toward the child and take a blanket off your head. As the child begins to attend to you, you will notice a smile and eye contact as you get closer. The child may begin to laugh as you remove the blanket. When you begin to see this happening, stop, right before you say, "Boo!". The child may fill in "Boo" or try to take the blanket off your head for you!

2. <u>Do something unexpected</u>. Repeat an activity in the same manner then all of a sudden change the routine.
   > Ex: If the child is eating a cookie, say, "I'm hungry" and move toward the cookie taking a few pretend nibbles. After he has tolerated this a few times, move toward him and make loud, sloppy eating sounds!
   > Ex: If the child is repeatedly scooping shovels full of sand or rice and watching it flow into a pail, pretend to eat it! Or bring a favorite character (i.e. Elmo? Barney?) over to the play to "eat".

3. <u>Imitate what the child is doing then make a game of it</u>.
   > Ex: The child is stomping on pinecones while you go for a walk. You take a turn stomping on the pinecones saying, "I found one! Stomp". Then tell him, "Your turn. Stomp" as he stomps on the pinecone. As this "game" progresses, perhaps you could find more pinecones and put them in a circle or another pattern to play the "stomp" game.

4. <u>Interrupt the child's "play" by playfully obstructing</u>.
   > Ex: The child is repeatedly going up and down an indoor slide, crashing into pillows at the bottom. Grab his leg (gently) at the top of the slide and "wiggle" him saying, "Oh, No! I caught you!" You will know whether or not the child finds this "fun" if he's smiling. Wait for the eye contact before saying, "Let go?" in a questioning manner then letting the child go down the slide. Or, if a child is running around in circles then crashing into the couch cushions, place some pillows on the floor and crash into them instead. Make sure you take turns crashing!

5. <u>Pair words/sounds with what the child is doing</u>.
   > Ex: As the child is drawing by himself, say "draw, draw, draw" or "around, around, around and stop", or "up and down, up and down." (whatever describes what the child is doing.) Use the type of voice (i.e. sing-song, quiet, exaggerated) the child typically

enjoys. Just the pairing of these words or sounds with reinforcement make it more likely that the child will use the words/sounds later.

6. <u>Use exaggerated facial expressions/body movements to make yourself "stand out"</u>
   > EX: Open your eyes wide, fall down with a big "boom!", cry with your mouth wide open and your hands rubbing your "tears".

7. <u>Create meaning.</u> Even if you don't think your child said a "real word", listen to the sounds   he's making and act is if they have meaning.
   > Ex: While drawing, the child is babbling and says something that sounds like "sun". Quickly pick up a marker and draw a sun as if the child asked you to draw it.

8. <u>Introduce other "characters" into the play</u>.
   > Ex: The child enjoys having you bounce him on a ball. Bring in other toys and let them bounce on the ball. If the child starts pushing these characters off the ball say, "Go away, Elmo" as the child pushes the characters away.

Later Play

Each child is different so you'll have to watch each closely to determine when to begin gradually adding more "demands" to the activity. Once the child is asking for the toy or activity, you can increase the number of things he asks for before getting the end result. For example, once a child is consistently requesting to play with a ball, put it into a see-through container and teach him to ask you to "open" the container. Later, you can teach him to ask you to "roll" or "bounce" the ball or perhaps you could give choices of different colored balls for him to request. The important thing is to not increase the demands so quickly that the child doesn't want to participate any longer. This is often referred to as "killing the reinforcer". In essence, the increase in demands is now making escape more valuable than the activity. This is often the case when I hear parents report that their child used to really like a particular toy or activity but no longer does.

Another way to "kill the reinforcer" is to allow so much access to it that it no longer becomes reinforcing (satiation). For example, the child may really like to play with balloons with you but if you do it 10 times a day, every day, it may not be so fun anymore! Occasionally stop an activity when the child is highly motivated for it but be sure to change to something that will still be reinforcing. By continually exploring new toys and activities the child enjoys, gradually increasing demands and varying your activities frequently, you can keep the value of the toy or activity high.

Some children may have a few very favorite activities but not tolerate the introduction of new activities very well. If this is the case, perhaps the child can just watch you having fun with the new activity for a while while eating some of his favorite snack or drinking some juice (pairing). You'll know when the child is ready to play with the new toy or interact with you during the new activity when you see him begin to smile and reach for the objects within the activity.

At this point, you can also expand the play by adding new "pieces" to the routines or new characters into the play. For example, if the child enjoys watching animals go around the track on the train, perhaps it's time to stop the train and take them to the zoo or the farm, wherever they happen to live. Take a reinforcing activity and add a new part of the sequence to enable you to teach new

things. Again, be careful not to add too many demands too quickly or the child may lose interest in the activity or at least choose to play with it only when you're not around!

Use the "piece" of the play that the child enjoys as a reinforcer for performing other activities. For example, if the child enjoys putting clothes on a doll, change clothes as necessary to go play in the ocean or go to the park! If the child enjoys playing with animals, have them (the animals) decide they want to do something different.

Another way to begin more elaborate play is to use the child's favorite videos. Get the characters in the video and start acting out some of the situations on the video. Pause the video and have the toy characters repeat the same situation that was just observed. This is also a way of pairing the toys with reinforcement and gives the child a "script" to use while playing. Gradually change the script to be sure the child does not get "stuck" in only re-creating the video for the most functional play.

While attempting to teach during play, it is tempting for some to continue the rapid paced speech and multiple questions used during intensive teaching sessions while playing with toys. This should be avoided at all costs. Instead, model tacts, get some receptive response and do a great deal of "problem solving" during the play. Give the child options for directing which way the play scheme should develop. For example, if you're playing with Barney and he becomes "sick", should you take him to the doctor or the park? If Loftie can't lift a big pipe, should Scoop help him or should he put it down? Giving the child options allows him to continue manding but expanding the play. Play should "look different" than work!   The author recommends that you use play to teach a child new things and save the intensive teaching session for increasing the speed and accuracy of responding to multiple tasks in a mixed and varied fashion whenever possible. Doing so will increase the likelihood that the skills will generalize and will also make the learning situation more fun for everyone! Once talking and playing have been so heavily paired with reinforcement that they are reinforcing in and of themselves, the child will be ready to learn things he is not necessarily interested in and be ready to learn in a more traditional "school" way.

Advanced Play

There comes a time in each child's life when they don't always get to play with toys the way they want and to "boss" everyone around to do what they want to do. During our early teaching we want the child doing these things as learn "I talk, I get" and to develop new play schemes with just a little coaxing and varying from the adult "play partners". Sometimes this type of play will create "manding monsters" where the child insists that all play, from which puzzle piece should go next to which way a train track should run, has to be determined by him.

However, if we want the child to learn to play with other children, we have to also teach them that they do not always get to "direct" the play. We teach the beginnings of this when we insist on taking turns in their directed play and can expand this teaching by taking turns coming up with "ideas" in later play. For example, while building a marble run game or a block structure, take turns coming up with different "ideas" as to what parts should be put on next. If the "idea" works, the child can be taught to compliment the "play partner". If not, "Oh, well.." Maybe the next idea will work.

More advanced play can also be used to re-create specific social situations in which the child may be having difficulty. For example, if the child does not play well on the playground with other

children, playing with playground toys can teach different options of things to do on the playground. Or, if the child has had a specific "run in" with another child, acting the problem out can be used to teach the child a way to respond differently in the same situation in the future. It's role playing with dolls or toys.

The basic idea to remember about play at any level is that it should be fun! By carefully adding in demands and constantly striving to find and create new things the child will enjoy, we can insure that he learns in a manner that will allow him to generalize his communication skills to other people, places and things.

Favorite Toys

This list includes "first toys" that have been found to be favorites of the children.

Remember that each child is different so choose those that appear to be similar to other things your child/student has found enjoyable or similar to some of the self-stimulating behaviors exhibited by the child.

The initial goal is to determine as many different types of items (stimuli) that can serve as a reinforcer during teaching. By observing and introducing items that appeal to the child's individual responses to sensations (stimuli) we can build a large number of possible reinforcers.

Please note that it is not recommended that children be left alone to "play" with these toys.

We do not want the child to continue to be "automatically reinforced" by self-stimulating behaviors or toys. Instead, they should be used to engage the child (pair the parent/instructor and sounds/words with reinforcement). With any of these toys or activities, the use of anticipation, animated facial expressions, maintaining control of the parts of the toys, and surprise can be used to insure you are included in the fun! (paired with reinforcement)

Linear movement toys (visual stimulation) - Merely presenting the items to the child may not be effective. Try moving them in from of the child in the way in which he typically moves things in order to gain his attention to the item. Show him the items with a great deal of excitement or drama in your voice or facial expression to let him know how exciting you think it is!

1. Drawing/coloring tools- markers, crayons, pencils

2. Tools for hitting, pounding, catching- wooden spoons, drums sticks, spatulas, bug nets, baseball bat, shovels

3. Things that move, or can be made to move, in a linear fashion- rice/sand/beans poured from a cup, trains, cars, lines drawn by other people, legs on dolls/animals, magic wands, ribbons on a stick, squirt bottles or sports bottles filled with water, hoses

4. Rain sticks or toys that allow fluids to move from one end to the other when tipped over

Spinning Toys (Visual Stimulation) - Some children enjoy items that spin only if there is no sound associated, others like spinning things with lights and still others like things that spin only if music is involved. Try various types of spinning toys to determine the child's preference. Be sure you're involved with the play by maintaining control of the parts, staying down at the child's level as close as he will tolerate and using your body (facial expression, exaggerated movements), anticipation and surprise to be sure you're included with the fun (paired with reinforcement).

1. Gears/wheels- both motorized and mechanical.

2. Tops- those with lights, sounds as well as quiet tops.

3. Ribbons on sticks, spun in circles

4. "Bee Bop" Flower toy- this toy has 3 circles that spin on which flowers and animals can be stacked. It can be found in the infant section of major toy stores.

5. Flashlights with spinning toys on top or flashing the light of a regular flashlight in circles.

6. Toy "Merry-go-rounds", Ferris Wheels, windmills, cars on roads, trains on tracks.

7. Musical toys with spinning parts

8. Balloons blown up then allowed to "fly away" will often spin around in circles as they deflate.

Movement (Vestibular Stimulation) - Many children enjoy movement and toys that generate or create movement. Just be careful to observe the child carefully to be sure the movement is not over stimulating. According to OT literature, in general, back and forth movement appears less stimulating than side-to-side movement. The most stimulating movement tends to be rotational (spinning) and should be used carefully. Combining a variety of movements is generally more stimulating than one single movement. So, if you want to calm a child, you may want to provide rocking movements whereas if you want to "rev up" the child, you might want to provide more varied or more stimulating movements.

1. People- rocking in a rocking chair or while standing- Some children may be reinforced by movement but may find touch aversive so experiment with different ways of holding the child.

2. Rocking chairs, rocking horses, sitting toys that rock.

3. Swings- standard or "home made" swings. Various materials such as Lycra can provide more pressure and a smaller space to add to the enjoyment of swinging for some children. There are many "therapeutic" swings on the market that can provide different types of movements combined with different types of touch. Experiment to see what the child appears to enjoy.

4. Running- Be sure the child is able to discriminate between the environmental conditions that can make running fun (i.e. playing chase) and dangerous (running into the street). For example, you might want to only play chase in a certain room of the house but not in any others or outside to add many differences between the settings so the child does not tend to run away from you when you are not playing. Teach safety responses such as "stop" or "come here" if you are going to play chase games with the child.

5. "Sit n Spin", Merry-go-rounds, other riding toys that spin- As mentioned above, be sure to monitor over stimulation.

6. Jumping- trampolines, beds, cushions-

7. "Crashing"- Jumping into cushions, being "tossed" on the bed (gently of course)

Touch (tactile stimulation) - Many children appear to enjoy the feel of sticky textures. Others respond well to different types of massage or deep pressure. Most children appear to enjoy deep pressure using the palm of your hand rather than lighter more "staccato" type touch but experiment because all children are unique. Be sure to attend to how the child responds to the tactile stimulation vs. the smell.

Some children may enjoy the tactile but find the smell quite aversive. Experiment with both smelly and fragrance free items.

1. Stickers

2. Gak, Goo or other slimy/dough type material. These can be purchased commercially or made from children's recipe books.

3. Rubber sticky toys- snakes, cartoon characters, animals- These can often be found in science type toy stores or inside "Gak" containers.

4. Ball mitts with sticky fronts used to catch the balls (or anything else you might throw at it!)

5. Tape applied to various other materials.

6. Sand, beans, rice, couscous, ball pits- Some children enjoy playing in and/or "burying" different parts of the body in these types of mediums.

7. Wrapping up in blankets, towels, vests, hugs, or squishing under/ between pillows or cushions

8. Swimming/water play

9. Climbing inside/through tents or tunnels

Smell/Taste - Some children are particular drawn to strong odors or "unique" odors. For these children, any toys that smell may be reinforcing.

Sound - Some children enjoy toys that make strange noises or "talking toys" but others find them highly aversive, especially if the sound is sudden, loud or unexpected. When introducing these types of toys it is often beneficial to keep them far away from the child at first then watching to see how the child responds. For loud toys, taping paper, cardboard or foam over the speaker to decrease the noise may result in the child responding to the toy. Many children respond to music but not "speaking". If so, using a melodic or "sing-song" voice when talking to the child may increase the likelihood that he will respond. Rapid, "adult talk" may be extremely aversive to some children. Experiment with different tones of voice, pitches, and rates as you observe the response of the child.

1. Music sticks, rain makers, musical instruments

2. Talking toys, toy computers, toy animals that make sounds

3. Music of varying tempos- some children have very specific preferences so try different types.

Reinforcing Toys and Activities

FOR CHILDREN WHO PREFER A GREAT DEAL OF MOVEMENT
Swings - Push, higher, faster, let me go, spin
Laundry basket rides - push, go, faster, slower, stop
Spinning/"sit-n-spin", merry-go-round, spinning chair- up, spin, go, faster, down
Bouncing on Therapy Balls - up, down, go, ride
Riding rocking horses or riding on therapist's back - giddy-up, neigh, ride, horse
Trampoline - jump, stop, go, higher, stuffed animal names, characters to jump with child, hide,   boo

FOR CHILDREN WHO PREFER DEEP PRESSURE AND/OR TICKLES
Hugs - hug, tighter, body parts
Tickles - tickle, body parts
Squish between pillows, mattresses, wrap in blankets

FOR CHILDREN WHO PREFER SMALL SPACES
Tents, large boxes, tunnels, blanket - in, out, "Pop Goes the Weasel", open, shut, dark, light, hide,
        peek-a-boo, sleep, wake, day, night

FOR CHILDREN WHO PREFER SPINNING OR MOVING OBJECTS
Tops, Gears, Wheels - put in, push, pull, turn on, turn off, requesting specific colors or sizes of   items
Balloons - blow, bigger, colors, sizes
Bubbles - blow, sizes (based on wand size), "touchable bubbles", body parts, locations, open, in,
        wet
Colored Scarves - colors, locations, peek-a-boo, hide, out

FOR CHILDREN WHO PREFER SOUNDS
Music sticks, talking toys, instruments - fast, slow, loud, quiet, noisy, songs

FOR CHILDREN WHO PREFER LONG, NARROW OBJECTS (STICKS)
Music sticks - loud, quiet, fast, slow, share
Tubes - push, pull, in, out, long, short, heavy, light
Ribbon wands/glitter wands - around, up, down, long, short, colors

FOR CHILDREN WHO PREFER LIGHTS AND COLORS
Lite Brite - colors, objects names, locations
Flashlights - shine on/name objects, find, look, see, locations
Toys that light up, electronic games, glitter wands
Ooglies - on/off, laugh, funny, tickle, stop, question formation, body parts

FOR CHILDREN WHO PREFER SMELLS
Scratch & Sniff books, scented playdoh or markers - colors, smells, nose, objects

FOR CHILDREN WHO PREFER A VARIETY OF TEXTURES
Beans and Rice - hide, in, out, cover, full, empty, pour, big, little
Tension ball/ Koosh Balls - squeeze, hide, locations, open, in, out, big, little, throw, catch
Worms (squishy tubes that are hard to hold onto) or squishy balls - squish, in, out, stuck,
        slippery, soft, hard
Playdough - colors, objects (any cookie cutter shapes), sizes, roll, pound, squish, push, open, in, out
Bristle Blocks - build, tall/short, colors, shapes
Finger paint/shaving cream - colors, slimy, wet, objects painted, shapes
Books with textures
Sand - build, poor, wet, dry, in, out, under, hide, lost, find

PRETEND PLAY
Toys that can be used for symbolic play but also contain an element of cause-effect:

1. Horse stable with water pump
2. Kitchen with bubbling burners and water in sink
3. Dolls that can eat
4. Color changing food items
5. Velcro food items.

Teaching the Child to Request (Mand)

Once you have established a variety of things the child is interested in (reinforcers) and have paired yourself with these reinforcers (conditioned reinforcer), teach him to ask for the item or activity. There are many different ways to do this based on both the current skills of the child and the way the child reacts to various things in the environment (stimuli). Remember to use your "teaching reasoning". Ask yourself, "How can I get the child to produce the response I want?" Then, determine how you can transfer that response to the new condition.

The important thing to remember is that the ultimate goal is to teach children to communicate vocally. Many parents are hesitant to use any alternative or augmentative communication (AAC) because they are afraid that it means they are giving up on teaching the child to talk. This is definitely not the case. There is a great deal of research indicating that teaching a child to use an AAC system to request (mand) actually increases the likelihood that they will develop vocal speech. In addition, even if an augmentative system is used to teach the child to request, there are many things that should be occurring in a child's program to increase his ability to produce speech. Use of AAC gives the child a way to communicate as the vocal skills are being taught.

The most important thing to consider is that teaching the child to request using any form teaches him that communication is powerful. It allows him access to things he wants and can replace many negative behaviors the child may currently be using to communicate. It allows him to receive reinforcing items from people, which in turn, makes people more reinforcing to the child. Finally, it gives the child a skill that we can later transfer to many other functions of language.

There are pros and cons to each response form but the decision on which to use should be based on the individual child as well as the environment in which he spends most of his time. There are a variety of different systems claimed to be "the best choice" by different professionals but the "best" choice or choices are those that are best suited to the individual child and the environment he is in on a day to day basis. The decision on which form to use can often best be determined by a team of people who are familiar with the child and should not be based primarily on the skills of the instructor or the program the child is involved in. Of course these factors must be considered because we want to be sure the instructor has the necessary skills and the environment can support the response form chosen but the needs of the individual child should be the primary concern.

Some people feel it is better to teach the child just one response form at a time, however, we have found that this is not always necessary or in fact beneficial. Different settings may lend themselves better to different response forms and using different response forms may allow the child to learn to request more things in a shorter time period. We would, however, avoid teaching multiple response forms to request the same item at the beginning. The following situation can be used to illustrate this point.

Brian is a 3 year old boy who lives in a house with 4 other children under the age of 6. Brian was taught to use the picture exchange system with photographs to request, and these pictures were placed in the location where the items or actions he could request typically occurred so he would have access to his communication system. His siblings would often take the photos down from their location so they were not available to him. The pictures were then placed in a book and Brian was taught to use a gesture to request his book when he wanted to request something. Brian had many caregivers during the day and went to many different environments. Often his book would be forgotten or misplaced so he would not have access to

his communication.   It was determined that it would be beneficial to teach Brian to learn to use signs to request since he would always have his hands available. The pictures were still used at mealtimes since the setting and options for things he could request remained fairly constant in that environment. In addition, his school used pictures to request snacks and food items at mealtime at school. Brian was taught to request all toys and actions with signs, and pictures continued to be used for foods.

The two most important things to remember about teaching a child to request using any response form are:
1. The child must want the items
2. The child must be able to respond to the stimuli we are using to teach him to request (mand).

Teaching Signing as a Request (Mand)

If it has been determined that sign language is the response form to be used with a specific child, it is helpful if all those working with the child follow the same procedures to teach the child to sign. Appropriate prompting and prompt fading procedures will insure the child learns to use new signs with little frustration, allowing the use of signs to be heavily paired with reinforcement.

It is often helpful to teach things that come in or can be broken into small pieces as the first requests since this will allow us to have multiple opportunities to practice the new signs. It also allows us to give the child more of the item when he learns a new skill on the way to independent signing. If the things the child desires are not those that can be broken into small pieces, it will be important to teach the child to give up a reinforcing item so that you can have multiple opportunities to practice. To do this, ask the child for the item when they're holding it. If the child does not give you the item, take it away and immediately give it right back. If the child begins to scream, cry or exhibit other inappropriate behaviors when the item is taken, turn away, ignore or use the counting procedure until the child stops exhibiting the negative behavior. Then, prompt the sign and give the child the item back. Continue until the child is giving the item to you on request. As soon as he gives it to you on request, reinforce heavily and allow him to keep the item for a longer period of time. Conduct repeated trials of this throughout the teaching session and gradually add other tasks between the response when the child gives you the item and asks for it back.

Some items the child may desire will not have standard signs. If this is the case, a sign can be made up. Be sure all those working with and interacting with the child know the sign he uses for the item so that it will be reinforced consistently. Signs can also be made up or modified if the child is unable to perform the fine motor movements required for the standard sign. When making up signs, try to use something that's "iconic" or looks like the item the child will request.

Before trying to teach a child to sign for an item to request it, it will be important to determine that the child actually wants the item at the time. (Establishing operation). This can be done by observing the child stare at the item, reach for the item or attempt to guide your hand to the item. It can also be done by offering a bit of the item or playing with the item with the child for a while.

We want to be sure to always pair the spoken word with the sign as well as with the item itself. The name of the item should be said 1) whenever you prompt the sign, 2) whenever the child produces the sign and 3) whenever the child receives the item.

If the child ever approaches someone and produces multiple signs, it is important that these "chained" responses not be reinforced. In other words, the child should not get the item. The child should only receive the item if he signs the single sign. Use prompting and prompt fading procedures to insure this. For example, if the child approaches and performs 3 consecutive signs, don't give him anything. If you know what he wants, prompt the sign, then ask, "What do you want?" to get an independent sign by itself before giving the child the item. If you're not sure what it is he wants, make a few of his favorites visible. As he reaches for the item he wants, prompt the sign then ask, "What do you want?" to get an unprompted response.

What if the child is unable to imitate fine motor movements?
1. Provide a hand over hand prompt of the sign. Physically manipulate the child's hand(s) to form the sign.
2. Say the name of the item as you manipulate the child's hands.
3. Repeat the name of the item as you give the child the item.
4. Provide multiple opportunities for the child to request the item.
5. Fade the hand-over-hand prompt as you begin to feel the child move his hands himself. It's often helpful to fade the last step of the sign first or gradually lighten your touch as the child performs the sign independently.
6. As part of the child's program, teach him to imitate other movements so you will be able to teach new signs through the less invasive prompt of imitation.

What if the child is able to imitate fine motor movements in response to "Do this" but not if I say the name of the item when I sign?
1. Say, "do this" and perform the sign.
2. Say the name of the item and perform the sign again. The child should imitate since he just performed the same movement.
3. Say the name of the item as you hand the child the item.
4. Gradually add other tasks between the "Do this" trial and the independent trial until the child is able to imitate the sign she you say the name and model the sign.

What if the child is able to imitate the sign when I say the name of the item and model the sign?
1. Say the name of the item as you perform the sign.
2. The child performs the sign. Say the name of the item as the child signs.
3. Do a transfer trial. Ask, "What do you want?"
4. The child repeats the sign. Say the name of the item as the child signs.
5. Say the name of the item as you give the child the item.
6. Gradually add other tasks between the imitative trial and the new response to "What do you want?" until the child is able to respond without the model.

What if the child is able to sign to request the item but only if I say "What do you want?" (While we want the child to learn to respond to this question, we don't want him to only be able to ask for things when someone asks him what he wants. A "pure mand" is based solely on the child's desire for the item.)
1. Ask, "What do you want?"
2. Child signs the item name. Say the name of the item as the child signs.
3. Give the child a small amount of the item then look at him expectantly.
4. If the child repeats the sign, give a larger amount of the item.
5. If the child does not repeat the sign, give a partial prompt such as moving your hands partially into the position for the sign. When the child performs the sign, say the name of the item and give it to him. Gradually fade out your imitative prompt.

What if the child is able to sign to request an item but only if the item is present? (We want the child to be able to ask for things he cannot see.)
1. The child signs for an item.
2. Say the name as the child signs and repeat it as you hand the child a small amount of the item.
3. Put the item out of sight and wait for the child to repeat the sign.
4. Gradually move the item to a different location. Let the child watch you as you put the item in the location. Give the child more of the item when he requests it when it is out of sight.

What if the child is able to sign for things he sees or does not see but does not get my attention before signing? (If the child is signing an no one is responding, he may stop signing because the sign is not reinforced. We want the child to learn to get a persons attention before performing the sign.)
1. Use 2 instructors. Have the first instructor hold the desired item but turn away from the child.
2. The second instructor prompts the child to touch the first instructors arm. As soon as he does, the first instructor turns to the child and asks, "What do you want?" (or looks at him expectantly or acknowledges him by say "yes?" if he's able to request without hearing the question).
3. The child signs to request the item. The first instructor says the name of the item as she gives the child the item.
4. Fade the second instructors prompt until the child is tapping/touching the first instructor independently.

Throughout teaching, be sure to prompt the child if he is not responding within 2 to 3 seconds then be sure to fade the prompt. This will help keep the child successful and avoid frustrations.

Teaching Object/Picture Exchange to Request (Mand)

If it has been determined that an exchange system is the best response form to use at this time, it must be determined whether to use objects or pictures (or both). Again this decision should be based on the current skills of the child as well as the constraints of the environments the child is typically in. Once this is determined, the team must decide on the most appropriate stimuli to use to teach the exchange. If object exchange is to be used, collect the items the child will use as the representative sample. The following suggestions may assist in gathering these items:

- A plastic cup to request a drink.
- A few pieces of the child's favorite snack taped to a piece of cardboard.
- A few pieces of the favorite food inside a clear cassette case taped shut.
- A sample of the favorite item inside a clear video case box.

If pictures are to be used, determine which types of pictures will be best for the child.   Remember that it is not always necessary that the child be able to match the picture to the object before teaching can begin. When we reinforce the child for exchanging the picture by giving the desired object, we are associating the two. However, if a child has particular difficulty discriminating between pictures, re-evaluate the stimuli to determine what changes can be made to help the child discriminate or if a different type of stimuli should be used. Options may include:

- Photographs
- Pieces of the wrapper of favorite items
- Parts of the boxes from favorite toys
- Icons or line drawings

Next, determine which items or activities to use to begin teaching the child the exchange system chosen. Start with the child's favorite items or activities. It must be determined that the child actually wants the item or activity at the beginning of the teaching time. Give the child a bit of the item and see if they indicate they want more or observe the child reach for or stare at the item. Remember you can't teach a child to request something they don't want at the moment!

The beginning steps in teaching the exchange require two people. Place the item you have established the child wants in front of him but not within reaching distance. For initial training, it is helpful to use items that come in small pieces or can be broken into small pieces to allow plenty of practice. The object or picture to be exchanged is placed between the child and the desired item.   The first instructor sits opposite the child, close to the desired item. The second instructor sits behind the child to prompt. It is important that neither instructor say anything before the item is delivered at the beginning of teaching because we want the response to be based on the child's desire for the item rather than on anything the instructors have said or done.

1. As the child reaches for the item, the second instructor physically prompts the child to pick up and give the picture or object to the first instructor whose hand is out-stretched. As soon as the object or card is in the instructor's hand, the first instructor says the name of the item and gives the child the item. This should happen very quickly. Continue full prompting until the child is picking up and delivering the object or picture to the first instructor's hand with no prompting. Do not give the child verbal directions during this process.

2. Add a picture or object of something that you know the child will not want as a distracter. Mix the items up on the table so the child must look at the pictures or objects in order to choose the correct one.

3. Fade the prompt of the out-stretched hand of the first instructor.

4. Fade the presence of the first instructor. Gradually move away from the child so the child has to come to you to get the desired item.

5. Gradually teach the child to request other desired items or activities.

6. Gradually increase the size of the field the child must request from.

7. Keep the pictures or objects in a place where the child always has access to them. If this is not possible, teach the child to request a notebook or box where the pictures or objects can be stored.

8. Be sure to teach the child to exchange with a wide variety of people so he doesn't learn to associate one person with this activity.

Teaching Procedures- Vocal Mands

Always keep in mind:
- Find a condition under which the child can produce the same or similar response that you want to get then transfer it to the new condition.

- A child is more likely to repeat a word he has just said under a new condition.

- Prompt the child within 2-3 seconds: Keep the child successful.

What if the child has vocals but very little can be understood? Continue to reinforce these vocalizations in the natural environment. If a word even remotely sounds like something the child might be requesting, give him the item and follow with the correct articulation of the word. The specific sounds can be shaped to gradually sound more like the name of the desired item.   Hopefully, this child would also be using an augmentative system of some form to request such as signs or an exchange system so that unfamiliar people can understand their requests. If the child is using an augmentative system, the following procedure can be used for strong mands. This includes requests the child consistently makes that require no prompting. It's important to be sure to immediately reinforce any new requests the child is just learning. Always honor whatever system the child used to request. For example, if a child brings you a card to request some cereal, don't say, "Say cereal". (He already did!) **Using this procedure too soon could result in the child stopping his attempts to request things with his augmentative system.**
1. When the child signs/exchanges to request something, give him a little bit of what he has requested.
2. When he finishes that small amount, say the name of the item the child is requesting. Give more of the item immediately if the child tries to imitate you. This can be done up to 3 times for most children, however, if the child has a history of tantrums or crying quite quickly, do it only once, then give the child the item even if he doesn't respond. <u>We want to keep learning fun and the child successful!</u> If the child is asking for a item that is difficult to say, you can try just saying the beginning sound or syllable to see if he will attempt it. If this is done you may want to prompt the child to request again using their augmentative system.
3. Clearly say the name of the item when you give it to the child.

What if the child says many clear words as he spontaneously imitates (echoes) but won't imitate me when I ask him to?
1. Fill-in to mand transfer: If the child responds to fill-ins, perhaps this is a condition under which you could get the desired response. For example, if you say "blow bubbles" repeatedly while blowing bubbles, try saying "blow.... " and pause to see if the child will fill-in "bubbles". Since the child just said the word "bubbles" he will be more likely to say it again, so, say, "What do you want?" The child should say "bubbles" again. If not, answer the question yourself and continue. It's important to avoid giving the instruction to, "Say _____ " until the child's imitation (echoic) skills are under instructional control because we can't physically prompt the child to speak. This, in essence, teaches the child to not follow this instruction.

> Instructor: "Blow bubbles", "blow _____ "
> STUDENT: "bubbles"
> Instructor: "What do you want?"
> STUDENT: "bubbles"

2. Increase the likelihood of the echo: "Play Dumb"- As the child is reaching toward an item, say the name of the item in a "questioning" tone.   For example, if the child is reaching for a ball on a shelf, say "ball?". If the child doesn't respond, put it back on the shelf. If the child again reaches, repeat "ball?". Do this no more than 3 times before giving the child the ball. If the child has a history of tantrumming under such conditions, do it just once.   You could also try offering two choices to the child. Be sure to only say the name of the item to avoid having the child echo "Do you want…?"

3. Get the echoic under instructional control. Teach the child to imitate other things that you can prompt such as motor movements. This can be done while singing songs or playing with toys. The goal is to get motor imitation under the control of the Sd "Do this".   For example, you might be pouring rice into a bowl with a child. Once the child starts pouring, say, "Do this" right before you pour your rice. Then, when the child pours his rice, reinforce heavily. This must be done with a variety of different actions so that we don't inadvertently teach, "Do this," means "pour rice"! Clapping hands, stomping feet, tapping the table are all easy things to teach a child to imitate because you can easily prompt them by moving their body parts for them. Once the child can imitate quite a few movements, you can transfer the motor imitation to a vocal imitation.

> Instructor: "Do this" (*claps hands*)
> STUDENT: <Response = claps hands>
> Instructor: "Do this" (*taps table*)
> STUDENT: <Response = taps table>
> Instructor: "Do this – ball"
> STUDENT: "ball"
> Instructor: "Say ball"
> STUDENT: "ball"

What if the child will imitate me consistently to request a desired item but will not respond when I ask, "What do you want?"
1. Echo to mand transfer-

> Instructor: "What do you want? Ball"
> STUDENT: "ball"
> Instructor: "What do you want?"
> STUDENT: "ball"

If the student echo's "What do you want?", try one of the following suggestions:
- Say the question more quietly than the item.
- Pause slightly between the question and answer.
- Say the beginning sound of the item he wants.

> Instructor: "What do you want? B"
> STUDENT: "Ball"

What if the child responds when I ask, "What do you want?" but won't respond if I give him two choices? We want the child to be able to tell people what he wants under a variety of different

conditions. If the child will be offered choices by people in his environment (i.e. day care, school etc.) it is important to teach him to respond to the different ways people might give him choices.

1. Transfer to new question (Sd):

> Instructor: (*Holding a ball and a cookie*) What do you want?
> STUDENT: "ball"
> Instructor: "Do you want a ball or a cookie?"
> STUDENT: "ball"

Some children may consistently respond with the last item in this situation. If so, it may be helpful to "practice" with some highly preferred and non- preferred items saying the preferred item first and increasing your loudness when saying the preferred item. You can also try prompting the child by saying the first sound of the desired item after asking the question.

2. Start with single words:

> Instructor: (*holding a ball and a cookie*) "Ball? Cookie?"
> STUDENT: "Ball"
> Instructor: "Do you want the ball or the cookie?"
> STUDENT: "Ball"

3. Provide an echoic prompt:
> Instructor: (*Holding a ball and a cookie and observing the child reach for the cookie*)
> "Do you want the ball or the cookie? Cookie."
> STUDENT: "Cookie"
> Instructor: "Do you want the ball or the cookie?"
> STUDENT: "Cookie"

What if the child only requests after I ask, "What do you want?" Some children may have been inadvertently taught that they can only request things when someone talks to them first. As stated earlier, a "pure mand" is based totally on the child's desire for the item so we want him to also be able to ask for things when no one has asked, "What do you want?"

> Instructor: "What do you want?" (or choice)
> STUDENT: "Cookie"
> Instructor: <gives student a small piece of the cookie then just looks at him
> expectantly>
> STUDENT: "Cookie"
> Instructor: <gives the student a bigger piece of the cookie>

Or, if the child says nothing, try prompting him with the beginning sound (phonemic prompt).

What if the child hands me his PECS card as he tells me what he wants and I want to teach him to tell me when he doesn't have the card? Once the child is vocal, we want to teach him to ask for things without the pictures so he can still request if the picture is not available.

> STUDENT: (*as he hands a picture of a cookie to the instructor*) "Cookie"
> Instructor: <gives a small piece of cookie>

> Instructor: (*hiding the picture behind her back*) "What do you want?"
> STUDENT: "cookie"

If the child does not respond, the instructor can prompt with the initial sound, whole word, or briefly flash the PECS card so the child can see it.

What if the child is only able to ask for things he sees?

> Instructor: (*cookie is visible*) "What do you want?"
> STUDENT: "cookie" (child gets small piece of cookie)
> Instructor: (*hiding the cookie under the table*)"What do you want?"
> STUDENT: "cookie" (child gets bigger piece of cookie)

Let the child watch you as you gradually move the item to the location it is usually kept in, out of sight, while continuing more trials.

What if I want the child to learn to say "I want " before telling me what he wants? Some people teach the child to do this very early in the training program. It's important to consider how much added "value" this phrase gives the child compared to how much more difficult it makes the task of requesting. If talking is already quite difficult, it might cause a great deal of frustration for the child. Another problem often seen when carrier phrases are taught too early is that the child uses them inappropriately for all requests. For example, the child might start requesting, "I want walking", or "I want sleeping".

For most children, it's best to teach beginning requests with one word. This teaches the child which specific word will get him what he wants and also makes it easier to transfer the request to other language functions. For example, if a child is taught to request "shoe on", when we try to teach the child to label (tact) the shoe, they may call it a "shoe on". It's usually best to wait until the child is requesting many objects and actions before adding carrier phrases. When carrier phrases are added, it's important to teach a wide variety instead of just one. Some phrases which might be taught include, "get the", "give me", "let's play" among others. These can easily be taught using an echoic prompt once the child has many requests, but should initially be trained with only the strongest mands (i.e. those the child requests frequently, needing no prompts).

> STUDENT: "cookie"
> Instructor: "Say, Give me a cookie."
> STUDENT: "Give me a cookie."
> Instructor: "What can I give you?"
> STUDENT: "Give me a cookie." (*child gets a piece of the cookie*)
> Instructor: "Say, I want a cookie."
> STUDENT: "I want a cookie." (*child gets a piece of the cookie*)
> Instructor: "What do you want?"
> STUDENT: "I want a cookie." (*child gets a piece of the cookie*)
> OR
> STUDENT: "Ball"
> Instructor: "Say, "Let's play ball."
> STUDENT: "Let's play ball"
> Instructor: "What do you want to play?"
> STUDENT: "Let's play ball"

What if the child is able to request objects but not actions? Actions can be taught in the context of reinforcing activities. For example, if the child requests "swing", you might use fill-ins or echoic prompts to teach him to request "push".

        STUDENT: "Swing"
        Instructor: (*puts child in swing and begins pushing saying*) "Gonna push, Gonna push,
               Gonna _____ "
        STUDENT: "push"
        Instructor: "What should I do?"
        STUDENT: "push"

OR

        STUDENT: "Swing"
        Instructor: (puts child in swing and begins pushing saying) "Say push"
        STUDENT: "push"
        Instructor: "What should I do?"
        STUDENT: "push"

Be sure to teach the child the correct grammatical form of the word to use to request actions. Some children can label (tact) actions before they are able to request them but they tact them in the "present progressive" tense. So, they may use "pushing" to tact but we want to teach them to use "push" for the mand.

What if the child has limited things he wants so he is not requesting very often? Continually explore new items or activities the child may be interested in based on the way he responds to different sounds, sights, touches smells and tastes (stimuli). You can also increase the number of things the child requests by gradually adding in new requests that must be made to get the desired item. For example, if the child wants to take a bath, the value of having his clothes off may be pretty strong at the moment.   Be sure you don't add in new requests too quickly or add too many at one time or the child may no longer want the item or activity. (Lose your EO) Or, if the child really enjoys bubbles, the value of opening the container, taking out the wand, and blowing becomes quite strong!

Teaching the Vocal Child to Request (Mand)

<u>Relevant Behavioral Terms</u>

***Reinforcement*:** Something that happens after a behavior occurs and increases the likelihood that the same behavior will occur in the future.

Positive Reinforcement: Giving or applying something that the individual finds desirable and increases the future likelihood that a behavior will occur.

***Negative Reinforcement*:** Taking away something the individual finds aversive and increases the future likelihood that the behavior will occur.

***Establishing Operation (EO)*:** Temporarily increases (or decreases) the value of a reinforcer and temporarily increases (or decreases) the behaviors that have been consequated by that reinforcer in the past.

Manding: Verbal behavior that is under the control of the establishing operation. The child communicates because he "wants" something.

Prompting: Teaching/teacher behaviors that will allow the child to exhibit the desired response successfully.

***Extinction*:** Removing or withholding the reinforcer that is maintaining the behavior.

Once you have established many things the child is interested in or desires (possible reinforcers) and have adequately paired yourself with reinforcement, teach the child to ask for the things he desires. The child can be taught to request food, toys, actions, physical play, or any number of things he is interested in.

Requesting is the most important thing to teach a child. Requesting (manding) teaches the child that communication is powerful. It gives him some control over his world and can take the place of many negative behaviors that may be occurring.   In addition, once a child can request, we can use this skill to teach him many different functions of language. For many children with Autism, requesting can be particularly difficult. They may be able to say words, but not necessarily use those words for a variety of functions. As we all know, just because a child can say "ball" it doesn't mean that he can ask for a ball when he wants one.

There are two priorities to consider when teaching the vocal child to request. First, we have to be sure the child actually wants the item at the moment (has an EO for the item). It is counterproductive to try to teach a child to request something they don't want! Offering the child a bit of the item and observing him to see if he wants more or playing with the item until he becomes engaged with you and the activity can establish an EO.   Second, we have to teach the child that the ways he may have gotten things in the past (e.g. crying, screaming, echoing) are no longer going to work! We do this by not reinforcing the child's "old way" of requesting (extinction) and/or by teaching the child a different way to ask for things.

Some children have vocals, but no one can understand what they are saying. Their vocals may sound like sentences and may be totally unintelligible or may have one or two intelligible words included in

them. This is a developmental stage that most children go through and is sometimes referred to as "jargon" or "jargon like" utterances.   These types of utterances are sometimes ignored because others don't understand what the child is trying to say.

Other children may speak in nice clear words but only when imitating someone else. They may spontaneously repeat what they hear, right after they hear it, but do not request what they want. For example, when someone asks, "What do you want?" they say, "What do you want?" in response. This is sometimes referred to as immediate echolalia. These responses don't often serve any function for the child unless they have been reinforced. This occurs when the echolalia is followed by the child getting what he wants. For example, consider the interactions between the mother and child in this situation: The child is reaching for his juice. Mother says, "Do you want juice?" and the child echoes, "Do you want juice?" The mother then gives the child is juice. What the mother has actually taught the child to do is say "Do you want juice?" to ask for the juice. Sometimes these children spontaneously imitate but won't imitate when you ask them to. For example, if the teacher says, "Say juice", the child won't say anything. This is sometimes referred to as the echo not being under instructional control.

Other children have the ability to use phrases they have heard in one situation to serve a purpose in another situation. For example, they might repeat the words they hear on their favorite video in a different but related situation. Sometimes these words are said in a "cut and paste" fashion. In other words, the child uses the words to serve a function similar to that in which they first learned the phrase. For example, consider the child who says, "He was a very hungry lion" whenever he wants something to eat.   Perhaps the child says these words in this situation because when he watched his favorite video or heard a favorite story, one of the characters said this statement and then got something to eat. Sometimes this use of language is referred to as "delayed echolalia". Sometimes this language becomes very functional for the child in the context of the family because the parents have also watched the video and can "interpret" what the child is saying. They increase (reinforce) the child's use of this type of language by responding in a manner the child finds desirable (reinforcement). For example, in this situation since the parents have also seen the movie, when the child says, "He was a very hungry lion", they interpret it to mean the child is hungry and give him some food. This reinforces the use of this sentence as a request (mand) for food. The problem occurs when the child leaves the home environment. Others don't have a clue what the child is trying to communicate and so don't reinforce the request. This can lead to frustrations and tantrums because the child is unable to communicate his needs any longer.

Important considerations when teaching vocal children to mand
1. Even if children are able to speak using long sentences, begin by teaching single words. This will insure the child learns which word actually gets the desired item and will also be useful when we are attempting to transfer the response to different verbal operants at a later date. It's typically best to wait and introduce carrier phrases such as "I want" , "give me" etc. after the child has acquired strong imitation skills and you have successfully transferred many responses to tacts.

2. Be sure to teach all of the conditions under which the request is made. A "true mand" is purely under the control of the EO, which means that no one has said anything to the child first. It's important to teach "pure mands" but also important to teach the child to respond under other conditions such as when someone asks him what he wants, which one he wants, when the item is visible and when the item is not visible. Be sure the child is able to discriminate among the different conditions before teaching them.

3. When teaching the child to request, be sure to teach the actual names of the items before teaching colors or other adjectives. For example, if a child likes to color, be sure he can ask for the "crayon" or "marker" before teaching him to ask for the colors. Otherwise, the color words may "replace" the name of the item when the child is requesting.

4. Words such as "more", and "please" should be treated as adjectives and should not be taught until the child is able request the item using it's "name". Think carefully before adding these types of words early in training because they increase the length and difficulty of the required response without adding any real "value".

5. When adding carrier phrases, be sure to teach a wide variety within the context of the same activity or set of conditions. Teach both those you want the child to use with other children as well as those you want the child to use with adults. "May I have the car please?" may work well with teachers and parents but might not get too far on the playground at preschool.

6. Be sure the child never gets anything for negative behavior. You may see an escalation (extinction burst) in the negative behaviors the child has used to get desired items in the past early in training. It is important not to respond to these negative behaviors. If these behaviors still work, there will be no need for words!

7. Avoid situations that are a "stand off". In other words, the situation should not be "you have to talk before you get this". Use whatever prompting strategies (signs, pictures, "fill-ins") are necessary to allow the child access to the reinforcer. Just hearing you say the name of the item and having that name paired with reinforcement will lead to an increased likelihood that the word will be used in the future.

8. When attempting to teach children to tact (label) nouns, verbs, prepositions, adjectives or adverbs, it is often much easier to begin with requesting (manding) then transferring to the label (tact). For example, if you want to teach the child to label "dark", it might be easier to first find a condition under which he would find dark desirable (playing with flashlights?), teach him to ask for "dark", then transfer that response to a label (tact) of "dark".

9. "Cleaning up" mild articulation errors can also be accomplished during manding. When the child first learns a specific word, you might accept any intelligible approximation. After the child can request the item with no prompting, have him repeat the word after you a couple of times before giving him the desired item to improve the articulation of the word. Give the child the item (reinforce) after the best production. Each child is different so judge how many times you can ask the child to repeat the word based on his learning history. It's important not to ask a child to repeat the word so many times that he loses interest in the item and talking in general.

Teaching the Child to Label (Tact) Objects and Pictures

Once the child has many things he is able to request (mand), instructors should begin adding other tasks between opportunities to mand. The number of tasks required between the opportunities to mand should be gradually increased and full prompts should be provided for all new tasks so that the child remains successful. Full prompting means that the instructor should help the child respond correctly in whatever way possible. For example, if you are teaching motor imitation or a receptive instruction, physically move the child's body to perform the action and reinforce him for a successful imitation. Then, gradually fade the physical prompt until the child is able to perform the action or follow the instruction without the physical prompt. Gradually add different tasks between the prompted and unprompted responses. Typically, the best early skills to introduce between requests (mands) include motor imitation tasks, matching tasks, simple receptive instructions, and receptive discrimination of objects.

For "early learners" (i.e. children who are just learning to communicate), most of instruction should still be occurring in the context of activities that the child finds enjoyable. For example, motor imitation might be taught while doing songs and finger plays or while playing with toys. Receptive discrimination of object may be taught while cleaning up toys when a child is finished or discrimination of pictures may be taught while reading books. Simple instructions such as "touch" or "give me" can be taught by teaching the child to touch reinforcers or giving up reinforcers on request. As discussed earlier, teaching a child to give up reinforcers is an important part of teaching the child to request and will be necessary in order to use those reinforcers to teach.

The next type of functional communication (verbal behavior) that we want to teach the child involves labeling (tacting) objects that he is in contact with. While requesting actually benefits the child because he gets what he is asking for, the tact does not result in the same type of reinforcement. In other words, the child is saying the name of something, not because he wants it, but because an instructor has asked him what the object is called or simply because he has come in contact with the item and this behavior has been reinforced.

A "pure tact" is considered to be a person's use of language to label or describe something he is currently in contact with. For example, if a child says, "That's my mommy" while looking at a picture of his mother, he is tacting. In "real life" children rarely exhibit "pure tacts". In other words, they are typically not tacting things purely because they come in contact with them but because they want the people around them to notice something or pay attention to them. Take the two year old who is looking at a book with his mother and says "horse!" while pointing to the horse and looking up at his mother. This verbal behavior is actually serving two functions, labeling (tacting) and requesting (manding) attention. In fact, it would appear quite odd for a child to walk into a room and begin spontaneously labeling the things he sees! Unfortunately, this is sometimes what has been unintentionally taught to children with Autism when spontaneous tacting is taught as a separate skill from manding for attention.

Typically developing children begin labeling items in their environment very early in their acquisition of language. They don't often do this when alone in a room or just because they see something but in order to "reference" or call the attention of the parent or caregiver to the object. The attention the child receives for this behavior reinforces this type of labeling (tacting) behavior. This is an important point to consider. If we want the child to spontaneously label things they come in contact with, we have to continue to make our presence and the attention we give the child reinforcing.

In order to learn new things that may involve objects or actions that the child is not necessarily interested in, it is important that the child is able to give labels on request. Early labels are often best transferred from requests (mands). The author suggests that it is best to wait until the child is able to request (mand) many items and spontaneously tacts objects in the environment before introducing targets for which the child has not requested (has no EO for item). This is because this behavior (spontaneous tacting) indicates that "talking" has been so heavily paired with reinforcement that talking "itself" has become reinforcing. In addition, it indicates the teaching team has been successful at continuing to be so heavily paired with reinforcement that the child finds their attention reinforcing!

During initial training, we want the child to learn to label (tact) when he hears a variety of different questions such as "What's this?", "What's that?", "What do you call this thing?" as well as being able to label things when the instructor just points to the object and does not ask a question. Finally, as discussed above, we want the child to be able to tact items in attempts to gain our attention to the item. We want to be sure that when we teach a child to label things, we teach him to respond in a "flexible" manner and not just when he hears "What's that?". This can be accomplished by using transfer procedures. Once a child is able to respond to "What's that?", follow with a different question. Example:

> Instructor: "What's that?"
> STUDENT: "Cow."
> Instructor: "What's that thing called?"
> STUDENT: "Cow."

This function of language (verbal behavior) is taught in the same manner with both vocal and signing children. It is, however, much harder to teach this function to children who are using other forms of augmentative communication (i.e. communication boards, picture exchange, object exchange). This is because, when the child labels (tacts) something, he is actually matching. Consider the child with a communication board. If the instructor asks, "What's this?" while holding up a ball, the child would touch the picture of the ball on his board in response. If the child is not receiving the item following touching the picture, the behavior is not really a mand, however, it is not really a tact either because the child is matching a picture to an object which is a different skill than tacting.

There are 4 basic ways to teach a child to label things. The first involves using the child's skill in requesting (manding) to transfer to the tact. The mands used for this training should be very strong. In other words, the child should be consistently requesting the item, with no prompts needed from a variety of people in a variety of settings. If transfers are conducted too soon, before the mands are fluent, the child may easily chain responses together. For example, the child may "learn" that he's supposed to say the name of what he wants, stomp his feet, and stand up, and say the name again in order to get what he wants!

1. **What if the child is able to request many things but does not respond when I ask, "What's this?"**

    Mand to tact transfer- The name of this transfer procedure is deceptive because we actually ask the child to tact the item first. During initial training, the child is actually just manding the item in response to a new question; however, as we gradually add different trials between the initial label (tact) and the request (mand) the child learns to tact the item when asked. During initial training, the child is most likely going to respond by saying/signing the item when he sees it due to the history of being reinforced by getting the item. Be sure to use tasks the child has mastered between the tact and mand trials. We only want to be teaching one new skill at once!

Instructor: (*holding up a favorite reinforcer*) "What's this?"
STUDENT: "Ball."
Instructor: "What do you want? "
STUDENT: "Ball." (*child gets ball, plays with it a little while*)
Instructor: "Give me the ball."
STUDENT: <child gives instructor the ball> (the child has been taught to give up reinforcers)
Instructor: "What's this?"
STUDENT: "Ball."
Instructor: "Do this." (hitting a ball with a hammer)
STUDENT: <child hits ball> (a mastered imitative response)
Instructor: "Give me the hammer"
STUDENT: <child gives hammer> (a mastered response)
Instructor: "What do you want?"
STUDENT: "Ball."

For some children, this can also be accomplished by having the tact trial follow the mand trial. For example, right after requesting and getting the ball, the instructor might ask the child, "What's this?". The child may very well "tact" the ball, especially if the instructor places her hand on the ball interrupting the play but for other children, since there is no "EO" or desire to obtain the ball, they will not respond. This leaves the instructor in a tough spot because we can't "pull those words out of the child's mouth" to get him to respond! If the echoic is not under instructional control and the child doesn't respond under this condition, the instructor should answer the question herself and move on. For children with strong fill-in responses, this type of question/answer model can become a type of "fill-in" task for some children.

Instructor: "What's this?"
STUDENT: (No response in 2 seconds)
Instructor: "Ball. What this?" ("b" - as a phonemic prompt)
STUDENT: "Ball."

Just remember that we want to avoid teaching the child "NOT" to respond to questions so if the child does not respond in this situation, a different transfer procedure should be used.

A second procedure can be used which involves the use of mastered requests (mands). This involves having two of the child's favorite things available. First assess which of the items the child has the strongest desire for (EO) and use that item as the reinforcer. Use the other item as the one to use to teach the tact.

(Instructor has candy and a book available and has determined that the child really wants to look at the book but will take the candy if offered*)*

Instructor: (*holds up candy*) "What's this?"
STUDENT: "Candy."
Instructor: "Great! What do you want?" (Holds out book)
STUDENT: "Book."

2. **What if the child is able to point to pictures but does not respond when I ask, "What's this?"**

Receptive to tact transfer- It is easy to prompt a receptive identification of a picture or object by physically assisting the child to touch the desired item (physical prompt) or by modeling the correct response (imitative prompt). Many children will start spontaneously naming the items when they point to them. If so, the receptive response can be easily transferred to a label (tact) because the child is likely to repeat the response they just gave.

> Instructor: "Touch the car."
> STUDENT: "Car." (while pointing to the car)
> Instructor: "What's this?"
> STUDENT: "Car."

If the child doesn't respond under this condition, the instructor can give the first sound to prompt (phonemic prompt). If the child still doesn't respond, the full answer should be given. Remember to prompt within 2-3 seconds.

3. **What if the child is able to imitate (echo) consistently when I say "Say,   " but does not respond when I ask, "What's this?"**

Echo to tact transfer- Again, get a mastered response and transfer it to a new condition.

> Instructor: "Say, car."
> STUDENT: "Car."
> Instructor: "What's this?"
> STUDENT: "Car."

4. **What if the child is able to fill-in words during many common activities but does not respond when I ask, "What's this?"**

Fill-in to tact transfer- If the child has responded to fill-in tasks in the past, this response can be transferred to the tact. Remember, the fill-in type of response has no "requirement" of a response from a child so it is often much easier to use and helps us avoid using too many questions when first teaching language. Once the child is consistently filling in the name of the item, begin transferring to the tact.

> Instructor: "We wash hands in the _____."
> STUDENT: "Sink."
> Instructor: "What's this?"
> STUDENT: "Sink."

Transfer Procedures

Our goal is to teach the child in a way that he will consistently be successful. One way to do this is to provide full prompts and gradually fade the prompts. Another way to do this is to use transfer procedures.

Think of transfer as taking a response that a child can already produce in one situation and teaching him to produce the same or similar response in another situation. Any time you want to teach a skill, think about the conditions under which the child can produce the same or similar response and use that response as a starting point. The child is more likely to repeat the same behavior or say the same word if he just did so previously.   Gradually add "distance" between the responses until the child can respond to the new SD alone. Some examples of transfers might include:

1. The child can imitate you clapping and you want to teach him to respond to the SD "clap".

    Instructor: "Do this" (*claps hand*)
    STUDENT: <claps hands>
    Instructor: "Clap" (*claps hands*)
    STUDENT: <claps hands>
    Instructor: "Clap"
    STUDENT: <claps hands>

    The response of clapping is now under the control of the SD "clap".

2. The child can mand for a car and you want to teach him to tact "car". A variety of different transfers can be used.

  a) <u>Show him the car</u>

    Instructor: "What's this?"
    STUDENT: "Car."
    Instructor: "What do you want?"
    STUDENT: "Car."

    At this point there is joint control mand/tact. Gradually add other tasks between the tact of the car and mand for the car.

  b) <u>Have 2 items for which the child has strong mands available</u>. Determine the item for which the child has the strongest EO by allowing him to mand for each item.

    Instructor: "What's this?"
    STUDENT: <tacts less preferred item>
    Instructor: "What do you want?"
    STUDENT: <mands preferred item>

c) <u>Receptive to Tact Transfer</u> - Have pictures available of the items for which the child consistently mands.

    Instructor: "Touch <item>"
    STUDENT: <touches <item> >
    Instructor: "What's this?"
    STUDENT: <names <item> >

    (Typically it is best to provide full-prompts for the tact until the child is spontaneously tacting as he receptively identifies the item.)

d) <u>Echo to tact transfer</u> -

    Instructor: "Say car"
    STUDENT: "Car"
    Instructor: "What's this?"
    STUDENT: "Car"

3. The child can tact a "car" but cannot tact it when given a feature, function or class.

    Instructor: "What's this?"
    STUDENT: "Car"
    Instructor: "Which one does Mommy drive?"
    STUDENT: "Car"

4. The child is able to follow simple instructions to perform actions and you want to teach him to tact actions.

    Instructor: "Clap"
    STUDENT: <claps>
    Instructor: "What are you doing? Clapping." (full prompt because the "form" is different)
    STUDENT: "Clapping."
    Instructor: "What are you doing?"
    STUDENT: "Clapping."

5. The child is able to fill-in responses and you want to teach him to answer questions.

    Instructor: "We sleep in a "
    STUDENT: "Bed."
    Instructor: "What do we sleep in?"
    STUDENT: "Bed."

6. The child is able to respond when asked "What do we sleep in?" but only if the picture is present and you want to teach him to respond intraverbally (no picture present).

    Instructor: (*With picture of bed present*)"What do we sleep in?"
    STUDENT: "Bed."
    Instructor: (*removes picture from view*) "What do we sleep in?"
    STUDENT: "Bed."

Correction Procedures and Prompting

Introducing new targets
Whenever introducing a new target or if you think it is likely the child will miss a target, an instructor has a choice to either

1. Transfer from a previously mastered response
   - Instructor: "Swim little _____ "
   - STUDENT: "fish"
   - Instructor: "What's this?"
   - STUDENT: "fish"

2. Give the correct answer right after you say the question (prompt with a 0 second delay)
   - Instructor: "What's this? Fish"
   - STUDENT: "fish"

   In either case, you are providing prompts that will allow the child to respond correctly.

3. For some children, with a history of responding to "pre-trial" prompts, a third option is possible with the prompt provided before the SD.
   - Instructor: "This is a fish? What is it?"
   - STUDENT: "Fish"

Non-Responding or Incorrect Responding
If the child does not respond within 2 – 3 seconds, or gives an incorrect answer, repeat the question and say the answer right afterwards (prompt with a 0 second delay) wait for the child to imitate you, then ask the question again to get an unprompted response.

- Instructor: "What's this?"
- STUDENT: "moo"
- Instructor: "What's this? Cow."
- STUDENT: "Cow."
- Instructor: "What's this?"
- STUDENT: "Cow."

Fading Prompts
The next important step is to fade these prompts so that the child does not become dependent on prompting and so the response comes under control of the stimulus and the target verbal SD. This is accomplished by asking the question again in attempts to get an unprompted response.

- Instructor: "What's this? Fish."
- STUDENT: "Fish."
- Instructor: "What's this?"
- STUDENT: "Fish."

It is not always possible to get an unprompted response right away and it is important to avoid frustrating the child if this is the case. Children vary in their ability to tolerate multiple trials but as a general rule, if you are still unable to get an unprompted response after the third attempt, accept the prompted response and move on. Children vary in their responsiveness to different types of prompting and use of transfer procedures so it important to determine what works best for each individual child.

Gradually separate the prompted from unprompted responses with "easy" tasks to which you know the child will respond correctly, then go back to the missed item. Increase the number of "easy tasks" gradually while still going back for an unprompted response.

Instructor:	"Swim little _____ "
STUDENT:	"fish"
Instructor:	"What's this?"
STUDENT:	"fish"
Instructor:	"Look at that boat in the water!"
STUDENT:	<looks>
Instructor:	"What's this?" (*holding up fish*)
STUDENT:	"fish"
Instructor:	"Great job, Smartie!"

These types of procedures are included in what is often referred to as **errorless learning.** The idea is that we don't want to wait for an incorrect response before we prompt if at all possible because in essence, the child is "practicing" the wrong response. The reason for repeating the question when the child responds incorrectly is to keep the child from inadvertently learning to chain incorrect and correct responses. In addition, it keeps the question and response close together in time. Consider the alternative.

Instructor:	"What's this?"
STUDENT:	"moo"
Instructor:	"No, that's a cow."
STUDENT:	"Cow."
Instructor:	"Good job."

In this scenario, the child has "practiced" the incorrect response just as frequently as the correct response. In addition, there is a great deal of time and lots of language separating the question, "What's this?" from the response, "cow". It is likely that the child will still not learn to respond "cow" in the presence of the cow and when hearing "What's this?" unless all of the appropriate stimuli are presented close together in time and the correct response is reinforced immediately.

We want to have the "difficult" target presented much more frequently but mixed in with multiple "easy" responses to increase the amount of contact with reinforcement. Using "errorless teaching procedures will allow the child to practice the correct response mixed in with easy responses. When he does respond correctly to an item he previously missed or a new target without prompting, use a stronger reinforcer than you've used for mastered items or "easy" responses (differential reinforcement.)

Increasing Vocal Productions - Teaching the Child to Talk

Note: The author chose not to use phonetic symbols to designate sounds because the intended audience consists primarily of parents or professionals from other fields. An attempt was made to write words and sounds using sound-symbol associations typically taught through phonics. It is understood that it may be difficult for the reader to determine the intended speech description and for this the author apologizes!

Many children with autism are unable to speak. However, autism is not the "cause" of this inability. If this were true, all children with autism would not be able to speak. Autism is diagnostic label based on a cluster of presenting behaviors, one of which is difficulty with communication. The nature of this difficulty varies among children.

No one really knows why some children with Autism are able to speak and others aren't. Temple Grandin reports that she remembers that when people talked to her as a young child, all the sounds "ran together into a meaningless bundle". These types of reports could suggest a Central Auditory Processing Disorder. Some children who have difficulty producing speech also demonstrate difficulty imitating sequences of movements with their hands or other body parts. This may be suggestive of Dyspraxia or difficulty combining motor movements. Less commonly we see children who exhibit weak muscle tone in their cheeks and tongue. These children may exhibit characteristics consistent with a diagnosis of Dysarthria. Finally, many typically developing children produce speech with certain sound production "rules" or processes which are over generalized. For example they "stop" all beginning sounds or "delete" all ending sounds. This type of speech disorder is known as a Phonological Process Disorder and can also be exhibited in children with autism. These diagnostic labels may describe conditions that coexist with autism.

The problem lies in that it is difficult, if not impossible, to determine the "cause" of the speech difficulty before a child begins talking. On the other hand, it really doesn't matter what the "cause" is because we can't climb into the brain to "fix" the cause anyway. We can, however, use teaching procedures to increase vocal productions and teach the child to produce the motor movements that are required for speech production.

Once a child does begin speaking, their speech productions can be analyzed to give us more information regarding the type of disorder exhibited. This is a very important thing to do because a great deal of research has been conducted on prompting and teaching strategies most effective with different types of speech disorders.

Some children with autism are almost completely silent. Others produce sounds but in a repetitive manner with no real apparent meaning or function attached to them. Still others sound as if they are trying to talk but their words are difficult or impossible to understand. The specific behaviors produced by each individual child and the way the child responds to specific teaching and prompting strategies should suggest the best method of addressing their speech difficulty.

The most critical thing to do is teach the child who is unable to communicate with vocal speech other ways to request things they want. Some parents have expressed worry that this will keep the child from trying to speak, but a wide body of research indicates otherwise. In fact, the opposite is usually the case. Once a child learns the "value" of communicating with signs or pictures and those signs or pictures have been constantly paired with the child obtaining things they want (reinforcement) we

typically see more vocal productions and attempts to produce words. The teaching procedures for teaching these methods of requesting (manding) have been previously addressed.

Does my child have Apraxia?
 It has been suggested that many children with autism have difficulty combining movements or exhibit "motor planning disorders". Again, this is a diagnostic label that is used to describe difficulty producing a series of purposeful movements in a specific order. There is typically not a weakness in the muscles or other sensory motor impairment that is causing the child to have difficulty performing a movement. Some suggest that this term is overused to describe the difficulty with speech many children with autism demonstrate. As suggested earlier, there are many different types of speech difficulties in the general population that can also be found in children with autism.

As stated earlier, it is not possible to diagnose apraxia before a child begins speaking. We can, however, infer that this might be the problem if the child has difficulty purposefully performing other motor movements. Not all children who later exhibit apraxia of speech have the same difficulty in other parts of their body so this isn't always the case. When looking at the history of children later diagnosed with apraxia, we often see limits in the number or variety of sounds produced during vocal play. Again, this can be an early indicator but is not enough evidence to support a diagnosis of apraxia in a non-vocal child because other conditions may also result in the same presenting behaviors.

A speech pathologist may diagnose apraxia if, when the child begins speaking, they often produce inconsistent errors, exhibit vowel distortions, demonstrate "groping" or struggling behaviors, and/or show an increased difficulty in producing speech in longer, more complex utterances.

What do all the different terms mean? Oral Apraxia, Apraxia/Dyspraxia of Speech, Verbal Apraxia/Dyspraxia, are terms used to diagnose this difficulty when it pertains to speech output. Whenever an "a" is attached to a medical term, it typically means "without" and whenever the term "dys" is used it means "partial loss or disordered". So, the term "Apraxia" should be used to describe an inability to produce purposeful movement and "Dyspraxia" should be used to describe a difficulty producing purposeful movements. Still, most professionals continue to use these terms interchangeably. It is most common in the professional literature to see "Dyspraxia" used by occupational therapists when describing the condition in the limbs and "Apraxia" used by speech/language pathologists (SLP) to describe the condition as related to speech production.

Oral Apraxia is often used to describe the condition when it is exhibited in movements of the oral musculature (lips, tongue, velum) alone. Some children exhibit characteristics of apraxia when they are attempting to speak but not when they are just imitating movements without speech. These children are often described as exhibiting "Apraxia of Speech".

Once children previously diagnosed with apraxia begin communicating, it is often common in some to see difficulties with other aspects of language that require sequencing such as combining words into sentences or describing the sequence of events in an activity. Some professionals use the term "Verbal Apraxia" to describe this difficulty.

Again, many professionals use these terms interchangeably or for different purposes than described here, so it is often best to directly ask the professional involved when a specific term is used.

Why is it important to recognize behaviors consistent with a diagnosis of Apraxia?
It is important to remember that children can communicate (exhibit verbal behavior) with vocal productions, gestures, signs or pictures and all of these different types of verbal behavior require some

series of movements. The number or motor movements and complexity of the motor movements required vary with each type. Movements are behaviors also and we can teach them as such. If we wanted to teach the child to perform a series of motor movements with their arms, hands, fingers etc. we'd determine a "starting point" or a movement the child can currently produce or can be easily taught. We would then use either backward chaining or forward chaining to teach each of the movements required. We'd provide whatever prompting, (imitation/modeling, physical prompts, verbal prompts, visual prompts etc.) necessary to insure the child was able to produce each of the movements in the sequence. Once the child learned to produce each of the movements, we'd provide multiple opportunities for the child to practice the movements in correct sequence while fading any prompts needed for accurate production.

For example, if we wanted to teach a child to swim, each of the movements involved would be taught. We'd either start at the beginning of the series of movements, teaching one, then the next in combination with the first, etc. (forward chaining) or, we'd start at the end of the series of movements, moving backward to teach each in combination with the other (backward chaining).

The same principles apply to teaching the child to produce a series of movements with their mouths. Spoken words vary in the number and complexity of movements required to produce them. We would not teach a child to swim by modeling the complete "stroke" (one arm forward with the other arm back and head turned then head in the water while the other arm moves forward etc.) then ask them to imitate it. And, if the child produced the sequence incorrectly, we would not show him the stroke again and again ask him to imitate it. Why not? Because, the child would never learn to swim! Each time he would most likely produce the sequence of movements incorrectly. Sometimes they would be out of order and sometimes one of the necessary movements might be missing. Sometimes he might even add a movement that should not be included.

In essence, this is what we'd be doing when asking a child with behaviors consistent with a diagnosis of apraxia to imitate a complete word if he were not able to produce the movements required to produce the sounds in the correct sequence necessary to say the word.

Does this mean I shouldn't use complete words when talking to my child? Absolutely not. It is important to pair words with reinforcement with whatever augmentative system you are using with your child. For example, if using PECS, say the name of the item they are asking for (reinforcer) both before giving the item, and after the child receives the item to "pair" the word with the reinforcer and for automatic reinforcement. The author advises that single words should be used for all early learners rather than phrases. For example, rather than saying, "Oh, you want a cookie? OK, here's a cookie for you." when a child requests (mands) for a cookie by signing, the adult should just say "cookie" before giving the cookie and again after the child gets the cookie. We want hearing "cookie" (vocal stimuli) to be paired with the cookie (reinforcer).

What should I do if the child is making few sounds at all?
Anytime the child makes any sound, follow it immediately with one of the child's strongest reinforcers (automatic reinforcement). Begin pairing sounds and words with the child's favorite toys or activities. For example, if the child likes to play with a ball, say "b,b,b," while bouncing the ball and before giving the ball. If the child enjoys music, sing to him or play songs containing some isolated sounds like "Old McDonald" or the "Alphabet Song" on the Sounds Like Fun tape by Discovery Toys. Begin leaving off the last sound in the phrase to encourage the child to produce the sound.

Some children also enjoy playing with toys that produce sounds and will begin to spontaneously produce the sounds they hear. For these children, toys that produce sounds may be helpful. Be sure

to choose toys that produce the isolated sounds correctly and be sure you are using the correct production of the isolated sounds when pairing. For example the sounds for the letters "p, t, k, c, sh, f, h, s" should all be produced with no voicing and no vowel sounds connected to them. The sounds "m,n,z" do have voicing but should be produced in a continuous manner rather than combined with a vowel. Your speech/language pathologist can help you learn to produce the sounds correctly.

The goal here is to increase the number and variety of sounds produced so we have a behavior to reinforce!

What if the child is able to produce sounds but does not imitate the sounds I make?
Begin imitating the sounds the child is making during play. If the child produces the same sound after you, reinforce heavily. After the child is consistently imitating back and forth, add in "say" as part of your SD. Example:

> STUDENT: "mmm"
> Instructor: "Say 'mmm'."
> STUDENT: "mmm" (child is more likely to produce the same behavior under a different condition)

Another way this could be accomplished is by building "behavioral momentum". In other words, get a few imitative responses that the child has mastered then add in the "e". It is more likely that a child will produce a "difficult" behavior if it is preceded by some "easy" tasks. Example:

> Instructor: "Do this." (*touches head*)
> STUDENT: <touches head>
> Instructor: "Do this." (*touches mouth*)
> STUDENT: <touches mouth>
> Instructor: "Do this 'e'."
> STUDENT: "e".
>
> (This would later be transferred so the child is responding to "say "e" rather than responding to "Do this.")

Some children respond well to the use of visual or tactile prompting. For example, the "Easy Does It for Apraxia" program from LinguiSystems has finger cues that can be paired with isolated sounds to be used for prompting. The "Prompt" program consists of tactile prompting strategies to be used systematically to teach children to produce specific sounds. Or, less "formal" visual or tactile prompts can be used. A prompt is a teaching behavior used to increase the likelihood that the child will respond correctly. As with any other prompts used when teaching, these prompts must be faded so that the child can respond correctly without them. A response isn't considered "mastered" until it is produced with no prompting on a consistent basis.

What do I do if the child begins trying to say "cookie" at the same time he signs but he doesn't say it correctly? When children are first beginning to speak, we want to reinforce any and all vocal productions, so you would reinforce the attempt. Give the child the cookie (reinforcer) paired with social approval. Just continue to say "cookie" before and after giving the child the cookie and give the child a bigger piece of the cookie (differential reinforcement) whenever the child said a sound in combination with the sign.

Once vocalizations were consistent with the mand, begin teaching the child to produce the "k" sound in context of manding for the cookie. Wait until a vocal combined with the sign is a strong response to avoid the inadvertent extinction of the vocal. Still, be sure the child hears "cookie" before receiving the reinforcer. Example:

        STUDENT: <signs "cookie" and says "u"> (consistently)
        Instructor: "k"
        STUDENT: "k"
        Instructor: "Cookie" (*gives the child the cookie*)

Once the child is able to imitate the "K" sound consistently, combine it with the "u" that he already uses in combination with the sign mand for "cookie". Example:

        STUDENT: <signs "cookie" and says "u"> (consistently)
        Instructor: "ku"
        STUDENT: "ku"
        Instructor: "Cookie" (*gives the child the cookie*)

Next, begin teaching the child to say "kee" in the same manner as described above. Once the child is able to produce both syllables consistently, combine them.

If, on the other hand, the child is consistently saying "e" combined with manding for the cookie, it might be more appropriate to teach the child to say "cookie" through a backward chaining procedure. In this case, one could teach "kee", then, "ku", then the combined syllables.

Children vary in the ease in which they to learn to produce sounds in different parts of words. For example, one child might be able to produce the "K" sound but only at the end of a syllable. In this case, one might teach the child to produce "uk", then, "ukee" then "cookie". The order and prompting/chaining procedures chosen should be dependent on the response or learning history of each individual child and is best determined by the child's SLP. The important thing is to keep the child successful by not asking him to produce sounds in a sequence that he is unable to produce in isolation and to gradually build the child's ability to produce the movements in the correct sequence.

Once a sequence is taught, multiple repetitions are often required before the response is fluent. This can be achieved by giving the child small pieces of the cookie allowing multiple opportunities to "practice" or by playing with toy cookies where the child might be requesting (manding) that cookies be fed to his favorite toy characters.

It is important that the child not "practice" producing the movements incorrectly.   It is not uncommon, even after a child with apraxia has been heavily reinforced for saying "cookie" correctly, that he will not be able to produce the word correctly every time. This is sometimes referred to as having the sequence of motor movements under "volitional control". Remember that one of the defining "features" of apraxia is that it is related to difficulty with "purposeful" movement (under volitional control). If a person can produce a movement anytime they want to, that movement can be said to be "purposeful" or under "volitional control".

This is not often the case for children with apraxia. For example, a child might be heard to say "cookie" while jumping on a ball or running around the house (most likely due to past automatic reinforcement combined with a strong history of reinforcement for saying "cookie") but when asked, "What do you want?" with the cookie right in front of him and a strong desire (EO) for the cookie, he still may not be

able to produce the word "cookie". It's common to see some struggle or groping postures in his mouth or he may say, "toodie, coodie" or some other totally unrelated series of sounds. Some may suggest that the child doesn't really want the cookie (doesn't have a strong EO) so isn't responding correctly but this most likely is not the case if the child then begins tantruming (reverts to a behavior in the same response class) in order to get the cookie. Another explanation may be that the response isn't yet "strong" and requires more contact with reinforcement.

If, under these conditions, the instructor asks the child to imitate "cookie" up to 3 times and reinforces the best approximations, the child may indeed "practice" the motor movements required to say "cookie" incorrectly three different times. Then, one of these attempts will still be reinforced. As when teaching any other skill, the more often a child "practices" an incorrect response, the longer it will take to teach the correct response.

Instead, it is recommended that the word be "broken down" to whatever level the child is able to produce correctly. Example:

> STUDENT: "toge" (*while reaching for the cookie*)
> Instructor: "Say 'ku'."
> STUDENT :   "Ku." (child said the syllable correctly so there is no need to go to isolation)
> Instructor: "Say 'kukee'."
> STUDENT: "kuku" (child was unable to imitate both syllables)
> Instructor: "Say 'kee'."
> STUDENT: "kee."
> Instructor: "Say 'ku   kee'. (slight separation between the syllables)
> STUDENT: "Ku kee"
> Instructor: "Cookie." (*gives child cookie*)

The strength of the EO and the learning history of the child are important considerations in determining how many trials you should attempt before reinforcement. It is important to keep the child successful. If at anytime the child demonstrates a decrease in manding or reverts back to behaviors previously used to get desired items (tantrums etc.), it is likely that the demands are too high and the teaching should be adjusted accordingly.

It is highly recommended that the sign or PECS continue to be reinforced even after the child begins to use vocal requests (mands). It may take quite awhile for everyone in the child's life to understand his vocal requests and we want to be sure the child continues to have a way to communicate when he's not understood by others.

Does this mean I should never reinforce my child's word attempts unless he says the words correctly? No. There are many words that require so many complex movements that it might be a long time before the child is able to produce them correctly. Instead, teams can and should decide on which approximations will be accepted. Your SLP will be able to help you determine appropriate target approximations for your individual child but the following includes a few general guidelines to consider:

1. It is easier to add movements to a sequence than it is to remove them. So, avoid reinforcing any approximations where sounds are added. For example, if a child were unable to say "green" but could say, "gee" this would be a better target approximation than "guwee".

2. Sounds produced in the same location (place) increase intelligibility so choose target approximations with sounds produced in the same place whenever possible. For example, if a

child were unable to say "popcorn" but could say "bobun", this would be a better target approximation than "cocun".

3. Avoid stressing final consonants too early. When final consonants are stressed in speech, it is typical to add a bit of a vowel sound or "schwa" to the end of the word. This often results in children adding entire syllables to the ends of words that further reduces intelligibility. It is preferable to continue with open syllables (no ending sounds) or build syllable in consonant vowel (CV) patterns before working on ending sounds. For example, if a child were able to say "do" for "dog", the open syllable would be easier to understand than "dogu" resulting from an overemphasis on the final sound. Teaching "doggie" next to teach a new sequence of movements containing the target sound would be preferable to trying to teach the CVC pattern resulting in "dogu". The author typically begins teaching the child to produce the vowel + consonant (VC) pattern after the child is able to imitate voiceless consonants in isolation to avoid this tendency to add the "schwa" sound. For example, some of the first VC patterns taught might include "eat" and "up". The first consonant + vowel + consonant patterns typically taught include words where continuant sounds are at the end such as "mom" or "bus" to reduce the tendency to add a "schwa" or vowel sound at the end.

4. If the child is unable to produce "l,r,w" sounds, vowels can be substituted with little effect on intelligibility. For example, if the child is unable to produce ending "l" sounds, "buboo" (oo as in boot) would be an acceptable target approximation.

5. Duplicated syllables (repeating the same syllable twice) are easier to produce than two different syllables. So, if the child were unable to say "cookie", "kuku" would be an acceptable target approximation.

6. Producing voiceless consonant sounds and moving to a vowel sound adds complexity to a movement to the sequence. Therefore, saying "bye" is an easier response than saying "pie". In order to say "pie", the child must have his voice off, put his lips together, release air, then turn his voice back on for the vowel sound. In order to say "bye", the step requiring the voice onset at the correct time is removed since the voice is on from the beginning. All other movements are the same. Therefore, it is typically easier to produce words containing voiced sounds than voiceless. "dop" would be an acceptable approximation for "top" since the only error is in voicing.

7. Moving from nasal sounds (m,n,ng) to oral sounds (all other sounds) requires an additional movement of the soft palate (flap on the back of your mouth) to direct the air from the nose to the mouth. Therefore, saying, "mama" requires more movements than saying "dada" and is therefore a more difficult response for a child with apraxia. (That explains it!!) While this is helpful information to have when determining the difficultly of targets selected, it is not recommended that target approximations be chosen that consistent of oral productions of nasal sounds because intelligibility is compromised too greatly. For example, it would not be recommended that "baba" be taught instead of "mama" even though the only difference is in the nasal vs. oral air flow.

8. It is typically more difficult to produce movements that go from the front of the mouth to the back of the mouth such as required to produce "kite" or "dog". So, these types of words should be avoided as early targets.

9. Some vowels require more than one movement to be produced (dipthongs). Most "long vowels" "a, "i", "o" "u" as well as "ou" as in "house", and vocalic "r" sounds require more than one movement and these movements have no "contact" point where one part of the mouth touches another. As a result, these sounds are typically much harder to teach than short vowels or consonants that do have a "contact point". This should be considered when choosing targets.

10. When teaching children to say words, keep in mind that we don't often produce words phonetically as they are spelled. For example, the word "bottle" is typically produced with a "d" sound rather than a "t" sound in the middle and there is very little movement between the "d" and the "l" resulting in what sometimes is referred to as a "dark L". If we teach the child to say "bottle" by producing a "t" sound in the middle and a "ul" sound at the end, the result would sound very unusual, giving the child a "robotic" or unnatural sounding speech. The author has experienced children who were taught to produce words in this manner rather than taking into account the normal changes that occur to sounds as a result of co-articulation (producing sounds differently depending on other sounds in the words). This should be avoided if at all possible.

My child doesn't seem to move his mouth much when he talks. He does not eat very many different types of foods and can't stand for anyone to touch his mouth. What should I do?
As we know, children with autism often respond differently to sensations than other people (atypical responses to environmental stimuli). Some children are so sensitive to touch that they may find the feeling of their own tongue, teeth, lips touching each other to be aversive! For these children, it is important to desensitize them to touch. It will be difficult to teach him to say "mama" if he can't stand to have his lips touch together!

Desensitization should be approached very slowly. Applying touch to other parts of the body that may be less sensitive should be conducted first with the touch paired with established reinforcers. For example, if a child enjoys looking at books, touch during this activity. If he enjoys watching videos, cuddle up and touch during those times as you watch the video with him.

Typically deep pressure using the palm of the hand is preferable and more easily tolerated than light touches. Since a gloved hand will eventually be used to desensitize the mouth, a gloved hand is introduced as soon as the child is able to tolerate touch with a bare hand. A face is drawn on the glove and he is identified as "Mr. Tickle Guy" so that he can be removed and thrown away rather than having the therapist's own hand paired with any aversiveness the child may experience.

The cheeks and external oral musculature are desensitized first. Once the child is able to tolerate having his cheeks and lips massaged, small swipes can be taken into the mouth. This should be done slowly and carefully. It is sometimes best to have parents perform the initial desensitization procedures under the guidance of an SLP since the parent is more heavily paired with reinforcement.

Once "in" the SLP may use a wide variety of textures and flavors on different parts of the mouth as part of the desensitization procedures. For children who will only eat certain textures of foods, chewing different textures can be added to the desensitization procedures.

My child can talk but he talks so fast that I can't understand him and he typically speaks very softly. What can I do to help? Many children with apraxia tend to have a very rapid rate of speech that further reduces their intelligibility. Vowels are distorted and shortened. Once a child is able to produce many consonant sounds, vowels should be targeted. These are often difficult to target since they have no "contact" points and instead depending on the positioning of the tongue as well as the

degree of opening of the mouth. Use of bite blocks or sticks of varying width can sometimes be helpful in prompting the correct degree of mouth opening.

For children who speak quickly, a slowed rate should be modeled. Rate can be slowed by increasing the duration (stretching out) the vowel sounds. Remember that when learning any new sequence of movements, we tend to produce them more slowly at the beginning. Once the sequence of movements is mastered, we can "pick up the pace" approximating more normal rates.

Volume difficulties can be addressed through the use of imitation and/or visual prompting. If a child has a strong echoic (imitates easily), teach him to imitate various volumes with isolated sounds and then words. Sometime a drawn stairway or ladder used as a prompt can help. Place a toy or token on the lower rungs or steps as you model a low volume and on a higher rung or step as you model a louder volume. First teach the child to discriminate and produce volumes at the lowest and highest point you want to teach. Whenever teaching a new skill, it is often helpful to begin at a level of greatest discrimination. Then, as the child is able to discriminate these, move to more subtle discriminations toward the center of the continuum.

My child is able to say many words fairly clearly but when I tried to teach him to use sentences to request things, he was no longer able to say the words. What happened? A common characteristic of children with apraxia is that their ability to produce mastered movement sequences is greatly reduced when the length or complexity of what they are saying increases. The author suggests that it is more valuable to the child to be able to say shorter utterances in a manner in which people can understand him than it is to produce longer utterances. When you do increase the length of utterance, do so in a way that will add functional value to the utterance. For example, it would be more functional for a child to be able to request a "big cookie" when given the choice between a big and little cookie

than it would for him to be able to request using "I want a cookie". In addition to being more functional, "big cookie" would be shorter and less complex and therefore easier for the child to produce.

When "carrier phrases" such as "I want", "give me" or "can I have" have been added and the child is no longer able to produce previously mastered words, it is recommended that the carrier phrases be dropped and instead there be a concentration on adding more objects/actions (reinforcers) to the list of things the child can spontaneously request and/or increasing 2 word combinations that will allow the child to specify his requests more clearly.

My child does not exhibit behaviors consistent with a diagnosis of apraxia but many of his words are hard to understand. What should I do? As stated earlier, children with autism can exhibit as many different types of speech disorders as are found in the general population. In addition, it is developmentally "appropriate" for children to have difficulty producing certain sounds depending on their age and developmental level. Your SLP can advise you if the sounds your child is unable to produce are developmentally appropriate. If so, just model the correct production after the child but don't attempt to "teach" the child to produce it correctly at this point in time. For example, "J" is one of the later developing sounds in typically developing children so if your 3 year old says "duice" instead of "juice", just repeat "juice" after his approximation and before giving him the juice. It is likely that this "automatic reinforcement" inherent in hearing the correct production of the word just prior to reinforcement will result in correct productions as he matures.

Minor articulation difficulties can often be gradually changed to more accurate productions (shaped) when the child is requesting (manding). This can be accomplished by presenting a model for the child to imitate (echoic prompt).

Example:

        STUDENT: "mi."
        Instructor: "Say 'milk'."
        STUDENT: "milk."

It is recommended that no more than 3 attempts be made to improve the production and that the best approximation be reinforced. (The child gets the milk when he says the word better)

My child often drools and his speech sounds "slurred". These are often characteristics of children with weak oral musculature. If your SLP has determined that this is the case, he/she may suggest exercises that can be combined with therapy designed to increase the strength and mobility of the oral musculature. Mobility and strengthening exercises can also be helpful for children who exhibit limited or little movement in their oral musculature when speaking even though the strength of the muscles appears adequate.

Oral exercises, both passive (the SLP performing the movement) and active (the child performing the movement, blowing horns, whistles etc.) have often been found to be helpful for children with speech difficulties although there is no empirical evidence proving their efficacy. These exercises can be used as prompts to help children learn to produce specific movements but should not be the only activities involved in treatment. For example, if a child is unable to round his lips, he may be taught to move his mouth in this manner while blowing bubbles or blowing a whistle with a rounded opening. The movements produced should be transferred sound productions as quickly as possible.

In general, it is important to remember that talking should be fun! Producing speech can be very difficult for some children but it is less difficult if those working with the child understand the characteristics of their disorder and know how to prompt them effectively to "build" responses that the child can produce easily. An SLP who is experienced in working with children with autism is an important and necessary part of the "team".

Behavior Problems

What if the child cries to get what he wants?

<u>Counting Procedure</u>
This procedure lets the child know that reinforcement is currently not available (S-Delta). It can be used when a child wants something that he can have, but not for inappropriate behavior. Child exhibits a negative behavior (crying, kicking, screaming etc.) in order to get something he wants.

> Instructor: "No crying." (*Begins counting as soon as the child takes a breath but stops as soon as the crying begins again*.)
> Instructor: Repeats, "No crying" (*Starts counting again each time the child stops crying*.)
> STUDENT: <Eventually stops crying for a count of 10.>
> Instructor: Prompts the child on his current level (imitative, hand-over hand sign, "what do you want?") to request (mand) for what he wants.

For some children, this procedure may actually escalate the tantrum. If so, it is possible that the presence of the instructor or parent still suggests that he can get what he wants (discriminative stimulus for reinforcement). This can be especially true early in teaching if the parent or instructor has reinforced the tantrum in the past. If this is the case, the parent/instructor should leave the room, ignoring the tantrum (assuming the child is doing nothing that could cause injury or destruction). As soon as it is over, return and prompt the child to request what he wants appropriately.

Be aware that some children, especially those who are highly echoic, may begin to chain the counting into their requests (mands). If this is the case, use your fingers to mark the passage of time instead of counting out loud.

What if the child starts crying or screaming but doesn't appear to want anything?
In this case, the negative behaviors may be a request (mand) for attention. Parents have a natural tendency to run to their child when he's in distress. We consider it our "job" as parents to figure out what's wrong. Unfortunately, the child may have figured out (learned) that whenever he wants his parents to pay attention to him, he just has to scream. Does this mean you have to ignore your child when he is hurt or upset? No, not entirely. If the child has fallen and hurt his knee, by all means comfort him and put a band-aid on his knee. But, if your child is frequently crying and when you go to him, nothing appears to be wrong, he may be crying to gain your attention. In this case, it is important that you stop reinforcing the behavior by giving attention to your child. Instead, **give lots of attention when the child is engaged in appropriate behaviors.** For example, approach him when he is looking at a book quietly and offer him lots of hugs and kind words (if he likes hugs and kind words!). Never give attention to the problem behavior again. Timeout or ignoring will work if the problem behavior is an attempt to gain attention. If the child is using self-injurious or destructive behavior to gain attention, don't leave the child alone. Block the behavior and protect the child but do not say anything and do not provide any "soothing" touches.

Teach the child to use "words" to tell you he needs attention. For example, teach him to say, "I want a hug", or "come play with me" and be sure to give lots of attention when he uses these words!

What if the child is able to say the word but refuses to ask for what he wants? It is rarely the case that a child is actually refusing to say a word when he has a strong desire for an item. Just because a child can say a word to name something doesn't mean that he can request the item using the same word. Even if a child is able to inconsistently use a word to request things, it can be very difficult for some children to recall which word to use, especially under pressure. For example, many children with apraxia may be able to say a word just fine imitatively and even produce it correctly without a model on occasion but when asked, "What do you want?" the child may not be able to "come up with" the word. The best thing to do is to go ahead and prompt the child, even if you think he "knows" the word. Give him a small amount of what he has requested then try to get an unprompted response. Example:

      Parent: "What do you want?" (child reaching for cookie) "Cookie."
      STUDENT: "Cookie." (parent gives a small piece of the cookie)
      Parent: "What do you want?" (transfer from echoic)
      STUDENT: "Cookie."
      Parent: "What are you doing?"
      STUDENT: "Eating."
      Parent: "That's right! Something you eat is a _____ ." (FFC fill-in)
      STUDENT: "Cookie."
      Parent: "That's right smartie! What do you want?"
      STUDENT: "Cookie."

What if the child begins screaming to get out of a place or situation?
This is, in essence, escape behavior. When a child exhibits negative behavior to serve this function, it is important to never allow the child to escape or avoid the demand that has been placed on him. Once a demand is made, it is important that the instructor/parent follow through even if it is necessary to physically prompt the child to comply. We then need to examine our teaching strategies to determine if the demands are reasonably based on the child's skill level. We also have to look at the environment to see what the child may be escaping from (lighting, noises, smells, etc). It is important to teach the child a replacement behavior. For example, you can teach the child to ask for a break. Give the child a break whenever he asks at first. Later, when the child asks, let him know when a break will be available.

What if the behavior has been reinforced with self-stimulation (things that feel good to the child)?
In this case, you want to physically prevent the behavior from occurring. Self stimulating behaviors reinforce themselves. If a child is allowed to continue, the behavior will increase. Teach the child to enjoy social interactions (by pairing) and other activities that provide the same sensory input in more appropriate and less harmful ways.

Dealing With Behaviors Before They Happen

When we talk about manipulating the conditions before a behavior occurs (antecedent) we're talking about ways to *avoid* negative behaviors from happening in the first place. This should not be confused with how we *react* after a behavior occurs (consequence) which determines whether or not a behavior will be likely to continue in the future. It is critical to understand that both have the ability to change behaviors but for different reasons. In addition, if we attempt to deal with either one in isolation, we won't be as effective in making significant changes than if we attempt to deal with both. In fact, if we only pay attention to antecedent conditions, the negative behavior will continue if the way we are reacting is reinforcing the behavior.

Antecedent manipulations can include many things but should take into account the knowledge we have about the individual child, his reactions to the environment and the ability he has to understand what is happening around him. It is important to be sensitive to the needs of the child while at the same time teaching him to be able to function in society with other people with as few modifications as necessary to be successful. In other words, we can use whatever tools needed to teach the child based on his current skills but should also include teaching that will allow us to fade prompts and supports as the child learns new skills.

Child Specific Characteristics:

Sensory System - Learn the child. Know his typical responses to sound, touch, smells, movement, tastes etc. While it's important to be respectful of the child's reactions to the environment, we can't keep him from ever experiencing a situation that he finds aversive to his senses. For some children, this would mean keeping them separated from the rest of the world forever! If you anticipate that the child may have difficulty in a given situation as a result of his sensory system, plan to gradually "desensitize" him to the extent possible. To do this, the child is introduced to the situation for small periods at a time and he is reinforced for his ability to tolerate the setting for longer and longer periods of time. Sometimes the child's reaction is so strong that desensitization won't be effective. If this is the case, it will be important to choose learning environments for the child that take into account the way he responds to various stimuli in the environment. It also may be helpful to "pair" mildly aversive conditions with things that the child finds reinforcing such as his favorite toy, book or food. The movie theatre might not be too loud if the movie is about his favorite character and he has his favorite toy with him. Teach the child to be his own advocate by communicating the way he is reacting to the environment (replacement behavior). For example, the child might be taught to say, "It's too loud!", "I don't like that." or "Let's go" when he feels unable to handle the stimulation in the environment.

Anxiety in unpredictable situations/need for "sameness" - Children differ in their ability to deal with changes in their routine or situations that are unpredictable. If your child/student gets extremely anxious in new situations, some negative behaviors can be avoided by letting him know what to expect in a way he understands. If the child understands language, talk to him about what to expect in the situation. Books can sometimes be helpful. For example, frequently read a book about going to the dentist before making a trip. Social Stories and Comic Strip Conversations (Carol Gray) can be helpful in letting the child know what to expect in a given situation. In addition, visual schedules can be helpful for children who don't understand verbal language very well. In essence, the pictures tell the child what is going to happen during the day or during a specific period of the day. It is important to gradually fade the "need" for these schedules as the child gains language skills. For example, when the child is able

to understand, "First we're going to the grocery store, then to grandma's and then we'll go to the park." when it is stated verbally, there should no longer be a need for a visual schedule. In addition, children can learn to tolerate some spontaneity in their life! This can be accomplished by adding fun things into the day that aren't included in the schedule. Make sure the "different" activity is one that is highly preferred by the child. In essence, you're teaching him that unexpected things can really be fun! It is also important to teach the child to communicate his need to get information about what's going to happen. For example, children might be taught to ask, "What's next?" or "Where are we going?" if they need information.

Comprehension of Social Situations - Many children with autism have difficulty "reading" non-verbal communications such as body posture and facial expressions. In addition, many have difficulty learning the "rules" of social interactions. As a result, they may say or do things that are inappropriate for the situation. Children can be directly taught these skills. Comic Strip Conversations and Social Stories can be helpful in teaching these skills if the child's language is at a point where he cannot understand explanations given verbally. In addition, we can teach the child to understand social situations by teaching him to look for the things we can "see" that might indicate what people are feeling or thinking. (Public accompaniments) For example, teaching them to look at a person's eyes, or raised arm in order to determine what the person may be feeling or planning to do.

Comprehension of Expectations - Children with autism may not understand what they are supposed to be doing in a given situation. Typically developing kids may observe other children around them and do what they're doing if they are unsure what is expected. Or, they may ask a teacher or parent what they're supposed to do. If the child with autism has not been taught to imitate peers or ask for clarification, they may not understand what is expected. By giving clear expectations in a way the child understands, we may be able to avoid some negative behaviors. In addition, teaching the child to imitate peers and ask (mand) for information are important skills to teach the child.

Teaching the Child To Use Words Instead of Tantrums

Many children with autism use inappropriate behaviors in order to get their needs met. This can be very frustrating for parents and instructors to deal with because these behaviors can interfere with teaching as well as other activities of daily life. The fact is, people do what works for them! Whatever behaviors the child is exhibiting are continuing to occur because on some level, the behavior "works" for the child. In other words, there is some need that this behavior is meeting. If we can figure out what need is being met, we manipulate the strength of the need (EO) and/or teach the child a more acceptable way to "communicate" the need. In addition, we can teach the child that his "old way" of communicating will no longer work!

The three main "needs" that the negative behavior may be communicating (functions of the behavior) are:
1. They are gaining <u>attention</u> or desired items
2. They are <u>avoiding</u> or escaping a situation or a demand.
3. The behavior they are engaging in <u>feels good</u>.

The first step when confronted with a behavior problem is to attempt to figure out why the child is responding the way he is. When asked, parents or teachers may give their impressions of why the behavior is occurring. For example, they may report it's because the child is stubborn, sick, hungry or spoiled by Grandma. Of course we all have "off" days due to a variety of reasons, but, if a problem behavior is consistent, there's a relationship between the behavior and what happens before and/or after it that is causing the behavior to continue. The job of a behavior analyst is to figure out what that relationship is so that an appropriate plan can be developed to address the behavior. It's important to recognize that the team should not be focusing on who or what is to "blame" for the problem behavior. Doing so can cause the people involved to become defensive or feel hurt which is never healthy for a focused team or family. No one intentionally "teaches" a child to misbehave! Instead, the team should approach this process as a problem solving exercise with a team approach to collecting information needed to address the problem behavior.

In order to determine this relationship, it is important to actually spend time observing and recording what happens right before (antecedent) and right after (consequence) the behavior. This can be recorded by the people working with the child on a day to day basis or by an outside observer. The information recorded should be exactly what behavior was observed, not an impression of what caused it. For example, instead of writing, "Sam was hungry" as an antecedent (what happened right before the behavior), the observer might write, "Sam stood in front of the fridge and Mom asked, "What do you want?". Instead of writing, "Sam threw a temper tantrum", as a description of the behavior, the observer might write, "Sam fell to the floor, screamed and kicked his legs." Instead of writing, "Mom punished him", to describe what happened right after the behavior occurred (consequence) the observer might write, "Mom picked him up and put him in a chair". At this point, we're actually collecting the "facts" not trying to determine the cause. It's also helpful to write the specific times of day each behavior is occurring to help determine if there is a pattern to the behavior.

Once the information is gathered for a period of time, the team reviews the information to look for patterns in the events occurring before and after the behavior. For examples, let's say that when the team looked at Sam's behaviors, they noticed that there was not any consistency with regards to what happened after the behavior. Perhaps one person walked away when the tantrum began, another tried to calm the child and still another put him in time out. The only thing that was consistent was that the tantrum always occurred when someone asked, "What do you want?". So, the team determined that

there was a "relationship" between someone asking, "What do you want?" (antecedent event) and the tantrum (behavior).

On the other hand, perhaps the information collected indicated a different relationship. Perhaps one person asked, "What do you want?", another asked "Are you hungry?", and a third opened the fridge and gave Sam his juice. The only thing that was consistent was that after the temper tantrum occurred (consequence), everyone showed Sam different items until they found the one he wanted and he stopped crying. This would indicate the relationship is between the behavior and getting the desired item.

Once the relationship is determined, a plan can be devised to address the problem behavior. Behavior reduction procedures typically involve:

1. Manipulation of what comes before the behavior (antecedent events)
2. Removal of the reinforcer that is maintaining the behavior (extinction)
3. Teaching the child a replacement behavior by providing a higher density of reinforcement for the alternative behavior (differential reinforcement of alternative behavior).

The goal is to teach the child a replacement behavior (talking, signing or exchanging pictures/objects) to serve the same function as the negative behavior. The appropriate and inappropriate behavior in this situation are called a "fair pair".

For example, if Sam's team discovered that the tantrum only occurred when he was asked, "What do you want?" (antecedent), part of the plan might include refraining from using those words for a while. Instead, the team may decide to immediately open the fridge and give Sam some choices of items he might want. As he reaches for an item, the team could immediately prompt Sam to use the word, sign or picture to request the one he wants. For requesting this way, the team may plan to give him more of the requested item than he typically gets (differential reinforcement of alternative behavior). The prompts would then be gradually faded until Sam was able to request what he wanted even when he wasn't near the refrigerator.

Of course, it would also be important to teach Sam to tolerate hearing "What do you want?" because somewhere, someone will be bound to ask him that question. Sam obviously has an aversion to hearing those words, most likely due to something he didn't like happening at the same time he heard those words. For example, maybe someone held his favorite toy in full view and continued to ask, "What do you want?" over and over without allowing him access to the toy. It's important not to spend too much time focusing on HOW it happened because as stated earlier, fault finding is rarely healthy for any team or family. But it is important that everyone on the team understand how different teaching strategies may affect the child. Still, the primary focus should remain on solving the problem. In this case, part of Sam's program might be prompting him to request small amounts of the desired item and gradually "slipping in" the question between lots and lots of his favorite item. Or perhaps the team would decide to just "pair" those words with reinforcement by saying them while Sam was engaged in a favorite activity but not requiring a response. For example, while watching Sam's favorite video with him, they may say, "What do you want? Video" in a calm soothing voice. It would be important to say both the question and answer in this situation so the child doesn't get used to the question being followed by no response. Then, perhaps the video would gradually be paused a few seconds and Sam would be prompted to ask for the video in whatever response form he was using. (Words, pictures, signs, objects).

Doing these things may keep the tantrum from happening in the first place, however, there also needs to be a plan to address the tantrum if it does occur. Reinforcement, by its definition, is what happens after the behavior occurs. Even though each person in the first example reacted differently, the behavior must be reinforced because it is continuing. If fact, if a behavior is being reinforced inconsistently (variable ratio schedule), it is even harder to extinguish! So, as part of the plan, the team may decide that anytime Sam tantrums instead of requesting, they will use the counting procedure (to be described later). As soon as Sam stops crying for up to a count of 10, they will prompt him to request what he wants. <u>When a child tantrums as a way to request things, it is critical that he never gain access to things he wants (reinforcers) by having a tantrum ever again.</u>   Unfortunately, when a child is given what he wants when he tantrums even on occasion, it is more likely that he will tantrum in the future whenever he wants something. Think about the slot machine in Las Vegas. The fact that it doesn't "pay out" (reinforce) every time a person puts money in it actually causes people to put in more and more money with the thought that perhaps that next quarter will be the one that hits the jackpot. It's not that the child is deliberately planning this, it's just what happens when the child gets what he wants after a tantrum some of the time. (Variable ratio reinforcement schedule) In fact, if the child was given what he wanted (reinforced) every time he had a tantrum (continuous reinforcement schedule) before our attempts to intervene, it would actually be easier for us to extinguish the behavior. Consider a candy machine as an example. If in the past we always got candy every time we put money in, then all of a sudden we stopped getting candy every time, we would not be likely to put more money in that machine in the future. Unlike the case of the slot machine, our behavior of putting money in would stop quite quickly!

It's important to understand that we typically see an increase in the child's behavior when we first begin denying access to the reinforcer (extinction). In this case, Sam's temper tantrum might escalate or last longer than usual. This is called an "extinction burst" and will lessen quite quickly as long we are consistent in not allowing access to the reinforcer. An example of this extinction burst would be if the person who expected to get candy from the candy machine hit the machine or kicked it a few times in effort to get the reinforcement he was used to getting. It's important to "ride out" this extinction burst rather than assume it means our intervention isn't working.

Sometimes, even after a behavior is stopped by not allowing access to the reinforcer (extinction), the child will suddenly exhibit the same behavior again. Again, it's very important that the same procedure be followed to not allow the child access to the reinforcer. If not, the behavior may come back in full force and be even more resistant to extinction in the future.

Due to the importance of consistency when dealing with a child's behavior, it's critical that everyone working or interacting with the child be notified of the plan. It's typically best to explain the procedures very clearly so everyone understands what to do. In addition, it's best to explain why the procedures are being used as well as the importance of everyone reacting in a consistent manner. If the behavior is reinforced sometimes and not others, it will be more and more resistant to extinction. For example, let's say that Sam's parents had worked hard to teach Sam to use signs to request things but then a babysitter came over to spend an evening. This babysitter didn't know anything about Sam's history of tantrums or the procedures used to stop them, so, when Sam went to the fridge and started crying, the babysitter began showing him things until she figured out what he wanted. All the work the parents had done to extinguish the tantrum would be lost and in fact, the behavior would be more resistant to extinction because the tantrum was again reinforced!

In essence, we must teach the child that using signs, words or pictures/objects is the way to communicate his wants and needs. As part of this, we must also teach him that negative behaviors will not be successful in getting his needs met!

Teaching the Child to Answer Questions

Many children with autism have difficulty answering questions.   Parents often report that their child "knows the answers but doesn't understand the questions!" For example, the child may be able to point to (receptive) and label (tact) colors, but when asked, "What color?", may respond with the name (tact) of the item instead. When we teach a child to answer questions, we have to "link" types of questions with their responses. We have to be sure the child discriminates the response required for particular questions.

The child typically already has a great deal of experience with questions. Unfortunately, the most typical learning history we see is that the child has "learned" to NOT answer questions! Parents, day care providers and others typically begin asking children questions when they are very young. If the child does not know how to respond, they don't! Those people asking the questions often don't know how to prompt the child or teach the child to answer the question so when the child doesn't respond, they do nothing. When reinforcement occurs after the child has not answered the question, it increases the future likelihood that the child will not answer a question the next time he is asked! For example, let's say a child is in a daycare and the teacher asks, "What are you doing?". If the child doesn't know the answer, he might just ignore the teacher. A typical response to this ignoring might be that the teacher asks again, a little louder. Again, the child wouldn't respond. The teacher might ask the question yet again, with some irritation in her voice. The child may find this interaction quite distasteful! (Aversive) Finally, the teacher might "give up" and walk away from the child. When this aversive interaction is "removed" as the teacher leaves, negative reinforcement may occur. (Taking away something aversive). This might result in the child responding the same way the next time he is asked a question. In fact, because of the child's history of finding this "question interaction" aversive, he may attempt to avoid the situation all together. (Creates an EO for escape) So, the next time someone asks him a question he may walk away!

To avoid this type of "learning" it is best not to ask children questions to which they don't know the answer. When questions are asked, the child should be taught to respond appropriately using transfer, prompting and correction procedures. Just as in other learning situations, we can accomplish this by using the responses the child already has and transferring them to a response to a question.

It is important to understand that questions become part of the set of stimulus conditions that specify which response will be reinforced. Because they contain controlling stimulus conditions, questions require a child to make conditional discriminations. The number of conditional discriminations required depends on the number of items present in the environment as well as the controlling stimuli involved in the question itself. For example, if a child has been taught to label (tact) objects, he is taught to respond (by being reinforced when he does so) with the object name when he hears "What" as part of the question. Later, when taught to tact actions, the child must discriminate between "What" and "What are you doing" as part of the question in order to respond correctly.

For this reason, it is suggested that instructors be careful to control the verbal stimuli (questions) used to initially teach tact responses to be sure the child is responding to the controlling stimuli present in the question. However, once discrimination has been achieved, it is also important to "loosen" the stimulus control of the question. Otherwise, the child will only be able to respond correctly if a very specific question is asked.   For example, if stimulus control of the question is "too tight", the child may be able to respond "big" if asked, "What size?" but not if asked, "What does it look like?", "What kind?" or "Which one?". Or "What size is that?" Once the child is able to discriminate the controlling variables in

the questions, generalization can be programmed by transferring mastered responses to new conditions and "loosening" the control of the specific question.

Prerequisite Skills

Before beginning to work directly on teaching the child to respond to questions, he should already be able to ask for (mand) a wide variety of objects and actions.   Manding (requesting) should still be the primary focus of teaching. Continue to build the number of things the child is able to ask for with a goal of 1,000 mands (requests) per day.   In addition, the child should have strong skills in labeling (tacting) objects.   Refer to the sections on teaching the child to mand and tact if this is not the case.   If this type of teaching has occurred, the child would already be able to answer questions that serve as a stimulus for labels (tacts) for objects such as "What's this?", "What's that?" and "What do we call this thing?" as well as be able to respond to the question, "What do you want/need?" when he has a desire (EO) for an item.

It should be noted however, that some children have a very difficult time learning to label (tact) items but can respond to FFC fill-ins. If this is the case, the response to the FFC fill-in can be used to "transfer" to the tact. For example, some children may not be able respond to "What's this?" in the presence of a "cookie", but can respond correctly when "We eat a …" is presented in the presence of a cookie. In this case, the FFC can be transferred to the Wh? for the tact of the object.

      Instructor:　　 "We eat a …"
      STUDENT:　 "cookie"
      Instructor:　　 "What's this?"
      STUDENT:　 "cookie"

The important thing to remember is that the goal is to determine the conditions under which a child can respond correctly and then transfer it to a different condition.

Another important consideration is to always correct error responses by repeating the question and prompting the answer.   Doing so helps insure that the child not only learns the correct response but also discriminates the question as being an important part of the stimulus conditions for the reinforcement of the correct response.   For example:

      Instructor:　 "What flies in the sky?"
      STUDENT: "Car"
      Instructor:　 "What flies in the sky? Airplane."
      STUDENT: "Airplane"
      Instructor:　 "What flies in the sky?"
      STUDENT: "Airplane"

Consider the alternative:

      Instructor:　 "What flies in the sky?"
      STUDENT: "car"
      Instructor:　 "No silly. Cars drive on the road. Airplane."
      STUDENT: "Airplane"
      Instructor:　 "That's right!"

The child has given the "correct" response and has been reinforced but the question is "too far removed" from the event to be part of the stimulus conditions. There's no "connection" between the question and the response and the reinforcement.

First Questions

AVOID YES/NO Some types of questions are best to avoid when teaching an "early learner". In some programs, "yes/no" questions are the first to be taught to children when in actuality, their use could inhibit language development. It has been suggested that Yes/No are sometimes taught in attempts to provide the child a way to let people know what they want. For example, the instructor might hold up a ball and ask, "Do you want the ball?" and teach the child to say "yes" if he does want the ball and "no" if he doesn't. One concern is that the instructor may not really "know" if the child wants the item or not. If the child has been playing with the ball for a while and is reaching for the ball, an EO (desire) can be inferred; however, the child may prefer something else at the moment. The instructor really can't be sure he/she is prompting the "correct" response.

A bigger problem arises if the child wants an item but no one has asked him! The only "behavior" taught as a response to this desire (EO) is "yes". So, the child goes to an adult and says or shakes his head "yes". Unfortunately, the adult has no idea what the child wants. This resulting lack of reinforcement will most likely result in the child tantrumming due to an extinction burst or the fact that the child reverts to a previously reinforced behavior in the same functional response class of "gaining objects/attention" (socially mediated positive reinforcement). A preferable way to teach the child to have his needs met is to teach him to request (mand) for individual items rather than teaching him to respond to "yes/no" questions.

Avoid asking questions you don't know the answer to In general, you should avoid asking any questions about things that are not present during teaching because it may be difficult if not impossible to prompt the child. For example, if you ask the child, "What did you do at school today?" you wouldn't be able to prompt the child to answer because you don't know what the response should be. The child will eventually be taught to respond to questions about past events but not until after he has had a great deal of instruction in answering questions regarding things that are in the current environment. In addition, the answers will always be "known" by the instructor when teaching the child to respond to questions about past events.

Who? (G3) After we teach the child to label (tact) objects, we can begin teaching the child to label (tact) people. This adds another question form to teach the child. The child is taught to respond to "Who's this?", "Who's that?, "Who's here?" etc. The discriminative part of these types of questions is the word "Who". The child learns that when he hears "Who?", the response should be the tact for the person. Be aware of this when teaching receptive actions in pictures. I've often heard instructors ask, "Who's climbing?" as the SD for the receptive action target. The response the instructor is expecting is that the child touches the picture of the person climbing. The correct response to this should be the person's name or a general "people tact" such as "girl" or "boy". To help avoid later discrimination errors, make sure your question (verbal SD) matches the response you want. For example, in the example above, use "touch climbing" as the verbal SD for teaching the child to touch action pictures.
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What…doing? (G5, G6) As we begin to teach the child to label (tact) actions, we are teaching him to respond to "What…doing?" type of questions. Again, a variety of questions that evoke the "action label"

response should be taught. The child is first taught to label ongoing actions so he will learn to respond to "What are you doing?" and "What am I doing?". Once the child masters ongoing actions, pictures can be used. This is important because you can't "see" actual movement in pictures and that is what we are teaching the child to label! The child can be taught to answer these types of questions by transferring from a simple instruction or request.

Transfer from simple instruction:
      Instructor.   "Clap"
      STUDENT: <Claps hands and says> "clap"
      Instructor: "What are you doing? Clapping" (full prompt because of form change)
      STUDENT: "Clapping"
      Instructor: "What are you doing?"
      STUDENT: "Clapping"

Transfer from mand:
      STUDENT: (wants juice and mands for action) "Pour."
      Instructor: "What am I doing? Pouring." (full prompt because of form change)
      STUDENT: "pouring"
      Instructor: "What am I doing?"
      STUDENT: "pouring"

Receptive to tact transfer

Used for children who are saying the name of the action (tacting) as they are pointing to pictures.

      Instructor: "Touch eating."
      STUDENT: <touches picture of "eating" AND says> "Eating"
      Instructor: "What's he doing?
      STUDENT: "eating"

Some types of programs teach the child to label (tact) both objects and actions but do so in isolation. In other words, the child first labels a number of items then, at a separate time, labels a number of actions, both with pictures used as stimuli. When this is done, the actual question may not be serving as the stimulus for the response. Once the first question is asked, the child "knows" the type of response that is expected and really doesn't have to pay attention to the question at all!

To avoid this, different types of questions should be mixed up as soon as the child is able. For example, the instructor or parent may ask, "What's this?" and after the child responds ask, "What's he doing?" Full prompts should always be used when first teaching a response and correction procedures should always be used if the child doesn't respond. It is important to **not** always use the same pictures or objects to teach the child to tact objects and actions. Otherwise, the child may respond to the actual picture or object rather than the question. For example, if the child is always asked, "What's this?" when shown a picture of a dog in a book and asked, "What's the girl doing?" when shown the picture of a girl swinging, the stimulus to which he is responding may be the picture rather than the question. Instead, if he is playing with a dog and is asked both, "What's this called?" and "What's the dog doing?", he must "pay attention" to the question because the visual stimulus remains the same.

At this point, the child should be able to respond correctly and discriminate between "What" questions to label (tact) things, "Who" questions to label (tact) people and, "What…doing?" questions to label (tact) actions.

Teaching the child to answer personal questions (H5)- Some of the first questions that typically developing children learn to answer involve personal information such as their name and age. These can be taught either with echoic prompts or by transferring from receptive (pointing/touching) to labeling (tacting) responses.

Receptive to tact transfer *(If child is speaking as he points)*
    Instructor: "Find Sam."
    STUDENT: <touches picture of himself and says> "Sam"
    Instructor: "What's your name?"
    STUDENT: "Sam"

Once the child is able to respond correctly to the question without asking him to touch the picture first, the picture can be faded:

    Instructor: "What's your name?" (picture present)
    STUDENT: "Sam"
    Instructor: (*hides picture*) "What's your name?"
    STUDENT: "Sam"

Teaching the child to respond to "How old are you?"

    Instructor: "Find 3."
    STUDENT: (touches the "3" and says) "3"
    Instructor: "How old are you?"
    STUDENT: "3"

Fade visual stimulus- transfer to intraverbal

    Instructor: "How hold are you?" (number 3 present)
    STUDENT: "3" (tacts number)
    Instructor: (*hides 3*) "How old are you?"
    STUDENT: "3"

Echoic prompts:

    Instructor: "What's your name? Sam"
    STUDENT: "Sam"
    Instructor: "What's your name?"
    STUDENT: "Sam"
    Instructor: "How old are you? Three."
    STUDENT: "Three."
    Instructor: "How old are you?"
    STUDENT: "Three."

Answering Questions Regarding Adjectives (G11) When reviewing the examples in the ABLLS for the objective, "Labels Adjectives" the examples are all "fill-in" type of responses. However, in order to be able to label (tact) adjectives under other appropriate conditions, the child must be able to discriminate between a wide variety of question forms. The questions then, become part of the set of stimulus conditions that specifies when a particular response will be reinforced. Since the questions used to elicit specific feature responses are so similar, it's important to teach the child to discriminate the important parts (controlling variables) in the questions themselves. This can be accomplished by beginning with short, simple questions. In addition, stressing the controlling variables (saying them louder than the other words in the question) can make them "stand out" and make it easier for the child to discriminate. It is also important to use a large variety of different objects when teaching the child to answer questions about properties (adjectives). This helps insure that the child can both discriminate and generalize the responses. Once the child learns to respond correctly with identical items that vary only in the target property, non-identical items should be introduced.

What color? (G11) As part of teaching a child to label colors, we have to teach him to respond to the question, "What color?" in the presence of items of color. This may seem an easy task, however, consider that both the questions used to elicit the label for objects (i.e. what is it? What's that? What's this called?) and the question used to elicit the label for actions (i.e. What…doing?) also contain the word "What". Many children are able to point to (receptive) and label (tact) colors but when asked mixed questions, respond to "what color?" by giving the item name (tact of object). In addition, be aware that it is easy to "inadvertently teach" a child to say a "color", only if the object name (tact) is contained in the verbal SD. For example, if asked, "What color is the ball?" the child may respond "red" but if only asked, "What color?" while the ball is held up, the child may respond "ball". In this case, the child may be discriminating the presence of the object name (object tact) in the question to respond with the color rather than the more important word, "color".

To teach the child to respond to "What color?" we must first elicit the color word by itself so we have a behavior to transfer to a new condition. Possible transfers can include:

Mand to tact transfer (Be sure the mand for the actual object is strong before teaching the child to mand with adjectives)*

        STUDENT: (Has an EO for the ball so mands) "Ball."
        Instructor: (Has a red ball and a blue ball- holds up one at a time) "Red? Blue?"
        STUDENT: "Red."
        Instructor: "What color?"
        STUDENT: "Red."

Receptive to tact transfer

In order for this to be used as a transfer, the child must be saying the name (tacting) of the color at the same time he is touching. Fully prompt by pointing to the correct response as you ask the question for initial teaching.

        Instructor: "Touch red"
        STUDENT: <touches red and says> "red"
        Instructor: "What color?"
        STUDENT: "Red."

Fill-in transfer- (used with children who are able to tact colors but not responding to "what color?" consistently)

>   Instructor: (*points to blue ball*) "This ball is blue." (*points to red ball*) "This ball is…"
>   STUDENT: "Red."
>   Instructor: "What color?"
>   STUDENT: "Red."

It's important, especially early in teaching, that the child NOT be reinforced for giving both the color and name of the object when asked either "What color?" or "What's this?" For example, if, when shown a ball and asked, "What's this?" the child responds, "red ball", we would NOT want to reinforce. Instead, we would want to get the response, "ball". This is often difficult to remember because it can be so exciting when the child begins to combine words that we want to reinforce this longer utterance! However, it is very important to teach the child to discriminate between the different question forms. Once the child is consistently responding correctly to "What color?" we can transfer these responses to other relevant questions such as "What color is this?, What color is the ball?", etc.

What Size? (G11) When first teaching a child to label (tact) sizes, present two items that are identical in every way except the target size adjective.

Mand to tact transfer (*make sure mand for object is strong before adding adjectives)

>   STUDENT: wants a cookie so mands "cookie"
>   Instructor: (*has two cookies, one big, one little- holds up each one at a time*) "Big? Little?"
>   STUDENT: "Big."
>   Instructor: "What size?"
>   STUDENT: "Big."

Receptive to tact transfer

The child must label size as he points. (Fully prompt with a 0 second delay during initial instruction)

>   Instructor: (*has a big ball and a little ball*) "Touch big."
>   STUDENT: <touches the big ball and says> "Big"
>   Instructor: "What size?"
>   STUDENT: "Big."

Fill-in transfer

After initial teaching, many children are able to fill-in adjective opposites. If so, this response can be used to teach the child to respond to "What size?"

>   Instructor: "This ball is little. This ball is …"
>   STUDENT: "Big."
>   Instructor: "What size?"
>   STUDENT: "Big."

What shape? (G11) This question would be used to elicit the shape of items. The same teaching procedures/transfers described above can be used.

How….feel? What…feel like? (G11) This is a question that would be used to elicit adjectives that describe tactile sensations such as temperatures or textures (i.e. hot/cold, rough/smooth, soft/hard). These types of "feelings" can be controlled by the instructor by presenting two things that vary only in the target adjectives. For example, two identical towels, one wet and one dry, might be used to teach the child to respond "wet" or "dry" when asked "How does it feel?" The same teaching procedures/transfers described for other adjectives can be used to teach individual responses.

These questions would also be used to elicit labels (tacts) of "emotions". While many parents express a strong desire for their child to be able to tell them how they feel, this is often difficult to teach because we don't always "know" the correct answer to prompt. Emotions are "feelings" that are private to the individual. The only way we can infer how someone is feeling is to notice the behaviors we typically associate with the feeling. For example, it's pretty easy to tell when someone is vomiting that they feel "sick" or that a person is "angry" when they're in the middle of a temper tantrum! Unfortunately, these don't make for "opportune" teaching times as it's difficult to elicit, let alone reinforce a response! When we do teach emotions, we can teach the child to respond to specific features or actions of the individual that indicate the emotion. For example, we may teach them to discriminate tears or frowns to respond "sad" and smiles or laughter to respond, "happy" when asked, "How …. feel?" type questions.

How does it taste? This question is often used to teach adjectives relating to taste such as "salty", "sweet", "spicy". Just as with other adjectives, providing two identical items varying only in the target should be used to teach. For example, salt and sugar look alike but vary in taste. The child should taste the item and tact the taste. Teach the child to respond to the question through transfers as described above.

How does it smell? This question is used to elicit adjectives relating to smell such as "stinky", "sweet", "spicy", "strong", etc. Often, adjectives of taste and smell are the same so whether the child is eating or smelling something should determine the question form used to elicit the response you want.

What does it look like? How does it look?   These are more "general" questions that could be used to elicit a variety of responses involving features/properties that can be seen. The "correct" answer isn't specified other than the sense involved. The "correct" response might include the color, shape, size, or even parts of an object. This question is often used when teaching adjectives that don't "fit" into other grouping of size, color etc. (i.e. curved/straight, curly, narrow/wide, tall/short).

This question is also used to elicit responses that indicate one thing that has similar visual features as something else. When we teach the child to respond under these conditions we are asking for a tact of a "private" event in that we are asking the child what something looks like to them. For example, when looking at clouds, one person might tact that the cloud "looks like" a ship, while another might say that the same cloud "looks like" a bird. Both responses are "correct" in that they tact the private event of the individual. Questions such as "What does it smell/taste/feel" can also be used to teach the child to describe attributes based on their similarities to other objects.

What kind? Which one? These are more "general" questions that might be used to elicit a variety of adjectives. They are not as specific with regards to the response required. For example, if asked, "What kind of cookie do you want?" to elicit the use of adjectives when manding, the "correct" response could be a color, shape, flavor, type, or even a specific brand. These types of questions are often used to teach a child that "more information" or more specificity is needed to clarify their mand. For example,

if 3 balloons are present, and the child mands for "balloon", an adjective is needed to specify the balloon for which he is manding.

FFCs- As we teach the child to label (tact) actions, parts of items and adjectives, we also begin to teach the child to answer questions regarding associations between and among object. In the ABLLS, these are referred to as "Features, Functions, and Classes".

"Features" refers to the attributes/adjectives and/or parts of items. For example, a feature of a ball that may be taught is "round" and features of a car may include, "steering wheel", "seatbelt", "tires".

"Function" refers to what is typically done with an item. For example, a function of "ball" might include, "bounce" and a function of a car might include "ride".

"Class" refers to the ways an item can be associated, categorized or classified with other items.

Very young children typically classify most items according to their function so for very young children or early learners the "class" and "function" target may be the same. For example, "things we ride in" and "Things we eat" are classes, but also functions.

Typically developing 4-5 year old children next learn to classify things according to categories. The first category labels that young children acquire typically include animals, foods, toys, and clothes. In addition, it is often helpful to teach "colors" as a category. This may help the child learn to discriminate "What color?" vs. "What is it?".

Choosing targets

Choosing targets to teach as mands, tacts and FFCs should be ideally chosen based on the interests of each individual child. The Mand is the first verbal operant taught because it is the only operant that teaches the child the "power of words". Therefore, the first receptive, tact and FFC targets should be transferred from mastered mands.

It is acknowledged that some children have very few items or activities that are reinforcing. For these children, the main focus of the program should continue to be mand training, however, this doesn't mean that all other operants cannot be addressed. Mand, receptive, tact and FFC targets can be chosen surrounding things in which the child comes in contact with on a daily basis. While these items may not necessarily be reinforcing in and of themselves, an EO for these items can be contrived for items needed to complete the daily tasks. For example, if the child wants to eat cereal, a spoon becomes valuable. If he wants to go outside, his shoes become valuable. If he wants to color, paper becomes valuable.

In essence, it is recommended that early FFC training only be conducted for things for which a child has manded for in the past. The instructors have a choice of "capturing" EOs such as when a child shows interest in an item or contriving EOs as described above. In addition, an attempt should be made to continually build new potential reinforcers by pairing toys and activities with items which already serve as reinforcers. These items can be primary reinforcers such as food, tickles, hugs, silly voices or other conditioned reinforcers or toys that the child has learned to enjoy.

In order to choose which FFCs to teach an individual child, it is recommended that the parents and instructors observe the child carefully to see which feature or function to which the child appears to be

responding. It's more critical that the targets chosen are those that are relevant to the child rather than one that may be judged "correct" based on semantic relationships. For example, if a child really likes to play with a bike but his favorite activity is turning the pedals, "pedals" would be an important "part" or "feature" to teach that child. Another child may like his bike but really enjoy ringing the bell. For that child, bell would be and important "part" or feature to teach. Another child may not like to ride bikes at all but may mand for other people to ride so he can watch the wheels turn. For this child "wheels" would be an important target.

Also look at the way a child responds to touching an item. If a child never chose to touch a cat, stuffed or alive, "soft" may not be a relevant feature. On the other hand, if a child tended to touch many different items, especially those items that were "soft", it would be a relevant feature of many different items. For children who enjoy looking at things that are long or shiny, these may be more important features of a "fork" than the fact that it has prongs.

It's also important to keep in mind what a particular child does with an item when determining what function(s) to teach.   Remember that many objects have multiple functions as well as multiple features. In fact, the ABLLS objectives for intraverbal Features, Functions and Classes (H10, H 7, H12 respectively) list the criteria for mastery as "20 or more fill-ins with two responses. For example, sticks may be used to poke, or twirl. Blankets can be used to hide, get warm, or make a tent. Tops can be used to spin or watch. What does the individual child like to do with the item?

Most typically developing children learn functions before any other item. This is understandable given their relationship to the mand. If a child has manded for an item, it is reasonable that he will want to do something with it! The actions a child mands for with a given item will give you input as to what can be chosen for "function" targets.

Note that the child should also be able to classify items in more than one way.   One of the first ways typically developing children learn to classify objects is based on their function. "Things we wear", "Things we eat", "Things we play with" are typically learned before classification by category such as "clothes", "foods" and "toys". In fact, for some children, once they have learned "things we eat" as a "class", it is quite easy to transfer all responses in this response class to the class of "foods" by teaching "Things we eat are called (food)." Each individual response does not typically have to be taught again such as might be expected if you were adding a new feature or function to a target with previously mastered FFCs.

While there are many different features, functions and classes that can be chosen as targets, it is not necessary to teach all of them at one time. Choose those that are most relevant to the child's life at the current time. More can be added as the child grows in his language usage and his ability to respond to items in a wider variety of ways.   For advanced learners, we will use these features, functions and classes to transfer to teaching the child to describe and define items. When you try to think of additional targets to add, think about what you would say to someone from a foreign country who asked you to explain a "label" to them. For example, if he asked what a "cat" is, you might tell him, "It's an animal that people have for a pet. It has whiskers and a long tail. It has claws and scratches. We pet them. It has soft fur. Dogs chase them." From this, we could determine that "animal", "pet" (noun), "soft", "fur", "whiskers", "long tail", "claws", "scratch", "pet"(verb) could all be chosen as FFC targets. If you have difficulty determining what might be appropriate, ask a typically developing child around the same age level as your child to "tell you about" or "describe" the item.

Many parents report difficulty trying to determine if a target is a feature or function. A "rule of thumb" is that if the target is a verb, it can be taught as a function. If it is a noun, it can be taught as a "part" or

feature. If the target is an adjective or adverb, it can be taught as a feature. As said previously, items can be classified in a variety of ways so nouns, verbs and adjectives can all be taught as classes.

There is no "magic number" of FFCs to be taught for any specific item at one time. Even one FFC might be taught to a young child with more being taught as the child has more interaction with the item. For example, while it might be relevant for the 3 year old to learn to respond "potty" when he is asked, "What do you pee pee in?" or "What do you flush?", it's not so relevant that he respond "potty" in association with "bathroom fixture" or "porcelain"!   For early learners, no more than 3 or 4 FFC's should be targeted at a time. These targets should be chosen according to what's most relevant in the child's life rather than insisting that one function, 2 features and one class be taught for each target. Some items may have multiple functions that are relevant but no "class". Others may have a "class" and multiple "features" but no "function". Avoid searching for targets to teach just so you'll have one from each FFC grouping.   (Examples of target FFCs can be found in the Partington and Sundburg manual, "*Teaching Language to Children with autism and Other Developmental Disabilities.*"

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You will notice in the ABLLS that the intraverbal targets relating to "classes" list "fill-in class given item"(H11) before "fill-in item given class (H12). The opinion of some is that this is just a typographical error and that the child should always begin by responding with the item name. However, consider that, if just two category labels have been taught, it would be much easier for the child to fill-in "food" or "animal" than it would be to respond to "a kind of food is a …" because there are many more possible responses to the latter question. It is often easier for children to fill-in category labels than specific items within a category. See how the individual child responds best to determine which fill-in to teach first.

It is important that the child be able to tact the parts and adjectives involved associated with the object before including it in FFC training whenever possible in order to avoid "rote" responding. It is much easier to be sure the child is discriminating the correct part of the question if the labels (tacts) of the parts and adjectives are taught first. For example, the child should be able to at least receptively identify and ideally label (tact) "whiskers, fur, tail, soft" on a cat before using these features in FFC training for "cat".

The questions used to elicit the label of parts (tact parts) are the same as tacting objects so additional conditional discriminations are not required on the part of the child. He just labels (tacts) what is pointed to or indicated in the presence of 'What's that?" or a similar SD. Transfer procedures used for teaching tacts of objects can be used. It should be noted, however, that others using the ABLLS curriculum do not think it is necessary to provide this pre-requisite teaching before the target is chosen as for FFC teaching as long as they (parts/adjectives) are taught at some point.

You will find ABLLS objectives related to the teaching of FFCs in the receptive, labeling (tacting) and intraverbal sections; however, these skills are typically taught at the same time. One skill used to teach another is referred to as "transfers".

ABLLS objectives relating to FFC training include:

RECEPTIVE (Item present)	TACT (Item present)	INTRAVERBAL (Item NOT present)
C20: Select by Function *EX. Touch the one we eat*	G12: Label when given function *EX: What do we eat?*	H6: Fill-in words describing common activities *EX: We sleep in a…* H7: Fill-in item given function *EX: We eat a …..* H16 Answers "What" questions *EX: What's something we eat?*
C21 Select by Feature *EX. Find the one with chocolate chips*	G13 Label when given feature *EX: Which one is food?*	H10 Fill-in item given feature *EX: Something with a chocolate chips is a …* H16 Answers "What" questions *EX: What has chocolate chips?*
C22 Select by class *EX: Touch the food*	G14 Label item given class *EX: Which one is food?*	H12 Fills in item given class *EX: A kind of food is a*
	G15 Labels function of item *EX: What do we do with a cup?*	H8 Fill-in function given item *EX: We use a cup to ….*
	G16 Labels Class of object *EX: What's a dog? (animal)*	H11 Fill-in class given item *EX: A dog is an…..*
	G10 Labels parts/features of objects *EX: What does an elephant have?*	H9 Fill-in feature given item *EX: An elephant has… (tusks/trunk)*
	G11 Labels Adjectives *EX: What size is an elephant?*	H9 Fill-in feature given item *EX: An elephant is….(big)*

When beginning FFC teaching, start with what the child can already do successfully. Determine a response the child has already mastered and transfer this response to a new condition. You may want to teach fill-in responses first then transfer these responses to questions once the fill-ins are mastered. This is because the fill-in has no "required response". If the child does not fill-in the target word, the instructor does so. If fill-ins have been used to elicit mands in the past, the child may have responded to the FFC many times when manding so the fill-in may be very easy to elicit as a tact. For example, if, when teaching the child to mand for "bubbles" the instructor frequently said "Blow bubbles, Blow…" and the child responded "bubbles" (which was then reinforced by getting bubbles), it would be easy to teach the child the child to use the same response even when he didn't want the bubbles. The only variable that would be different would be the child's EO (motivation) for the bubbles themselves.

The following are examples of transfer procedures to use when teaching the child to respond to questions containing features, functions and classes:

Receptive to RFFC transfer

What if the child can point to an item when I say its name but is unable to respond to a question about the item? Some people choose to teach FFC's beginning with the receptive response. In this case, the receptive object response can be transferred to the RFFC. In the natural environment, it is easy to contrive situations requiring the child to respond receptively to an FFC. For example, if you get wet, ask the child to "get something to dry with". Or, pretend you're thirsty and ask the child to "get

something to drink". To teach, start with a mastered response such as touching the item when hearing it's "name".

> Instructor: "Touch the towel."
> STUDENT: <touches towel>
> Instructor: "Which one do we dry off with?"
> STUDENT: <touches the towel>

In this case, the child would be more likely to touch the towel again because he just did so. An alternative teaching procedure would be to fully prompt the response to the FFC by touching the object/picture at the same time the question is asked (0 second delay prompt)

> Instructor: "Which one do we dry off with?" (*touches the towel at the same*)
> STUDENT: <touches towel>
> Instructor: "Which one do we dry off with?" (no prompt)
> STUDENT: <touches towel>

Tact to TFFC Transfer - *(*For children who label (tact) objects but do not respond to questions.)

The tact response can be transferred to the TFFC (tact by feature, function or class)

> Instructor: "What's this?"
> STUDENT: "Blanket."
> Instructor: "What do we cover up with?"
> STUDENT: "Blanket."

Fill-in to TFFC transfer- (For children who respond well to "fill-in" tasks)

> Instructor: "We cover up with a blanket. We cover up with a…."
> STUDENT: "Blanket."

Fill-in to WH? Question transfer (item still present- TFFC) For children who are able to fill-in the label (tact) but not respond to WH questions.

> Instructor: "We cover up with a …"
> STUDENT: "blanket."
> Instructor: "What do we cover up with?"
> STUDENT: "blanket."

RFFC to TFFC Transfer – *(*For children who say the name (tact) of objects as they point.)

The receptive/tact combination can be transferred to a response to a TFFC. The important thing is that the CHILD'S response is the one you are trying to teach under a new condition. If the child does not say the name of the item at the same time he touches it, you do not have a response to transfer to the new condition.

> Instructor: (a cat or a picture of a cat remains present) "Touch the one with whiskers."
> STUDENT: <touches cat AND says> "cat"
> Instructor: "What's something with whiskers?"
> STUDENT: "Cat" (tact when given feature/part)

Transfer to Intraverbal - What if the child is able to label (tact) the item when I ask a question but can't respond when the item is not present? Many children with autism can answer questions when the item is present but are unable to respond when it is not. For most children, it is necessary to gradually fade the item (visual stimulus) from view so the child can learn to answer (respond) just based on the question (verbal stimulus of someone else).

Tact to Intraverbal transfer

      Instructor: (*blanket present*) "What do we cover up with?"
      STUDENT: "Blanket"
      Instructer: (*puts blanket behind her back*) "What do we cover up with?"
      STUDENT: "Blanket."

Fill-in to Intraverbal Transfer

      Instructor: (blanket not present) "We cover up with a …"
      STUDENT: "blanket."
      Instructor: "What do we cover up with?"
      STUDENT: "Blanket"

Echoic to Intraverbal Transfer

      Instructor: Say, "car"
      STUDENT: "Car."
      Instructor: "What do we ride in?"
      STUDENT: "Car."

Where?

Responses to "Where" questions can be transferred from many mastered FFC "Reversal" questions or fill-ins.

      Instructor: "A fish lives …"
      STUDENT: "in the water."
      Instructor: "Where does a fish live?"
      STUDENT: "In the water."

It is easy to teach the child to respond to "Where" questions by first teaching them to mand for information using "Where?"

Mand to tact transfer

      Instructor: "I have a cookie for you. Say, 'Where's the cookie?' "
      STUDENT: "Where's the cookie?"
      Instructor: "In the box." (*takes out and gives child cookie*)

When this step is mastered (i.e. child no longer requires prompting and mands for information frequently), add the tact of the location to the demand.

      Instructor: "I have a cookie."
      STUDENT: "Where's the cookie?"

Instructor: "In the box." (*shows child cookie in the box then asks*) "Where's the cookie?"
STUDENT: "In the box. Can I have the cookie?"
Instructor: "Sure! Take it out of the box."

The child also learns to respond to "Where" questions when he learns to label (tact) prepositions.

Receptive to Tact transfer - For child who tacts as they follow receptive instructions

Instructor: "Put the shoe in the box" (receptive)
STUDENT: <Puts shoe in the box and says> "In the box"
Instructor: "Where is the shoe?"
STUDENT: "In the box"

(*2 bowls present one with an apple under it and one with an apple on it*)

Instructor: "Show me 'under the bowl'" (0 second delay for initial teaching)
STUDENT: (says) "under the bowl" (and points to the correct apple)
Instructor: "Where's the apple?"
STUDENT: "Under the bowl."

Who / Whose?

The child first learns to respond to "Who" questions when learning to tact people. Another one of the conditions that would require a child to respond to "who" questions is when teaching FFCs about specific community helpers or family members.

Instructor: "Who tucks you in bed?"
STUDENT: "mommy"

Instructor: "Who's this?" (picture of firefighter is present and child is able to tact firefighter)
STUDENT: "Firefighter"
Instructor: "Who puts out fires?"
STUDENT: "Firefighter"

Responding to "Whose" questions is required to teach possessive pronouns such as "His, her, mine, my, your" etc.

Instructor: "Say 'My turn'"
STUDENT: "My turn."
Instructor: "Whose turn is it?"
STUDENT: "My turn."

This response can also be taught by first teaching the child to mand for information using "whose".

Instructor: (puts a piece of candy on the table) "Say, 'Whose candy?'"
STUDENT: "Whose candy?"
Instructor: "It's yours! Here, take it."

Later, when the child is manding with "Whose" consistently with no prompting, add the tact of the possessive.

> (piece of candy on the table)
> STUDENT: "Whose candy?"
> Instructor: "It's Daddy's. The candy is …"
> STUDENT: "Daddy's."
> Instructor: "Whose candy?"
> STUDENT: "Daddy's"

Responses to "Whose" questions can also be taught using "contingent comments". The child is taught to tact a similar, but not exact event.

> Instructor: (child and instructor both have crayons) "My crayon is blue."
> STUDENT: "My crayon is red."
> Instructor: "Whose crayon is red?"
> STUDENT: "My crayon/mine."

Which?

The child first begins to respond to "Which" questions when tacts of adjectives and FFCs are taught.

> Instructor: "Which one is big?"
> STUDENT: (touches the big item)

> Instructor: "Which one flies?" (bird, kangaroo, ball are present)
> STUDENT: Touches/says "bird"

This response can be transferred to teach the child to respond to intraverbal "Which" questions as described in the ABLLS

> Instructor: "Which one flies? A bird, a kangaroo or a ball?" (*touches each picture while asking*)
> STUDENT: "Bird."
> Instructor: (takes pictures away) "Which one flies..A bird, a kangaroo or a ball?"
> STUDENT: "Bird."

When?

The first responses children learn to "when" questions are typically general "time" concepts such as "in the morning", "at night". Later, as they learn more time and sequence concepts, these are also "tested" using "when" questions.

> Instructor: "We sleep at night. We sleep…"
> STUDENT: "at night."

Once fill-in is given without the prompt needed…
> Instructor: "We sleep at…"
> STUDENT: "night."
> Instructor: "When do we sleep?"
> STUDENT: "night."

How?

Some "how" questions can be transferred from FFCs.

>Instructor: "You go to school on a … "
>STUDENT: "bus."
>Instructor: "How do you get to school?"
>STUDENT: "bus"

Responses to "How" questions can also be taught by first teaching the child to mand for information using "how".

>*(Instructor shows the child a spinning top for which he has an EO, then hands it to him)*
>Instructor: "How do you make it go?"
>STUDENT: "How do you make it go?"
>Instructor: "You put this stick in here and pull." (helps child if needed so reinforcement occurs)

After the child is manding for information using "how" consistently with no prompting needed, add the tact to the demand.

>STUDENT: "How do you turn this on?"
>Instructor: "Push the little white button." (*maintains control over toy*)
>Instructor: "How do you turn this on?"
>STUDENT: "Push the little white button."

The child also learns to respond to "How" questions as he learns to tact the sequence of a specific activity. For example, once the child is able to tact all the "steps" in making a sandwich, these responses can be transferred to responding to, "How do you make a sandwhich?"

As discussed earlier, children also learn to respond to "How" questions when learning to tact adjectives.

Why?

One way to teach the child to respond to "why" questions is to "lead them" to the correct response.

>Instructor: (*looking at a book with the child*) "Look at that boy. He's yawning. How does he feel?"
>STUDENT: "He feels tired."
>Instructor: "He went to bed! Why did he go to bed?"
>STUDENT: "He feels tired."

>Instructor: (*looking at a book with the child*) "What's happening here?"
>STUDENT: "The girl's walking into the barn."
>Instructor: "That's right! What did she do in the barn?"
>STUDENT: "Get the horse."
>Instructor: "Why did she go in the barn?"
>STUDENT: "To get the horse."

As we teach the child to answer these questions in isolation, it's also important to begin teaching him to respond to multiple different questions about a single item or event. (Verbal Module) This is important because some children with autism have difficulty responding to multiple "cues" within a given item (stimulus). In order to respond in this manner, the child must have the specific question (verbal stimulus) strongly paired with the specific response. As you teach these different types of labels (tacts), it is important to look out for any difficulty the child has in responding to the questions. For example,

the child may be taught to respond to "What color?" correctly but when asked, "What color?" mixed with "What size?" may incorrectly respond by saying the size when asked, "What color?" and the color when asked, "What size?".

Many people determine that a child has not "mastered" or "generalized" a specific skill because they ask the same question in a different context but don't realize that they've added some complexity to the task by requiring more discriminations. For this reason, it is important to actually teach the child which words in the question actually serve as the discriminative stimuli (SD) for each response class. As we continue to use "What?" as part of our question (SD) the child has to "attend to" or respond to a second "word"(verbal stimulus) in the question.   The child is required to make conditional discriminations based on the particular question.   Consider the following examples that may be used as SDs when teaching a child to label actions, adjectives and parts of an item. Just because the child is able to answer these questions in isolation, it doesn't mean he will necessarily be successful in responding to all the different questions about the same item, especially if there are other items present requiring even more discrimination.   In this case, let's assume there are other toy vehicles also present but only one doll, "daddy". The verbal discriminative stimuli or elements requiring conditional discrimination are bold:

What is this called?   R= car (tact object)
Who is this?   R= daddy (tact person)
What is daddy **doing**?   R= driving (tact action)
                     (Note that if another person was present, "daddy" would also be important)
What color is the **car**?   R= blue (tact adjective)
What does the **car have?**   R= steering wheel, tires, wipers, seat belt etc. (tact parts)
What size is the **car**?   R= big (tact adjective)
What do we **ride in**?   R= car
Whose car is this?   R= daddy's
Who's driving the **car?**   R= daddy
What do we **do with** a **car**?   R = drive, ride
Where do **cars go?**   R= on the road
Who fixes cars?   R= mechanic
How do we **start** the **car?**   R= key
What do we **wear** in the **car?**   R= seatbelt
Why do we **wear seatbelts?**   R= to keep safe/protect us

As you can see, the more a child learns about a given item, the more conditional discriminations he must make to be able to respond correctly to all the different questions concerning the item.   Make sure that many, many transfer trials are run for the different questions and be aware of any discrimination errors that may be occurring. For example, if the child responded "on the road" when asked, "What do we wear in the car?" one could see that he was not discriminating "Where" as a "location" and "wear" as an "action". Nor was he responding to the missing word "go" as part of the question. Teaching opportunities could be contrived to teach the child to discriminate these specific questions.   Keep the child successful!

Remember that when playing and interacting with a child, it is important not to begin "drilling" questions at him one after another. Questions should be gradually mixed in with other types of responses during play. The interaction should remain enjoyable to the child! If you find the child anxious to leave the situation (escape) then it may be an indication that you're asking too many questions! If this is the case, back off and do more fill-ins, receptive and imitative responses during the play.

Choosing Targets

Given the nature of a typical verbal behavior program, choosing targets goes hand in hand with the way you keep data. As one skill is mastered, it is often used to transfer to another verbal language function (operant). For example, mastered requests (mands) can then be transferred to labeling (tact) targets. The behavior involved in reaching toward and touching an item when manding can be transferred to a receptive response (touch, get). Mastered motor imitation targets can also be transferred to receptive targets. (See the sections on teaching individual skills within each verbal operant for additional suggestions of transfer procedures.)

Choosing Targets
When choosing target objectives as well as individual target responses, the following should be kept in mind:
1. The targets should be functional for the child.
2. Use skills the child has previously mastered to teach new skills.
3. The targets should be developmentally appropriate for the child.
4. Targets should be chosen based on the priorities the family has for their child.
5. Move across verbal operants rather than just choosing the next skill within each operant.
6. Make sure the child has the pre-requisite skills needed for the target skill.

Determining Objectives
The first time the ABLLS is completed, it is recommended that conservative estimates be used. If you are not sure if the child is able to perform the skill fluently (i.e. quickly and easily with no prompting), take some probes. It is better to underestimate the skills of the child and keep teaching "easy" rather than to overestimate and frustrate the child. Be aware that for some skills, the child may produce the desired behavior on occasion but not under "instructional control". For example, a child might be observed to imitate children in his favorite video but not be able to imitate you when you say, "do this". It's also important to recognize if the target behavior is under stimulus control of specific questions. For example, the child might be able to see a train and say, "The blue train fell off the track", but not be able to respond when asked, "What's this?", "What color is the train?", or "What happened to the train?"

Once the ABLLS is completed, look at the next 2 objectives within each skill area for possible objectives. Then, look across verbal operants to see if the child has a mastered skill in another area that might be used to teach this new skill. For example, if a child is able to request (mand) items when asked, "What do you want?" we can use this skill to teach him to label (tact) items when asked, "What's this?" Also look for any imbalances in the ABLLS profile and focus your teaching on the weak areas. If the child has very strong labeling (tacting) skills but fewer requesting (manding) skills, you'd want to focus a great deal of instruction on the weaker requesting skills.

Make sure the skill is developmentally appropriate. There are some skills that children are just not developmentally ready for. They may not have the pre-requisite skills. For example, it may not be wise to try to teach a child who is unable to imitate three words task G29 "Uses carrier phrase when labeling nouns with verbs and adjectives." Trying to teach skills that the child does not have the prerequisites for can be frustrating for both the child and the instructors!

Choosing Individual Targets

The request (mand) is the first verbal operant taught because it allows the child to learn the function of language that will give him "power" over his environment. Review the section on manding to help choose these targets. The main point to remember is that you can't teach a child to request something they don't want! The main job of instructors of an early "mander" is to continually build the number of reinforcing items and teach the child to mand for them. Targets within other skill areas (verbal operants) might be closely related to the items they request. For example, if a child were manding for a car, a fish and a chip, these would be the same targets/stimuli used to teach the child the receptive tasks of "Follows instruction to look at a reinforcing item" (C3) or "Follows instruction to touch a reinforcing item in various positions" (C6). On the other hand, if a child is having difficulty with a given skill and isn't responding to prompting, that response may be chosen as a target within another skill area (verbal operant). For example, if a child is not able to tact a specific item and isn't responding to echoic prompting, the target may be chosen as an imitation target. Let's say the child tacts "refrigerator" as "diderator". While this is obviously an articulation problem rather than the fact that the child is unable to label the refrigerator, it could be chosen as an "echoic" or imitation target and be taught, syllable by syllable, to "say" at least a closer approximation to "refrigerator". Look at the child's current program to determine what to teach as targets for imitation tasks rather than having the child imitate "random" words or sentences. By the same token, if the child is signing, use parts or whole sign movements as targets for imitation rather than teaching the child to imitate random movements. All targets should be functional for the individual child and should relate to his current life situation.

The way you keep data can either help or hinder the process of transferring a response from one verbal operant to another. It is important for instructors to see the "big picture" as well as being able to keep track of the child's individual target responses. It's important that instructors understand that while these are individual target responses that we are teaching, they should all be "taught" from a previously mastered skill rather than being constantly "drilled" and "corrected". It is important that the methods of data keeping allow instructors to focus on teaching rather than testing. Data keeping should never interfere with teaching. The goal of data keeping is to:

1. Monitor the effectiveness of teaching
2. Serve as a communication tool between instructors
3. Determine when individual targets have been mastered
4. Assist in determining when objectives have been mastered
5. Monitor the retention of maintenance targets
6. Give a "picture" of a child's learning history so any "dips" or decreases can be noted and addressed.

Probe Data

Rather than taking data on each individual response, most proponents of VB suggest taking data by probing the current targets. A probe is essentially a test. The idea is that if the child responds to the particular SD (discriminative stimulus= fill-in/question/command/direction + any visual stimulus present) on the first trial of the day quickly and with no prompting, the response is considered "Independent" or correct. If not, the response is corrected using previously discussed correction procedures. This daily probe is then used to determine what to teach during the session. After the probe, the rest of the session is used to teach those responses that required prompting as well as any new targets chosen. These "targets" are mixed in with previously mastered targets across all verbal operants. <u>The goal is to</u>

<u>keep the child successful during teaching</u>. The child's responses during the probe allow us to see which targets are still difficult and require more teaching.

The goal in "errorless" learning is to get the desired response in any way in which the child is successful, then to take advantage of the fact that he will be more likely to repeat the same behavior by "sneaking in" a new condition under which the response will occur and thus be reinforced. We then gradually "separate" the new condition from the one that we used to transfer or prompt the response. We won't transfer to a new condition until the child is able to respond correctly, without prompting, under the current condition. In addition, we will continue to "run transfers" on all responses that are correct even if the child's actual target is not the transferred skill. In this way, by the time the target is added to the new operant, the child has had lots of experience responding correctly, even before the target was actually chosen in that operant class.

For example, let's say a child was able to mand for "ball" and the current target is that he requests the ball when asked, "What do you want?". For the first session that day (probe trial) he had to be prompted with an echoic. Throughout the rest of the session, multiple echoic to mand transfers were conducted. By the 3rd trial, the child no longer required the echoic prompt and was able to ask for the ball whenever he wanted it. Then, transfers were begun to the tact (label).

       Instructor: "What's this?"
       STUDENT: "Ball"
       Instructor: "What do you want?"
       STUDENT: "Ball"

The response is still under control of the mand (he wants it!) and 'ball' is still a mand target but the instructor is practicing having the child respond when asked, "What's this?".

Actual data isn't being taken on the "new condition" at this point. Once the child has met the criteria set for mastery, the target is then added to the new condition to be included in the probe. Lots of teaching has already occurred but the goal is to then see if he can respond under the new condition without needing the transfer. In the previous example, once 'ball' was chosen as a labeling (tact) target, the instructor would ask, "What's this?" on the first 'cold probe' of the day before any transfers or prompting had occurred. If the child responded correctly, it would be recorded as an independent response and the instructor would know they didn't need to devote a great deal of time during the session to teach the child (using transfer procedures) to label the ball. If the child responds incorrectly or needs to be prompted, it would be recorded as a prompted response and the instructor would know that further teaching was indeed needed.

We want to keep learning fun! We all enjoy doing things we are good at so we want to be sure that the child finds he is good at learning (contacting reinforcement frequently).   The way to ensure this is to continually mix in previously mastered responses during probing. Behaviorally, we know that a child is more likely to engage in a "difficult" task if it follows multiple "easy" tasks. As related to language, this means the child would be more likely to respond to a difficult question after being asked some "easy" questions or given "easy" directions. The behavioral momentum that is built can be used to our advantage during teaching and probing. Depending on the child's response to frustration, a ratio of 80/20 to 70/30 of "easy" to "hard" responses is the target. Current targets are considered "hard" and mastered responses are considered "easy".

For other children, it may be fine to probe all the current targets at one time or a specific skill area on different days of the week. This will depend on the relative ease with which the child is acquiring new

skills as well as the individual child's response to frustration. It would not be recommended for a child who demonstrates signs of frustration quite easily.

The amount of probing done and criteria for mastery varies across programs and can largely be determined by the individual needs of each child and teaching team. For example, if the parent is the only one working with the child, it might be easier for them to keep track of what they are teaching the child without a great deal of data but if other people are working with the child, it will be important to be able to communicate what was taught and how the child responded to that teaching.

The criteria for mastery should be determined by the learning history of the child. One team might find that the child masters a target in one setting and has no difficulty retaining it over a long period. For this child, correct responding on 2 probes may be adequate. For other children, it may take many more transfers and much more teaching for them to respond correctly or the team may find that the child frequently "loses" previously mastered targets. For this child it may be necessary to get 5 correct probes in a row before considering the target "mastered" to fluency (responding quickly with no prompting).

Any time a target is probed and the child doesn't respond within 2-3 seconds, the answer is provided, the target behavior is elicited and the SD is presented again. (See "Correction procedures"). Even if the team "knows the child knows the answer", it is best not to wait any longer than this to prompt the correct response. "Strong" responses are produced quickly, with no hesitancy, and it is best to continue teaching until the responses are fluent. This will help insure the child retains the response over a long period of time.

Maintaining Responses

If targets are well chosen, they should be those in which the child is in daily contact so "practice" with the targets would be continually occurring. As the child's program progresses and intensive teaching sessions begin to take place, the number of mastered targets will become quite large. During intensive teaching, these are the targets that are mixed in while teaching new targets to help keep the child successful. This also helps ensure these targets are being maintained by "reviewing" and continually giving the child reinforcement for responding correctly.

If a child is not responding to "mastered" targets correctly, these should be focused on during the teaching situation and "re-taught" until the child is able to respond correctly. Be sure to look at both the questions being asked as well as the particular response the child is giving to determine what is causing the child to have difficulty discriminating. The more the child learns about a given item or a class of items, the more conditional discriminations they are required to make in order to respond correctly. Use the information from your probes and teaching sessions to determine what discriminations have to be taught.

Data Collection Procedures
using
Pocket-ABLLS and *Pocket-FFC* sets

ACKNOWLEDGEMENT
The *Pocket-ABLLS* and *Pocket-FFC* sets are based on the written work of Dr. James W. Partington and Dr. Mark L. Sundberg of Behavior Analysts, Inc.   Both of these men put a tremendous amount of time, thought and energy into developing *"The Assessment of Basic Language and Learning Skills (The ABLLS)"* on which our products are based.   We are very grateful for their hard work and dedication to helping children with developmental challenges lead happier and more functional lives.

MATERIALS INCLUDED WITH SETS
- 1 Grease Pencil (sometimes called a "China Marker")
- 1 box of ¼" Blue Dot stickers
- CD-ROM containing data sheets (in Adobe Acrobat format)

MATERIALS YOU WILL NEED
- Highlighter pen (we recommend yellow)
- Permanent fine tip marker (red or black) for adding your own targets to blank cards
- Washable fine tip markers, assorted colors (*optional – for use instead of a grease pencil*)
- Three (3) small, open boxes to hold cards

PREREQUISITES
You must first complete *"The Assessment of Basic Language and Learning Skills (The ABLLS)"* by James W. Partington, Ph.D. and Mark L. Sundberg, Ph.D.   This manual may be purchased from Behavior Analysts, Inc. by contacting them at:

www.behavioranalysts.com   OR   (925) 210-9379

NOTE: The *Pocket-ABLLS* and *Pocket-FFC* sets are intended to be used in conjunction with "*The ABLLS*" written manual. We do not recommend implementing a student's program without this manual.   In addition, you should have a thorough understanding of the concepts and terminology of a Verbal Behavior (VB) program.

Important Definitions

Goal - A goal corresponds to one task in the ABLLS manual. It may consist of one to four steps. (Example: "A1 – Takes reinforcer when offered.")

Target - Depending on the goal, a target may be a simple step. (Example: "B1 – Match identical objects to sample, Step 1 = Can match one object to an identical object in a display of 2 items") or it may be a component of a larger set of items or activities that must be taught to meet the criteria for one step. (Example: "C17 – Body parts,   Step 1 = 2 body parts, Step 2 = 4 body parts, Step 3 = 6 body parts, Step 4 = 10 or more body parts.") In the preceding example, each body part taught would be considered a target.

Independent Response - A correct response made by the student <u>without help</u> from the instructor. (Example: Instructor tells student to touch head. S/he does so.)

Prompted Response - A correct response made by the student <u>with help</u> from the instructor. (Example: Instructor tells student to touch head. Instructor then immediately points to head before student attempts to touch the wrong body part.)

Probe - Usually done once a day at the beginning of a session to see what the student has retained since the last teaching session.   The instructor tests to see which of the targets can be answered with an <u>independent response</u>.

Mastery Criteria – The number of consecutive independent responses (on separate days) a student must make for a specific target to be considered "learned". Every team must determine when to decide that a target is "mastered" (known). A good starting point is 3 days in a row, but this will vary with each student.

Mastered Target (Item) - A target that has satisfied the mastery criteria.

Getting Started

Once your Verbal Behavior Consultant has determined the goals for your student, you are ready to use the Pocket-ABLLS and Pocket-FFC sets.

DESCRIPTION OF CARDS AND DATA SHEETS

There are four types of cards and three types of data sheets:

Single Target Goals, consist of one to four steps, and have a one-to-one correspondence between an ABLLS goal and a target card and data sheet. That is, the goal "A1" has one card and one data sheet. (See examples 1 and 2.)

Multiple Target Goals consist of one to four steps, with each step having multiple targets that must be taught for the step to be mastered (e.g. Step 1 = 2 body parts, Step 2 = 4 body parts etc.) In these cases, the goal may span multiple cards and data sheets. Each target has an associated number to uniquely identify it. Most data sheets have 5 targets per page. Sometimes related goals with the same targets are combined together on the cards and data sheets so that instructors remember to transfer learned materials across other goals. (See examples 3 and 4.)

FFC Targets (items by feature, function, class) are grouped together by item on one card and corresponding data sheet. (See examples 5 and 6.)

Cross Reference (Cards Only) are used to help you keep track of which step you are working on when several targets must be mastered for the individual steps of a goal If multiple goals are combined on one card (See example 3) then there will be one Cross Reference Card for each goal. (See example 7.)

KEEP IN MIND …

It is critical to pick targets that are <u>meaningful</u> (functional) to the child. Also keep in mind that we want the child to be <u>successful</u>, which means picking targets that will not frustrate the child due to their difficulty. Learning can and should be FUN!

It is also a good idea to pick targets that build upon previously mastered skills. (For example, imagine turning a snowball into a snowman!) Always make sure the child has the prerequisite skills needed.

Finally, make sure the targets are developmentally appropriate for the child.

NOTE: While every attempt has been made to incorporate as many targets as might be relevant to students in a Verbal Behavior program, it is likely that you may discover the need for some targets that are unique to your student. For this reason, blank cards and data sheets have been included so that the program may be tailored to the student. You may also wish to change some of the suggested targets on the prewritten cards to be more meaningful to the student you are working with.

Initial Setup

Step 1 - Begin by pulling out the card(s) corresponding to each of the goals chosen by your consultant after the ABLLS assessment was completed.

Step 2 - Next, print the corresponding data sheets from the appropriate CD-ROM. (There is one CD-ROM for the Pocket-ABLLS set, and one CD-ROM for the Pocket-FFC set.)

NOTE: The data sheets have been created in Adobe Acrobat format so that they may be printed from any computer or operating system. You will need to install a version of the Adobe Reader if it is not already on your system. The software is free and may be downloaded easily from www.adobe.com.

Step 3 - Underline the step or target you will be working on in grease pencil on the card.

Step 4 - On data sheets that have more than one target (such as Examples 4 or 6), highlight the goal above the target in the shaded area of the data sheet, and next to it, write the date you will begin to probe the target. (We usually use a red fine tip marker.)

Example:

	DATE																							
	(Instructor)																							
	(F6) REQUEST *6/11/03*	(C34) SELECT PICTURE					(G5) NAMES ONGOING ACTION						(G6) NAMES PICTURE OF ACTION										
4	**BOUNCE**	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

Step 5 - Once all of the targets have been marked on the data sheets, file the sheets in the appropriate section of the notebook.

Collecting Probe Data

Probe results are placed in one of two boxes on the table – the "*CORRECT*" box or the "*TEACH*" box. (You will also have a third box, the "*MASTERED*" box in which you will place all of the student's **mastered target** cards. The targets in the "*MASTERED*" box will be interspersed with the **current targets** in order to maintain skills and keep the ratio of successful responses high.

Current targets will be underlined (or circled) in grease pencil (or washable marker) on each card. **Mastered targets** will have a blue sticker next to them. (See below.)

The instructor uses a grease pencil on the data cards to record the results of the probes. (Remember to mix targets when probing – don't ask all targets of one type together.) If the correct answer is given, the "I" (for **independent response**) is circled. Otherwise, the "P" (for **prompted response**) is circled.

If a mastered target is answered correctly, place a check mark next to it to indicate it has been reviewed. If it is missed, circle or write a "P" on the card next to the target missed, and place in the "*TEACH*" box. After it has been reviewed for the day, it will be rechecked on the next probe. If the student misses it a second time in a row, remove the "mastered" sticker so that it may be retargeted.

C34,F6,G5,G6	COMMON ACTIONS

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I P **1. ASK** ● (F6) REQUESTS OTHERS TO DO
              ● (G5) ONGOING

I P **2. BLINK** (F6) REQUESTS OTHERS TO DO
(C34) PICTURE (G5) ONGOING (G6) PICTURE

I P **3. BLOW** (F6) REQUESTS OTHERS TO DO
(C34) PICTURE (G5) ONGOING (G6) PICTURE

I **(P)** **4. BOUNCE** ●(F6) REQUESTS OTHERS TO DO
(C34) PICTURE ●(G5) ONGOING (G6) PICTURE

I P **5. BOWL** (F6) REQUESTS OTHERS TO DO
(C34) PICTURE (G5) ONGOING (G6) PICTURE

(C34) - SELECT   (G5) - NAME   (G6) - NAME

Note: ( ) denotes response circled by instructor

● *(blue sticker) indicates a* underlined *mastered target ("ask" and "bounce" are mastered for goals 'F6' and 'G5')*

The current target*, (underlined) for goal 'C34', "bounce" was prompted during the probe.*

Targets answered correctly on the probe are put aside for the day in the "*CORRECT*" box. (For cards with multiple targets, put card aside ONLY if all targets were answered correctly.) Otherwise put the card into the "*TEACH*" box. These targets will be taught for the rest of the day.

NOTE: When multiple instructors are working with a student, it may be helpful to write notes about techniques or particular issues that arise on the back of the card for the next person to see.

Recording Data

The Pocket-ABLLS data sheet binder is divided into sections corresponding with each section of the ABLLS. There is a separate binder for the Pocket-FFC data. Program objectives are listed at the beginning of each section. The student's current reinforcement schedule is kept at the front of the notebook.

After all teaching has been completed for the day, data from the cards is transferred to the data sheets.

Step 1 - Sort cards into alphabetical order (for Pocket-ABLLS) or numeric order (for Pocket-FFC) to speed the recording process.

Step 2 - Open the notebook and find the data sheet that corresponds to your first card.

Step 3 - Record the initials of the instructor, and the date.

Step 4 - Circle "I" or "P", depending on what was circled on the card. (In the example below, we have highlighted and parenthesized the student's responses, rather than circling them.)

Step 5 - When a target is "mastered" (see earlier definition of **"mastery criteria"**), put a small blue sticker next to the target on the card and indicate on the data sheet that it is mastered by placing an "M" beside it. (Example: *M* **(F6) REQUEST** *6/11/03*) Highlight the next grid so that it will be easy to determine when the next goal was begun.

Step 6 - After recording the data at the end of the day, wipe off results from all of the cards EXCEPT for the mastered items that were missed. This will need to be rechecked on the next probe.

DATE	6/11	6/12	6/13	6/14	6/15	6/16	6/17	6/18	6/19	6/20	6/21	6/22												
(Instructor)	AK	AK	AK	CP	CP	AK	CP	AK	AK	AK	AK	EM												
M (F6) REQUEST *6/11/03* (C34) SELECT PICTURE *6/23/03* *M* (G5) NAMES ONGOING ACTION *6/16/03* (G6) NAMES PICTURE OF ACTION																								
4 BOUNCE	I (P)	I (P)	(I) P	(I) P	(I) P	I (P)	(I) P	I (P)	(I) (P)	(I) P	(I) P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P

Note: ( ) denotes responses circled by instructor

In the example above, note that the goals were not taught in the order they appeared on the data sheet. The order they are taught depends on the individual child.

As skills are mastered, the date will be entered on the skill-tracking sheet and the target will be moved from acquisition (indicated on the cards by an underline or circle) to maintenance (indicated by blue dot stickers.)

EXAMPLE 1 – Single Target Goals (Card)

A1		I	P

TAKES REINFORCER WHEN OFFERED

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  1. **DOESN'T TAKE ALL THE TIME, OR SLOW TO RESPOND**

  2. **TAKES QUICKLY ALL THE TIME**

EXAMPLE 2 – Single Target Goals (Data Sheet)

Student: ____*KPL*____ *Year:* 200_*3*_   *Task:* **A1**

DATE	WHO?	A1 - TAKES REINFORCER WHEN OFFERED		
		1. DOESN'T TAKE ALL THE TIME, OR SLOW TO RESPOND		2. TAKES QUICKLY ALL THE TIME
6/11	CP	I	P	*Write any comments you have here.*
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	
		I	P	

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EXAMPLE 3 – Multiple Target Goals (Cards)

C34,F6,G5,G6	COMMON ACTIONS

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I	P	1. ASK	(F6) REQUESTS OTHERS TO DO
			(G5) ONGOING

I	P	2. BLINK	(F6) REQUESTS OTHERS TO DO
		(C34) PICTURE	(G5) ONGOING (G6) PICTURE

I	P	3. BLOW	(F6) REQUESTS OTHERS TO DO
		(C34) PICTURE	(G5) ONGOING (G6) PICTURE

I	P	4. BOUNCE	(F6) REQUESTS OTHERS TO DO
		(C34) PICTURE	(G5) ONGOING (G6) PICTURE

I	P	5. BOWL	(F6) REQUESTS OTHERS TO DO
		(C34) PICTURE	(G5) ONGOING (G6) PICTURE

(C34) - SELECT   (G5) - NAME   (G6) - NAME

EXAMPLE 4 – Multiple Target Goals (Data Sheet)

C34 / F6 / G5 / G6 - Common Actions

Student: _____ Year: 200___

1) 2 ACTIONS	2) 5 ACTIONS	3) 10 ACTIONS	4) 20 OR MORE ACTIONS

DATE																								
(Instructor)																								

(F6) REQUEST   **(G5)** NAMES ONGOING ACTION

1 ASK   I P · I P

DATE																								
(Instructor)																								

(F6) REQUEST   **(C34)** SELECT PICTURE   **(G5)** NAMES ONGOING ACTION   **(G6)** NAMES PICTURE OF ACTION

2 BLINK   I P · I P

DATE																								
(Instructor)																								

(F6) REQUEST   **(C34)** SELECT PICTURE   **(G5)** NAMES ONGOING ACTION   **(G6)** NAMES PICTURE OF ACTION

3 BLOW   I P · I P

DATE																								
(Instructor)																								

(F6) REQUEST   **(C34)** SELECT PICTURE   **(G5)** NAMES ONGOING ACTION   **(G6)** NAMES PICTURE OF ACTION

4 BOUNCE   I P · I P

DATE																								
(Instructor)																								

(F6) REQUEST   **(C34)** SELECT PICTURE   **(G5)** NAMES ONGOING ACTION   **(G6)** NAMES PICTURE OF ACTION

5 BOWL   I P · I P

C34 / F6 / G5 / G6

Note: This data sheet normally prints in landscape mode (width of page = 11")

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EXAMPLE 5 – FFC Targets (Card)

<table>
<tr>
<td colspan="3" align="right">BIRD (1)</td>
</tr>
<tr>
<td colspan="3">Copyright 2003 The Mariposa School. All Rights Reserved.
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</tr>
<tr>
<td>I</td><td>P</td><td>SELECT   (C23) OBJECT   (C24) PICTURE</td>
</tr>
<tr>
<td>I</td><td>P</td><td>NAME   (G2) OBJECT   (G4) PICTURE</td>
</tr>
<tr>
<td>I</td><td>P</td><td>FLIES
(C20) SELECT   (G12) NAME   (H7) FILL IN
(G15) NAME FUNCTION   (H8) FILL IN FUNCTION</td>
</tr>
<tr>
<td>I</td><td>P</td><td>LIVES IN A NEST
(C21) SELECT   (G13) NAME   (H10) FILL IN
(G10) NAME FEATURE   (H9) FILL IN FEATURE</td>
</tr>
<tr>
<td>I</td><td>P</td><td>FEATHERS
(C21) SELECT   (G13) NAME   (H10) FILL IN
(G10) NAME FEATURE   (H9) FILL IN FEATURE</td>
</tr>
<tr>
<td>I</td><td>P</td><td>WINGS
(C21) SELECT   (G13) NAME   (H10) FILL IN
(G10) NAME FEATURE   (H9) FILL IN FEATURE</td>
</tr>
<tr>
<td>I</td><td>P</td><td>ANIMAL
(C22) SELECT   (G14) NAME   (H12) FILL IN
(G16) NAME CLASS   (H11) FILL IN CLASS</td>
</tr>
</table>

EXAMPLE 6 – FFC Targets (Data Sheet)

(1) BIRD

Student: _____ *Year:* 200___

DATE																													
(Instructor																													
	(C23) OBJECT							(C24) PICTURE																					
SELECT	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P

DATE																													
(Instructor																													
	(G2) OBJECT							(G4) PICTURE																					
NAME	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P

DATE																													
(Instructor)																													
(C20) SELECT	(G12) NAME			(H7) FILL IN			(G15) NAME FUNCTION				(H8) FILL IN FUNCTION																		
FLIES	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P
(C21) SELECT	(G13) NAME			(H10) FILL IN			(G10) NAME FEATURE				(H9) FILL IN FEATURE																		
LIVES IN A NEST	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P
(C21) SELECT	(G13) NAME			(H10) FILL IN			(G10) NAME FEATURE				(H9) FILL IN FEATURE																		
FEATHERS	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P
(C21) SELECT	(G13) NAME			(H10) FILL IN			(G10) NAME FEATURE				(H9) FILL IN FEATURE																		
WINGS	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P
(C22) SELECT	(G14) NAME			(H12) FILL IN			(G16) NAME CLASS				(H11) FILL IN CLASS																		
ANIMAL	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P	I P

BIRD (1)

Note: This data sheet normally prints in landscape mode (width of page = 11")

EXAMPLE 7 – Cross Reference (Cards)

C34*

SELECTS ONE OF THREE PICTURES REPRESENTING ACTIONS

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1. **2** ACTIONS

2. **5** ACTIONS

3. **10** ACTIONS

4. **SELECTS SEVERAL DIFFERENT AND NOVEL EXAMPLES OF 20** OR MORE ACTIONS

* REFER TO CARD C34, F6, G5, G6

G5*

LABELS COMMON ONGOING ACTIONS

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1. **2** ACTIONS

2. **5** ACTIONS

3. **10** ACTIONS

4. **LABELS SEVERAL DIFFERENT AND NOVEL EXAMPLES OF 20** OR MORE ACTIONS

* REFER TO CARD C34, F6, G5, G6

F6*

REQUESTS OTHERS TO PERFORM AN ACTION

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1. **1** ACTION

2. **3** ACTIONS

3. **6** ACTIONS

4. **10** OR MORE DIFFERENT ACTIONS

* REFER TO CARD C34, F6, G5, G6

G6*

LABELS PICTURES OF COMMON ACTIONS

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1. **2** ACTIONS

2. **5** ACTIONS

3. **10** ACTIONS

4. **LABELS SEVERAL DIFFERENT AND NOVEL EXAMPLES OF 20** OR MORE ACTION PICTURES

* REFER TO CARD C34, F6, G5, G6

Note: When an asterisk appears on a card (e.g. C34*), this means there are related cards that contain more detailed target lists.

Choosing the First Response Form

1. **Verbal** - For children who are echolalic, even if they are not currently using verbal communication in a functional manner. The reason for this is that the child is exhibiting behavior (saying words) that we can use to teach them to functionally communicate.

2. **PECS** - For children who have strong visual-perceptual skills and weak auditory skills and are non-verbal. PECS can also be used at the beginning of mand training for children who are vocal but not imitating to teach them the function of communication but they should be faded quickly once the child is requesting vocally. PECS can also be a good choice for children who have difficulty imitating or producing the series of movements that signs would require or respond negatively to hand over hand prompting. Photos, icons labels or objects can be used.

3. **Picture Communication Boards** - For children with strong visual-perceptual skills and weak auditory skills. These are typically developed around specific activities and allow for a wider variety of communication than may be taught imitatively with signs.

4. **Signs** - Either alone or combined with PECS to allow the child access to communication in all environments. Signs can also be a good choice for children who have weak visual-perceptual skills or don't attend to pictures. It may also be a good choice for children who have strong motor imitation skills. Signs may also be a good choice for families who find it difficult to create, organize and keep track of the PECS symbols in multiple settings.

5. **Voice Output Devices** - For children who have strong visual-perceptual and weak auditory skills. Care must be taken that the child does not use the device for self-stimulating behaviors rather than communication.

6. **Object exchange** - For children who have demonstrated an inability to discriminate between pictures.

Advantages of Object Exchange
1. Child may easily learn to associate the sample item to the desired item since they are so similar.
2. "Listeners" do not require special training other than what to do when the child gives them the item.

Disadvantages of Object Exchange
1. Difficult to keep objects accessible to the child.
2. Difficult to find sample items for many things
3. Difficult to transfer to other functional language
4. Limited to primarily teaching the child to request nouns.

Advantages of Picture Systems
1. "Listener" does not need special training.
2. Simple match to sample makes initial acquisition easy.
3. No special training required for individual responses, scanning and pointing, or giving are the only motor responses needed.
4. More static- Pictures are visible for longer periods of time.

5. Can serve as visual prompts for vocal responses for children who are just learning to talk.
6. Do not require physical prompting once the initial responses are taught.
7. Child is able to interact with peers or siblings if they will attend to the child's communicative efforts.

Disadvantages of Picture Systems
1. Requires environmental support- must have pictures available to communicate
2. Difficult to "capture" an interest or desire at the moment to teach the child to request because the picture must be made first.
3. Pointing systems require a "listener" close by. Many responses (points) may go unnoticed (not reinforced in some settings making it difficult to bring the response (pointing) under stimulus control of the desire for the item (EO). This problem is overcome with PECS where the child is taught to deliver the picture to the hand of a person.
4. Pictures/symbols/icons may be difficult to find and teach for more abstract concepts
5. It may be more difficult for some children to combine symbols to express a variety or word combinations.
6. Difficult to transfer to functions of language other than requesting (manding).
7. Pictures must be created and kept organized, always handy, but away from other children who may lose or destroy them.

Advantages of Sign Language
1. Easy to prompt, especially if motor imitation is already strong in the child's repertoire
2. Stimulus and response often resemble but do not match each other providing a built in prompt
3. Signs are free from environmental support- child always has communication available (we can't lose their hands!)
4. There is a single stimulus and single response relation, like speech. In other words, the movements for each sign are different as compared to PECS where the movement of each "request" is the same.
5. There is some research indicating children who begin with signs tend to produce vocal speech more quickly than those who use PECS. This would be difficult to control in experimental conditions since all children are so unique. The author has seen children appear to be "prompting" themselves for the syllable structures involved in specific words by performing the same number of movements as syllables when they are first becoming vocal.
6. Sundberg and Sundberg (The Analysis of Verbal Behavior, 1990) found that signs were more quickly acquired, resulted in more accurate productions, resulted in more spontaneous communications and were more likely to be maintained and generalized than picture selection systems (pointing).

Disadvantages of Sign Language
1. Parents and teachers must have special training in sign language.
2. Parents and teachers must use sign when they are talking with the child.
3. Parents and teachers must shape each individual sign.
4. Signs are fleeting- Unlike pictures, they are "produced" then gone.
5. Children who have difficulty sequencing fine motor movements may have a great deal of difficulty learning signs.
6. Signs for favorite items and activities may need to be "made up".
7. It may be difficult for the child to interact with other children and adults who don't know sign language.
8. It may be difficult to prompt children who find touch aversive.

9. It may be difficult to fade the prompt for some children who might continue to "deliver" their hands to an adult when they want something.
10. If those in the environment don't recognize the child's signs, many requests may go unrewarded (not reinforced).   This would make it difficult for the sign to come under control of the child's request for an item (EO).

Questions to Consider
1. How does the child respond to touch? While some children can be desensitized to the hand-over-hand prompting required for teaching both signs and PECS, this will take time. It is important that the instructor remain paired with reinforcement so desensitization should take place slowly.
2. Is the child able to imitate movements with relative ease?
3. Will the environment support the chosen response form?
4. How fast is the child learning new requests (mands)? Will the environment be able to "keep-up" with creating the necessary pictures?
5. Are the child's current requests (mands) primarily food items and objects or do they enjoy many activities that would be hard to represent by a picture?
6. How many different environments is the child in during the day and with how many different people will he need to request (mand)?
7. Is it possible to keep the chosen response form accessible to the child throughout all environments?
8. Is interaction with typically developing peers part of the child's current program and if so, can they be taught the response system chosen?
9. Are all the "communicative partners" in the child's life willing to learn and use the chosen response form?
10. How does the child react to sound? Is it likely he will "stim" on a voice output device if that is chosen as a response form?
11. How many different activities or toys is the child interested in?
12. Will the child be able to transport the response form easily between different environments?

When there is no clear indication of which system is best for an individual child and family, the author recommends that the parent choose two items to teach as signs and two to teach with PECS. Make sure all of the items are things the child requests quite frequently (equal reinforcing value). Introduce the systems chosen and see which the child acquires more quickly. Then choose that system as the child's primary system of requesting.

No matter what system is chosen, other forms of augmentative communication may serve to increase the child's awareness and interest in what those around him are saying or doing. For example, some children may attend well to song boards made with icons or placemats with icons involving mealtime. The parent "points" as he/she "talks" with these systems. The pictures actually serve as a "prompt" for what the parent is saying but no response is required of the child. Some children begin modeling this behavior and begin using the pictures in a functional manner to both comment (tact) and request (mand).

If a child is using PECS as their primary system, it may also be helpful to introduce signs for words that are hard to picture such as prepositions and actions. These signs often "look" more like the actual action or location than does a picture and may be more rapidly acquired.

No matter what system is chosen, continue pairing words, sounds and talking with reinforcement!

Choosing First Words

1. First words should be chosen based on the individual **child's** interests and motivation.

2. Select words the child will use frequently.

3. For children who are just beginning to speak, select words the child will be able to articulate or approximate intelligibly or agree on an acceptable approximation.

4. For signing children, select words that are iconic (sign looks like the object).

5. **Avoid first words that are too general or have little communicative value (e.g."more, yes, no, please").**

6. For children who sign, avoid words that will look too similar (e.g. "eat, drink")

Teaching the Child to Ask Questions

Pre-requisite Skills
The child should be requesting (manding) a large number of objects and actions. Some people prefer to wait until the child is also able to label (tact) adjectives and prepositions as well as waiting until the child is using sentences to request (mand). Others have had success with using the teaching procedures involved in teaching the child to ask questions (mands for information) to teach the child prepositions and adjectives because doing so may increase the child's motivation (EO) for using the adjectives and prepositions in a functional manner. It is probably most important to determine the child's ability to discriminate the conditions under which questions (mands for information) are appropriate and then use whichever sequence of teaching skills the individual child responds to best. If it is decided to teach the child to ask questions and discrimination errors begin to occur, try to teach the child to discriminate the relevant context. If you are unsuccessful, hold off on teaching the child to ask questions (mands for information) while other necessary skills are taught.

Why do People Ask Questions?
The primary function of asking questions is to obtain desired information. Of course, as adults, we have also learned that it's polite and reinforcing to our friends to ask certain questions (i.e. "How are you doing?" "How was your vacation?").   If we are interested and enjoy (are reinforced by) our interactions with the person we are talking to or the topic of discussion, the questions serve to maintain or continue the conversation.

When typically developing children are first learning to ask questions "dat?" is often the first question used. One explanation of this behavior is that the child is requesting information. The child wants to learn and is interested in the environment. If this is the case, then in behavioral terms it means that words have become reinforcing to the child. Another behavioral explanation may be that the person the child is saying "dat?" in the presence of has become a conditioned reinforcer and the child is requesting ("manding" for) the attention of the person. This happens after a long learning history of that person being paired with reinforcement and reinforcement occurring whenever the child says "dat?" in the presence of the person.

Is my child/student already requesting information?
Remember that when determining the maintaining reinforcer for any given behavior, we have to look at what the specific child enjoys. Children might appear to be "manding for information" by pointing to, or touching an object/picture without looking at the adult present. This behavior has a history of being reinforced (maintained) by the adult present saying the name of the item touched.

For example, one child was highly reinforced by letters or numbers and pointed to them frequently. Whenever the child pointed, the adult said the name of the letter or number. The child could receptively identify (touch/get/point) to the letters and numbers when asked but was non-verbal. His only way of manding for objects was to pull his parents to the desired object or typical location of the activity he desired.   Rather than "manding for information" the parents had become the child's personal "V-Tech" toy! (One of his favorite "stimmy toys.) While this did serve to pair the parents with reinforcement which is a desirable goal in and of itself, we wouldn't want to do this in exclusion of teaching the child how to request specific objects or actions using other forms of communication.

For this particular child, we were successful in teaching a couple of skills with the behaviors he was already exhibiting (touching) and using his desire (EO) to hear someone say letters and numbers.

First, we began the activity in the way the child had been previously taught (child points/adult says). Then we started waiting a few seconds until the child turned and looked at the adult before saying the name of the number. Soon the child was making eye contact as he pointed. Next, we wrote the numbers on small cards and taught the child to hand us the number he wanted us to say (Picture Exchange Communication System (PECS). We taught the child the skill of giving someone a picture of what he wanted to obtain what he wants (reinforcer).   Later, when not specifically engaged in the activity, the child would take the picture to the parent. When he did so, the parent got out the letters/numbers, and played with the child using them. This skill was more functional because the child could request the specific game or activity using the picture whereas before he was only able to request a specific behavior of his parents if the letters or numbers were present.   The child also generalized this skill (PECS) to requesting other toys, foods and activities that he desired. We also used the reinforcing value of letters paired with blocks, puzzles and songs to pair those activities with reinforcement (create new conditioned reinforcers).

It's also important to recognize that even if the child is saying words that sound like questions, we have to determine the reinforcer that's maintaining before we can determine if the child is requesting information or requesting a specific object or activity. For example, a highly echoic child might ask, "Do you want to watch TV?" when he doesn't really care much if YOU want to or not! The function of this question is to communicate, "I want to watch TV". It's easy to see how this might happen. The "learning history" in this case might be that whenever the child wants to (has an EO) for watching TV, he drags is mom to the television set and puts her hand on the button. Right before turning on the TV she asks her child, "Do you want to watch TV?" The child echoes, "Do you want to watch TV?" and the TV is turned on. The behavior of saying "Do you want to watch TV" has been reinforced multiple times. The problem is, the child is using the incorrect "form" for the function! Instead, the parent was taught to prompt with "I want to watch…". The child filled in "TV", and then the TV was turned on. The child was not yet echoing isolated words under "instructional control" or on a consistent basis but he typically filled-in words from his favorite songs so we knew this would be a more successful way of getting the "behavior" of saying "TV" so we could reinforce it.   In this case, we didn't want to prompt the child to say, "I want to watch TV" until we taught him to use isolated words for a variety of functions because of his strong echoic history. We did eventually prompt him to use many different sentences, (i.e. "I want to watch TV", "Turn on the TV", "Let's watch some TV" etc.) to get the TV on but only after he was able to label a large number of items in response to "What's this?" and was also doing so spontaneously to gain our attention. Using the sentence, "I want to watch TV", was then important because the listener could not always determine if he said the word because he wanted it or was just labeling it to get our attention.

Other children often ask questions that are not serving the purpose of gaining information. For example, they may ask, "Where's my ball?" when the ball is sitting in front of them. This often happens because the child has been reinforced for saying the words that sound like questions by receiving the desired item, even when it's visible. Or, the child may have been taught to ask questions through imative activities that did not include the appropriate reinforcer (getting information you don't know). For example, perhaps the child was reinforced for saying "Who's that?" while looking at pictures of familiar family members in a photo album. If the child can label (tact) the people in the album he doesn't need the information that 'Who's that?' should be used to obtain. Whenever this type of learning history has occurred, it is best to prompt the correct words to use in the context and then reinforce, providing multiple opportunities to practice and fading prompts and at the same time, teach the appropriate conditions so the child is able to discriminate between the two. For example, for the child above, one might prompt (echoic and putting child's finger on the picture), "Look, there's daddy!", "That's grandma!" etc. and fade the prompts. At the same time, teach him to ask "Who" questions under the condition that he needs the information as described below.

How do I teach the child to ask questions under the appropriate conditions?
First, consider the "information" that would reinforce the specific question form:

   1. "Can" obtains information about the ability of an object or person to engage in a specific activity. The response is typically "yes" or "no".   Example:

      "Can donkeys fly?"

   2. "Can I" / "May I" obtains permission to engage in a desired activity or get a desired object. (While it's "grammatically incorrect" to use "can" under this condition, it is so widely used in our society for this function that it is considered appropriate so long as the family commonly uses the question form under this condition.)   Example:

      "Can I go outside?"
      "May I have a cookie?"

   3. "Will" / "Would" / "Could" / "Would you mind?" obtains information about the ability, willingness or likelihood of another person engaging in a specific activity. (combined with "you" if you're talking to the person you want to engage in the activity, "he, she" if the person is present but you're not talking to them and the specific name of the person if the person is not present.) Example:

      "Will Grandma pick me up?"
      "Would you help me with this puzzle?"
      "Could you get my shoes?"
      "Would you mind taking out the garbage?"
      "Will he take my truck?"
      "Will Daddy go to work today?"
      "Would Mrs. Smith take me to the park with her?"

   4. "What / What's that?" obtains information about the label (tact) of an object. Example:

      "What's in the bag?"
      "What's that?" (pointing to an unknown object/picture))

   5. "What kind?" obtains information specific to an attribute of an object or indicates more "specificity" is required. Example:

      Instructor: "I got a new dog!"
      STUDENT: "What kind?"
      Instructor: "A Boxer."

      "What kind of chips do you want?"

   6. "Who?" obtains information about the label (tact) of a person. Example:

      "Who's that?" (new kid in class)
      "Who took my truck?"

Mom: "Someone's coming over today!"
STUDENT: "Who?"

7. "<u>Where?</u>" obtains information regarding the location of an object, person, or activity. Example:

"Where's mommy?" (mommy not present)
"Where are my shoes?" (shoes not present)
"Where are we going?"

8. "<u>When?</u>" obtains information regarding some measurement of time. Example

"When can I have lunch?"
"When are you leaving for vacation?"
"When can we get together?"

9. "<u>Why?</u>" obtains information about the reason something is occurring or has occurred. Example:

"Why are you wearing a purse on your head?"
"Why did you hit me?"
"Why is he talking so loud?"

10. "<u>Which one?</u>" obtains clarification about two or more items. Example:

Dad: "Can I have a cookie?" (3 present)
STUDENT: "Which one?"

11. "<u>How?</u>" obtains information about a procedure or process of completing something. Example:

"How do you open this?"
"How does this work?"

12. "<u>Do / Did / Does?</u>" Combined with pronouns or specific names to obtain information about preferences, common activities or past events. Example:

"Did you get some crackers?"
"Do you like puzzles?"
"Does grandma like Thomas videos?"

The next step is to determine how we can make receiving the information valuable (reinforcing) to the child. This is an important element of the teaching process because, while we can teach a child to "ask" questions, if the child is not reinforced by the information received, it is unlikely that he will engage in this behavior spontaneously! In other words, we can teach him to ask but we also must teach him to "care about" getting the information. This can be done by pairing the receipt of the information with an established reinforcer. Once getting information has a long history or being paired with reinforcement, the likelihood that future questions will be asked is increased. The author typically teaches single

"question words" at first to be sure they are taught as the "important word" (discriminative stimulus) for a specific response or specific type of information. Then, multiple questions containing each specific question form can be taught. Example teaching procedures are as follows:

What?
> *("Thomas" books are highly reinforcing to the child and are out of sight)*

> Instructor: "I have something for you! Say, 'What'"
> STUDENT: "What?"
> Instructor: "A new Thomas book!"

(Note: The child should already have been taught to respond by echoing whatever follows "say" in an instruction. If the child has difficulty discriminating the requirement of the "echoic" response from responding to the question itself, it is often helpful to have them echo some others words first to "build momentum" then the question word. Ex:

> Instructor: "Say 'house'"
> STUDENT: "house"
> Instructor: "Say 'baby'."
> STUDENT: "baby"
> Instructor: "Say 'what'."
> STUDENT: "What"

> *(Reinforcing item is placed in an opaque bag)*
> Instructor: (points to the bag) "Say, 'What's that?'"
> STUDENT: " What's that?"
> Instructor: "It's your top! Come on, let's play!"

> *(Child is reaching toward zipped up bag containing a reinforcer)*
> Instructor: "Say, 'What's in the bag?'"
> STUDENT: "What's in the bag?"
> Instructor: "A new video for us to watch! Come on!"

Once the question has been paired with reinforcement sufficiently, teach the child to ask for information regarding labels (tacts) he does not know.

> Instructor: *(looking at a book about Sea Animals containing many tacts the child has previously acquired but some he has not yet been taught.)*
> Instructor: "What's that?"
> STUDENT: "whale"
> Instructor: *(Points to other animals the child knows but doesn't ask "What's that?" to fade the question prompt for the labels (tacts).*
> STUDENT: "Shark Octopus "
> Instructor: *(Points to an unknown item and immediately prompts)*, "Say 'What's that?'"
> STUDENT: "What's that?"
> Instructor: "It's a sea lion." *(Depending on the particular child, the reinforcement for engaging in this*
> *behavior (i.e. asking the question) might be receiving the information (if he enjoys sea animals) or can be paired with social reinforcement such as '"Wow! You're learning lots of sea animals!"*

Social praise has become a conditioned reinforcer or can be paired with a decrease in demands (just reading and enjoying the rest of the book together), or another reinforcer (such as getting a toy sea lion to give him after he asks the question if he enjoys playing with sea creatures).

Who?

(Planned arrival of a number of people who have been paired with reinforcement)
Instructor: "Someone's at the door! Say, 'Who'"
STUDENT: "Who"
Instructor: (opens the door) "It's grandma!" *(repeat with other "favorite" people)*

(Have different people take turns hiding under a blanket/sheet, out of view of child)
Instructor: "Look! There's someone under the blanket! Say, 'Who?'"
STUDENT: "Who?"
Instructor: (Says the name of the person as they "pop out" from under the blanket.)

Instructor: "Somebody likes to give you kisses! Say, 'Who?'"
STUDENT: "Who?"
Instructor: "Me!" (showers the child with kisses)

(arrange for reinforcing people to call on the phone)
Instructor: "There's someone on the phone for you! Say, 'Who is it?'"
STUDENT: "Who is it?"
Instructor: "It's Daddy! Daddy wants to talk to you!"

(looking through photo album)
Instructor: "Who's that?"
STUDENT: "Mommy."
Instructor: (Continues pointing to pictures then point's to someone the child doesn't know)
Instructor: "Say, 'Who's that?'"
STUDENT: "Who's that?"
Instructor: "Bill." (also provide social or tangible reinforcement for asking the question.)

Where?

(Woody is a strong reinforcer)
Instructor: "I know where Woody is! Say, 'Where?'"
STUDENT: "Where?"
Instructor: "He's under the couch!" (helps child locate if necessary)

Once "what" is mastered, combine with "Where".

Instructor: "I have something for you!"
STUDENT: "What is it?"
Instructor: "A new ball! Say, 'Where is it?'"
STUDENT: "Where is it?"
Instructor: "It's in this bag!"
STUDENT: (gets ball out)

Once the child is manding "Where" in contrived situations appropriately in response to specific SDs, teach him to mand "Where" combined with the object label to request missing items.

(playing with ball castle- Instructor hides the ball in different locations around the room)
Instructor: *(calls attention to empty basket where the ball is usually kept)* Say, 'Where's the ball?'" STUDENT: "Where's the ball?"
Instructor: "It's under the box."

(Give cereal without a spoon.)
Instructor: "Say, 'Where's my spoon?'"
STUDENT: "Where's my spoon?"
Instructor: "It's in the drawer. Let's go get it!"

(The child should be consistently manding for missing items. Be sure to continue reinforcing the mand for the item (i.e. I need a spoon) intermittently. It may be necessary to also hide a primary reinforcer with the spoon to make up for the delayed reinforcement to getting the spoon.)

Why?
(Instructor and child working on a "non-preferred" activity)
Instructor: "We have to stop working now. Say, 'Why'"
STUDENT: "Why?"
Instructor: "Because we're going to the park!" (a highly preferred activity)

(child watching a "less preferred" video. Instructor comes in and turns it off)
Instructor: "Say, 'Why did you turn off the video?'"
STUDENT: "Why did you turn off the video?"
Instructor: "So we can watch this new Dora video!" (a "more preferred video)

(instructor wears a clown nose into session)
Instructor: "Say, 'Why are you wearing that nose?'"
STUDENT: "Why are you wearing that nose?"
Instructor: "Because we're going to play with the circus today!" (one of child's favorite activities)

Which/ Which One?
Instructor: "One of these candies is for you! Say, 'Which One?'"
STUDENT: "Which one?"
Instructor: "The orange candy.' (child's favorite color)

Instructor: *(holding out two hands, fisted)* "I have a piece of candy in my hand! Say, 'Which one?'" STUDENT: "Which one?"
Instructor: "This one!" (opens hand and gives candy to child)
      (Can also teach the child to mand specifically for "Which hand?")

Instructor: *(two boxes present- One containing Woody)* "Woody is in a box. Say, 'Which box?
STUDENT: "Which box?"
Instructor: "The shiny box."

Once he's using the question form consistently; teach him to mand for information to clarify a request.

Instructor: *(Two balloons present)* "Hand me a balloon. Say, 'Which one?'"
STUDENT: "Which one?"

Instructor: "The long one."
STUDENT: *(Gives balloon to instructor and instructor blows it up and plays with the child.)*

When child has mastered asking "What?" and "Where?" questions, combine with "Which one?"

Instructor: "I have something for you!"
STUDENT: "What?"
Instructor: "A squishy ball!"
STUDENT: "Where is it?"
Instructor: "In the bag. (2 bags present) Say, 'Which one?'"
STUDENT: "Which one?"
Instructor: "The large bag."

Whose?

Instructor: "I have someone's candy! Say 'Whose?'"
STUDENT: "Whose?"
Instructor: "It's yours!" *(gives the candy)*

Instructor: *(Lays candy in front of child)* "Say, 'Whose candy?'"
STUDENT: "Whose candy?"
Instructor: "It's yours!"

Once the child is regularly asking "Whose?" with no prompting, mix in trials that the candy belongs to someone else intermittently.

(candy laying in front of child)
STUDENT: "Whose candy?"
Instructor: "It's Mommy's." (Mommy takes the candy)

When?

STUDENT: "Can I have a cookie?"
Instructor: "Not right now. Say, 'When'"
STUDENT: "When?"
Instructor: "As soon as we wash our hands!" *(Make sure initial "waiting time" is very short!)*

Instructor: "We're going to the park! Say, 'When?'"
STUDENT: "When?"
Instructor: "As soon as we finish this book!"

After "Where" questions are mastered, mix in "When".

Instructor: "We're going someplace special today!"
STUDENT: "Where are we going?"
Instructor: "To the zoo! Say, 'When are we going to the zoo?'"
STUDENT: "When are we going to the zoo?" *(child's favorite place)*
Instructor: "Right after lunch!" *(Do this while you're eating lunch, not right after breakfast!)*

How?

Instructor: *(has a new toy that is hard to run)* "I know how to turn this on. Say 'How?'"
STUDENT: "How?"

Instructor: "Like this!" *(Turn on but hide the "secret" from the child so you can get a few trials in!)*

After no prompting is needed, just prompt the child to say, "How do you turn it on?", and demonstrate.

Instructor: *(Has a container with a new fastener and a reinforcer inside. Gives container to child.)* Instructor: "Say, 'How do you open it?'"
STUDENT: "How do you open it?"
Instructor: "You have to turn it this way." *(opens and gives child the reinforcer.)*

Can

(Child enjoys watching the instructor do silly things and regularly gives "contingent comments" with no prompting.)

Instructor: "Let's play a game! Can you do this?" *(does something silly for child to imitate)*
STUDENT: "Yes I can!" *(Imitates)*
Instructor: "That's silly! Now it's your turn."
STUDENT: "Can you do this?" *(performs a silly behavior for instructor to imitate)*
Instructor: "Yes, I can!" (Or, "No, I can't!" if appropriate!)

Do / Does

Instructor: "We can go outside if everyone wants to. Say, 'Do you *want to go outside?'"*
        (directing child to ask another child in the group of 3.)
STUDENT: "Do you want to go outside?" *(continue with other children, hoping all will say yes!)*

Instructor: "You can play ball if you find someone to play with. Say, 'Do you want to play ball?'"
        (directing the child to approach another person)
STUDENT: "Do you want to play ball?" *(continue until you find someone that says, "yes")*

These are just examples of the many activities that can be used to teach the child to ask questions. The important things to remember are:

1) The information should not be known
2) he information should be "valuable" to the child.

Teaching the Child to Understand and Use Abstract Language

Some children with autism are able to learn to ask for (mand), identify (receptive) and label (tact) concrete objects and actions with relative ease but show a great deal more difficulty learning other parts of speech that may be considered more "abstract" in nature such as adjectives, adverbs, prepositions and pronouns. There are many theories as to why these "parts of speech" are more difficult for children with autism to learn but it may be due to the fact that these words are "relational" or "relative". In other words, the words used change depending on what is being compared, the perspective of the speaker or who is speaking to whom. For example, when seen next to a bush, a tree is considered, "bigger" but when compared to a skyscraper, the same tree would be considered, "smaller". A ball laying, "on" the floor may also be "beside" a chair but depending on where the observer is located, "beside" might look very different! If I am talking to a female, I call her "you" but if I am telling someone else something about that same person, I call her "she". It's easy to see how the children can get confused! In behavioral terms, it is more difficult to obtain stimulus control when the stimulus is constantly changing!

As with other parts of speech, one usually has the most success when using the child's motivation or desire (establishing operation/EO) to teach them to request (mand) for something using these parts of speech. Once the child is using these words to request (mand) with no prompting, the child can be taught to receptively identify and label (tact) using these words with much greater ease through the use of transfer procedures. Let's look at each part of speech to determine how we might manipulate the child's need to request using these "abstract words". It is important to remember that the questions used to elicit the response as well as the object(s) of reference are all part of the stimulus conditions which specify which response will be reinforced.

Adjectives- After learning nouns and verbs, adjectives are typically the next part of speech we teach a child. Adjectives are words that describe nouns including words describing how things sound, feel, taste, look and smell. There are some basic things to keep in mind when teaching adjectives to children with autism. First, make sure you are teaching the child the word to describe how he is experiencing the sensations. Also, be sure the child is "tuning in" to the correct feature. Finally, teach in a way that avoids the child chaining responses or using adjectives inappropriately. Finally, use the child's motivation or desire for items to teach the child to request with adjectives and then transfer to all other functions (verbal operants).

It's important to understand that children with autism may be experiencing sensations in an atypical manner. For example, something that may smell "sweet" to you may smell "stinky" to the child. So, when teaching adjectives, it is important to be aware of how the child is responding to a particular sensation and give the appropriate label for his reaction. Remember that when teaching adjectives, we can also be teaching the child to request (mand) for his environment to be changed by telling us how he experiences events. Just as when an adult may say, "I'm cold." as an indirect request for someone to turn up the heat, the child may be taught to say, "too loud!" as a request for those around him to quiet down a bit. The hug that feels "nice" to you may "hurt" the child. When the child is able to identify these sensations or request a change, it allows him to have more control over his environment and may reduce the "need" for negative behaviors that might occur if the child were unable to communicate in another way.

It's important when beginning to teach adjectives that the items be identical in every way except the target descriptor. Many children with autism have difficulty responding to multiple features of the same

item and if we use items that differ by more than one feature to teach a concept, we can't be sure the child is "tuning in" to the correct aspect of the object. For example, if we used a big striped ball and a little ball with stars on it to teach "big" and "little", the child may learn that "big" means things with stripes and "little" means things with stars. Instead, we should use two balls that are the same color and texture but are different sizes.

It's important to be sure to use many different items in a variety of combinations when teaching the adjectives to help ensure the child isn't accidentally taught to use the adjective to request the item or to chain the adjective and noun as the new name of the item he wants. For example, we wouldn't want the child to begin saying "blue" to request a "blue ball" or to request all blue things by saying "blue ball". To avoid this, we'd teach the child to request a blue ball, red ball, yellow ball etc. as well as teaching him to request blue cups, red cups and yellow cups. In fact, we should follow the new response quite quickly with a different combination. Another way to avoid this confusion is to begin by combining adjectives with only the child's strongest requests (mands) or those which he will consistently use without any prompting. It's also important to teach the child under which conditions he should use adjectives. For example, if two different cups were available, it would be important to describe the one he wanted using adjectives but if only one cup were available, it would not be appropriate to use the adjective. We don't want the child to begin using adjectives to request and label (tact) things in the environment all the time because his communication will sound very unnatural. Consider the child who asks the child next to him for a "long, yellow sharp pencil" when his pencil breaks! In this case, just asking for a pencil would be much more appropriate.

To use the child's desire or motivation (EO) to teach him to request with adjectives, begin by offering two or more different choices of the desired item requiring the child to use the adjective to clarify their request (mand). Once the child is able to request using the adjectives when appropriate, begin transferring them to tact (label) responses. It is helpful to use the sense used in "experiencing" the adjective in the SD or question asked of the child when transferring to a tact response. For example, after a child has asked for the "hard ball" with no prompting ask, "How does the ball feel?" and/or "How does it feel?" to teach him to label (tact) "hard". (Note that you do want to be able to remove the noun from the SD as having it included gives the child a "clue" that you are not asking for the name of the item.) Then use the SD or question, "What kind of ball?" or "Describe this ball." to teach the child to combine the adjective and the noun as a 2 word "label" (tact).

Receptive responses containing adjectives can be taught when cleaning up toys or when an item is needed to complete a task. For example, the instructor might ask for the "big towel" when needed to dry hands or ask the child to find the "little car" when cleaning up toys (Note: Only if more than one of the items was present so clarification was needed). Others choose to teach adjectives as receptive responses (pointing, giving, touching) first, then transfer to tacts (labeling, naming). The order in which you teach the functions (operants) is less important than determining the function in which you are most likely to get a correct response then transferring the response to other functions (operants).

When teaching the child to respond to the "features" part of the FFC responses we are sometimes teaching adjectives. Some people feel it is not important to be sure the child has learned to mand (request) and/or tact (label) the adjective before teaching it as a feature but it may be important that this be done to avoid the response from being a rote memorization. For example, it might be better to teach the child to request and/or label "hot/cold" before teaching him to respond to "something cold is (ice cream)." When the child is taught the reversals of features, they are responding with adjectives as intraverbal responses (no visual item present). To use the above example, if the child was taught to respond, "cold" when asked, "How does ice cream feel?" and the ice cream was not present, this would

be an intraverbal response. Being able to tact (label) cold is important in order to avoid this being learned as a rote or memorized response.

There is some disagreement among professionals regarding whether or not adjectives should be taught as opposite pairs. Some feel that doing so leads to more confusion for the child and others feel that it helps the child learn the relational value of the terms. Words that have clear opposites such as "big/little", "wet/dry", "hot/cold", "long/short" appear to be easily taught together but it's not always necessary. Some adjectives don't have clear opposites such as "sparkly" or "fuzzy".   Adjectives can be taught in isolation with examples and non-examples of the target adjective if the child is having difficulty learning the targets taught together.   If given thought, most items a child enjoys can be found in different forms that would allow one to teach adjectives. Some ideas for combining adjectives with desired objects include:

- Big/little, long/short, striped/solid, full/empty and different colored balloons.
- Wet/dry, different colored sand.
- Soft/hard, squishy, rough/smooth, different colored balls.
- Long/short, shiny/dull different colored ribbon sticks.
- Different sizes and colors or "gears" or "wheels" that spin.
- Different sizes and colors of tops.
- Skinny/fat, big/little, tall/short. Soft/hard, squishy, sticky forms of favorite animals and characters from books or videos.
- Different sizes and colors of cups that juice can go in and/or different types and temperature of juice.
- Different temperatures of water when taking a bath or washing hands. Use tablets to change bath water to a requested color!
- Different color crayons, markers, paper and play dough and sharp/dull pencils or crayons for kids who enjoy art activities.
- Different kinds of cookies or ice cream.

It may not be possible to teach both the number and variety of examples needed to generalize correct responding to adjectives. A wide variety of objects must be used. Receptive and labeling (tact) teaching procedures can be provided to ensure enough examples are taught. Two identical items are first used and the child is asked to receptively identify and label (tact) multiple examples. After identical objects are mastered, teach the child to label (tact) using the adjectives with non-identical items.

It is also important to be sure to teach all the different "ranges" within a particular adjective being taught. For example, when teaching "red", teach a wide variety of shades of red to be sure the child is able to generalize the tact. When teaching concepts of size, be sure to teach that one object can be considered "big" next to another but "little" when compared to something else.

We begin by teaching adjectives that are as different from each other as possible (opposite) then start comparing smaller differences. Comparative (big, bigger) and superlative adjectives (big, bigger, biggest) can be taught once the child is able to label (tact) opposites.

Prepositions- Prepositions are words that describe the location of nouns and are always in relation to another object. They are one of the most difficult parts of speech to teach children with autism. This may be due to the fact that the same "words" can "look" so different depending on the objects used and the location of the speaker and listener. In addition, the same location can be described using many different terms!   In behavioral terms, there is difficulty obtaining stimulus control because multiple

stimuli (i.e. the object you are referring to, other objects present, the question used) control the response and many of these stimuli vary a great deal.

To experience how difficult prepositions might be for a child to learn, try a little experiment at home. Put an item in a certain location then have different people come into the room and describe its location. You'll probably find that different people describe the location in relation to different objects so that one person may describe the location as "in the corner" and another may say it's "beside the couch" and still another may say it's "between the couch and the wall" and still another may say it's "next to the couch". All of the responses may be correct but all are different! Another source of confusion may be the way we use prepositions. Most people would agree we ride "on "a bike and "in" a car but do we ride "in" or "on" a wagon? What about a train? A swing? Do we walk "in" or "on" the grass? Do fish swim "in" or "under" the water? Most people are not very consistent in their use of prepositions and the child may hear different words used to describe the same location from different people.

One way to help the child learn to understand and use prepositions correctly is to maintain consistency across instructors. The group should agree on terms to use with specific objects such as those listed above. Another important consideration is that prepositions should always be taught in combination with an object you are using to teach the location. For example, teach "in the box" and "out of the box" rather than "in" and "out" alone. While, "in" may be quite clear when taught alone, an item that is "out" may also be "on the floor" if the referent object is not also included in the response.

One of the easiest ways to teach most children prepositions is to use highly desired items placed in the target location. When the child requests (mands) the item, tell him the location (prompting initially then fading the prompt). For example, if teaching "under" have an upside down box and when the child mands for his "Pooh" toy, tell him it's "under" the box. While playing with Pooh, you could then direct the child to place Pooh "under the box" and have him jump "over the box". Then bring out other objects such as a bowl and a book and let the child mand (request) for Pooh or other characters to jump "over the book" or "under the bowl". By mixing up the target locations and referent objects, you can ensure the child learns to respond in a flexible manner. Again, be sure to transfer to all functions (verbal operants) including mand (request), receptive (identifying), tact (labeling) and intraverbal (responding to the verbal behavior of others).

If the child enjoys moving, the best place to teach prepositions may be on the playground! Climb under and over bars, get on and off balance beams, go up and down slides and in and out of structures. Go through and around tunnels. Some children love to boss adults around so let the child tell you where to go! (mand) Once he is using the prepositions to serve this function, transfer to other functions.

Some children enjoy playing "Find the toy" with an adult. To play this game, take turns hiding a favorite toy. One person hides the toy and the other can make 3 guesses as to its location. If the location is not guessed, the person who hides the toy tells the other where to find it. This game can be quite difficult and should be used with children who are able to mand (request) information regarding locations using "Where" questions and "Is/Are" questions and can respond to intraverbal "yes/no" questions but still have some confusion with prepositions.

Another more difficult game that can be used to teach higher level prepositions is to put a barrier between two children who both have paper and crayons. One child gets to be the "boss" and tell the other child what to draw and where to draw it. For example, the child might tell the child to draw a house in the middle of the page, a sun in the corner and a tree beside the house. This is a good game for both children because if the child who is not the "boss" has any questions, he must ask the "boss"

for clarification! (Mand for information) When the picture is finished, let the children compare their pictures and see how they are different! Again, this game should be used for children who are able to mand for information using "Where" questions.

Pronouns- Pronouns are also very difficult for children with autism because the term used depends on who is speaking to whom as well as the presence or "knowledge" the listener has of the referent! In addition, many children with autism like to have one name for every one thing so the fact that "mommy" can also be called "she", "her" and "you" can be quite frustrating! Also, pronouns are often difficult to teach because if we want to prompt the child to respond the way he is supposed to, we often have to reverse the pronoun. For example, if we're teaching the child to respond to "Whose nose?" By saying "my nose" when we prompt him, we must say "my nose" even though this is what we would use to refer to our own nose! The tendency for many people is to reinforce the child who responds correctly with "my nose" by saying, "That's right! It's your nose!" which further adds to the confusion!

Finally, when teaching a child to use pronouns, we have to be sure to teach them to use them correctly both as "tact" (labeling in the presence of a person) and "intraverbal" (using the pronouns to talk about things not present) and to use additional "communicative behaviors" such as pointing to clarify the referent.   Consider the child who might walk up to a teacher in a classroom of children and say, "She took my ball." The child is present in the room but the teacher has no idea who "she" is! It is important to teach the child to point or at least look at the person to whom he is referring when giving a tact response.

As another example, consider the child who comes home and his mother asks, "What did you do at school today?" The child responds, "I built a castle with him." The mother has no idea who 'him' refers to. It is important to teach the child to use the name of the person he is referring to "establish the referent" before using pronouns in as an intraverbal response.

One of the mistakes that often occurs as a result of the difficulty inherent in teaching children with autism to use pronouns is the avoidance of their use at all! Instead, people will use the actual name of themselves and/or the child instead of the appropriate pronouns. For example, a parent might prompt, "Kevin wants to go outside." Of course, after years of being reinforced for saying "Kevin wants to go outside", it will be very difficult to teach the child to use "I" correctly when referring to himself. Or, when looking through a photo album, parents may teach the child to respond with his name when asked, "Whose that?" while looking at a picture of the child. The response elicited should be "me" not the child's name in this context.

Pronouns such as "he, she, it, him, her etc." should not be used in early language training but it is important to start teaching children to refer to himself as "I" and "me" from the very beginning to avoid having to "fight against" our own teaching later on.

I / Me
The first pronouns many children learn are "I" and "me". These are typically taught through the mand (request) when the child begins requesting with "I want…". 'Me' can be taught when the child is requesting an action. For example, when the child requests "push" ask, "Who should I push?" and prompt him to respond, "me". Be sure to have other people or dolls available to push also so the child doesn't begin to chain "push me" into a single request for "push".   Once fluent as requests (mands) these pronouns can be transferred to tacts (labels) quite easily by asking "Who am I pushing?" and prompting "me" or Who wants some juice?" and prompting "I do" or "me".

My / Mine

The easiest pronouns to teach next are typically "my" or "mine". First teach these responses as a request (mand) to keep an item that someone is trying to take from them. For example, while gently trying to take a toy truck, prompt the child to say "my truck" and pull the truck away (just like most young children!) It is important to teach the child to "defend their things" this way, especially if they are in a daycare or preschool environment. It's much better than hitting or passively letting another child take toys away! Once the child is responding when you try to take the truck, ask, "Whose truck?". The child will most likely respond, "my truck" as a tact (label) response because he just said it.   Be silly! Try to put the child's shoe on as you get ready to go out and give him your shoes to put on to prompt him to mand, "My shoe!". Mine can be taught in a similar way. The child is just taught the word "mine" rather than the combination of "my" and the object.

My / Your

It is best that you **do not** begin teaching "my" and "your" by giving receptive instructions. Typically, we suggest teaching both receptive (point to/touch) and labeling (tact) responses at the same time.   This is because the child will often label (tact) the item/action while he is receptively identifying. In order to transfer from a receptive response, the label (tact) has to be included as the child is pointing. Remember, we are transferring the <u>child's</u> behavior to a new condition which is not possible in the case of the pronouns "my" and "your". Instead, this task would require a reversal of the pronouns. For example, one of the early objectives in the ABLLS includes teaching the child to identify body parts on themselves and others. Many use the SDs "touch my nose" and "touch your nose" to teach this skill. However, if asked, "Touch my nose" and the child responds by touching and saying "my nose", this would be an inappropriate use of the pronoun and could not be transferred to the tact of "Whose nose?". Instead, have the child tact the body parts of dolls, animals pictures of people etc. The tact target to transfer to should include the possessive tact of the item and/or teaching the tact of the possessor/possession combinations. Wait to teach the pronouns after the child has mastered many other skills.

>   Instructor: "Touch the dog's nose"
>   STUDENT: *(touches)* and says, "dog's nose"
>   Instructor: "Right! This nose is the…"
>   STUDENT: "dog's"
>   Instructor: "Whose nose? "
>   Child   "Dog's"
>   Instructor: "Tell me about this."
>   STUDENT: "Dog's nose"

Later, when the child is ready to begin learning pronoun's the same activity can be used to teach other possessive pronouns such as "his", "her" and "its" which do not require pronoun reversals.

Other teaching procedures used for teaching possessive "my" and "your" can include the use of contingent comments. With contingent comments, the child is taught to label (tact) something in the environment by following the "model" of the instructor but not echoing directly. This is often a successful way to teaching children with autism since they have a tendency to imitate (echoic/duplic).

>   Instr: "My light is yellow." *(Point to child's light and give phonemic prompt mm)*
>   STUDENT: "My light is blue."
>   Instructor: "Tell me about this light." *(while pointing to the child's light).*
>   STUDENT: "My light is blue."

Next, present "Tell me about this light," with full prompting of "Your light is yellow." STUDENT: "Your light is yellow." Continue until the child is able to describe each item using the correct pronoun referents. The use of "Tell me about" as the SD reduces the effects of the pronoun reversal.

"My" and "your" can also be easily taught when playing games. Teach the child to tact whose turn it is. Start by having both the instructor and the child saying, "My turn" at the appropriate times but only ask, "Whose turn?" after the child has already said, "My turn." After this is mastered, begin saying, "your turn" each time the instructor has already taken a turn and prompt the child to do the same. Once the child is consistently saying, "your turn" with no prompting, transfer to the tact by asking, "Whose turn?' following his initial response. Finally, once both are mastered, begin mixing the two.

At some point, the child does need to learn to reverse pronouns but this should only be conducted after many other pronouns have been mastered. Just teach one of the pronouns at a time. When teaching, it will be important to provide full echoic prompts before the child responds. For example, tell the child to "touch your knees" then ask, "Whose knees?" and prompt, "mine". Wait for the child to imitate you then ask the question again to get an unprompted response. Once the child is responding with "mine" consistently with no prompting, introduce "your".

> Instructor: "Touch my nose."
> STUDENT: *(touches nose)*
> Instructor: "Whose nose? Say, 'yours'."
> STUDENT: "Yours."

For some children, it is easiest to wait until you've taught the child to mand (request) information using "Whose?" and "Who?" then teach the pronouns in conjunction with these requests. For example, put a piece of the child's favorite candy on the floor and prompt him to ask, "Whose candy?" tell him "It's yours!" or "It's your candy!" He'll learn the meaning of "your" quickly! Then, start asking him, "Whose candy is it?" after you've responded to his question and prompt him to answer, "mine". Every now and then, when he asks, "Whose candy?" say, "It's my candy." and take the candy or ask him to give it to you. (Be careful! It may be tempting!) Ask, "Whose candy?" and prompt him to respond, "Yours". Of course, if the child does not like candy, any reinforcing item can be used.

His / Her / Its / Our
These are also possessive pronouns and the advantage of teaching them is that they often do not require reversals between the instructor and the child. These are pronouns used to label (tact) or intraverbally respond to states of ownership. As described above, these pronouns can be taught with body parts. It is suggested that if using this teaching procedure, the child is also taught to point to the referent.

> *(a picture of a boy, girl, and dog are present)*
>
> Instructor: "Touch his shirt." *(0 second delay prompt)*
> STUDENT: *(touches boy's shirt)*
> Instructor: "Touch his shirt." *(fade prompt)*
> STUDENT: *(touches boy's shirt)*
> Instructor: "That shirt is …"
> STUDENT: "his."
> Instructor: "Whose shirt?"
> STUDENT: "His."

Continue with other possessive pronouns for the girl (her) and dog (its collar)

Possessive pronouns can also be taught in conjunction with subjective pronouns.

> (pictures of people performing various actions with objects)
>
> Instructor: "Find, "He's playing his guitar."
> STUDENT: (points and says) "He's playing his guitar"
> Instructor: "What's happening?"
> STUDENT: "He's playing his guitar"
> Instructor: "Find, She's playing her guitar."
> STUDENT: (points and says), "She's playing her guitar"
> Instructor: "What's happening?"
> STUDENT: "She's playing her guitar"

Plural pronouns can also be taught in a similar manner by having 2 or more people be the "owner's of the object. For example, 'We're washing our car," or "They're cleaning their house." Single and plural pronouns should also be taught in a mixed fashion so the child can respond in a flexible manner. (Ex: They're playing with her dog. She's cleaning their house.)

I / He / She / You / We / They / Us
These are "subjective" pronouns. In other words, they are used to refer to the subject of a sentence tacting (labeling) an item that is seen or can be used intraverbally as long as the "referent" or person you are talking about has already been established.

If the child has a favorite toy, tell him you really want to play with it but someone else has it. Then prompt him to ask, "Who?". Both a male and a female should be present.   Initially prompt with a point in addition to telling him "He/she" has the toy but fade the pointing prompt. Once the child is easily finding the correct person based on the pronoun you've given, transfer to the tact (label) by asking, "Who has the toy?". Be sure the child is talking and pointing as part of his response when first teaching. Also, be sure the child is talking "to" the instructor as the pronoun changes to "you" if he is talking to one of the people holding the toy. Once the child has mastered "He/She", give the item to various different people and prompt the child to respond correctly depending on to whom he is speaking as well as who has the toy.

> (a male, female and the child are present and a favorite toy (light) is passed around)
>
> Instructor: (Gives the toy to a male) "Tell me. Who has the light?"
> STUDENT: (points at male but looks at instructor and says) "He does"
> Instructor: "Tell him."
> STUDENT: "You have the light"
> Instructor: (Gives child the light) "Who has the light?"
> STUDENT: "I do"
> Instructor: (Gives female the light) "Who has the light?"
> STUDENT: (points to female, looks at instructor) "She does"
> Instructor: "Tell her."
> STUDENT: "You have the light."

Note that the child is prompted to give a full sentence in response to "Tell" rather than just answering the questions with a phrase. This is to avoid inadvertently teaching the child to relay messages by saying "You do" or "he does".

Another way to teach subjective pronouns is to teach the child to point to pictures of males, females animals is to start with a receptive response and concurrently teach the labeling (tact) response. Be sure to teach in combinations with all other parts of speech (verbs, adjectives etc.) to be sure the responses generalize to a variety of different sentence forms.

> *(Instructor has a variety of different males and females of different occupations. Child has already been taught the phrase responses through FFC and reversal transfers)*
>
> Instructor: "Touch, He puts out fires."
> STUDENT: *(Touches male firefighter and says)*, "He puts out fires."
> Instructor: "Tell me about the firefighter."
> STUDENT: *(points and says)* "He puts out fires."
> Instructor: "Touch, She has a hose."
> STUDENT:*(touches female firefighter and says)*, "She has a hose"
> Instructor: "Tell me about the firefighter."
> STUDENT: *(points and says)* "She has a hose."
> Instructor: "Find, She has a yellow hat."
> STUDENT: *(touches and says)*, "She has a yellow hat."
> Instructor: "Tell me about the firefighter."
> STUDENT: *(points and says)*, "She has a yellow hat."

Once the child is responding correctly, begin fading your receptive prompts and just say, "Tell me about this firefighter". The child may give multiple different responses but be sure he uses the correct pronoun.

To teach plural pronouns, tell the child that some people are going to his favorite place (park) and prompt him to ask, "Who?" Respond, "We are! Get your shoes on!" Transfer to the tact (label) by asking, "Who is going to the park?" and prompting, "We are." Once you get to the park, look around for other children playing on different equipment and ask, "Who's playing on the swing?" prompting "We are." Then, "Who's playing on the slide?" prompting, "They are." Transfer to "Tell me what's happening?" so the child will give the full sentences, "We are (we're) playing on the swing"; and "They are (they're) playing on the slide." (Note: There are pros and cons for teaching children to use contractions before they learn to use auxiliary verbs with correct subject-verb agreement. The author prefers to focus on teaching functional communication that matches what is typically heard in the environment rather than focusing on "correct grammar")

Another teaching strategy is to let the child "boss" (mand) for different people to perform actions then teach the tacts using the appropriate pronouns in the context of the reinforcing activity.

A variety of males and females present. Child is the "boss". The instructor has previously taken a turn being the boss to model manding for 2 or more people to perform an action.

> *(Mommy and daddy jump.)*
>
> Instructor: "Who's jumping?"
> STUDENT: *(Looks at instructor, points to parents)* "They are."
> Instructor: "Tell Kate." *(another person present)*
> STUDENT: "They're jumping."
> Instructor: "Tell Mommy and Daddy."
> STUDENT: "You're jumping."

Instructor: "Let's you and I jump!"
STUDENT: *(jumps with instructor)*
Instructor: "Who's jumping?"
STUDENT: "We are."
Instructor: "Tell Mommy."
STUDENT: "We're jumping."

Pronouns can also be taught by teaching the child to make "contingent comments". In other words, begin teaching the child to tact (label) aspects of the environment in a fashion similar but not exactly the way you do. For example, while coloring, you might start with easy tacts such as, "My crayon is red" then point to his crayon prompting him to say, "My crayon is blue". Vary this by saying, "I have a big ball." and prompting him to say, "I have a little ball." When he's responding to these with no prompting, begin adding other pronouns such as, "She has a red shirt." or "He's holding his dog." and point to a different picture for him to tact. Start by pointing to the same sex to avoid confusion but you can mix up the sexes once the child is responding consistently with no prompts needed. Also, fade your pointing prompt so the child is choosing which item he wants to tact (label/describe).

Him / her / them / us
These are "objective pronouns" or pronouns that refer to the object of the sentence. Typically developing children often have difficulty discriminating the appropriate use of these pronouns and given the way they are typically used, it is easy to see why. Consider that we typically model the use of these pronouns by giving the child directions.

Example: "Give the ball to him."

If we'd used a person's name rather than the pronoun, the last word would become the subject of the tact response.

Instructor: "Give the ball to Sarah."
STUDENT: *(gives the ball to Sarah.)*
Instructor: "Who has the ball?"
STUDENT: "Sarah has the ball."

Therefore, it would be perfectly reasonable and logical to assume the response to "Who has the ball?" after being asked to "give the ball to him" would be "Him has the ball" Right?!

To avoid this confusion, the author prefers to teach the child to use objective pronouns after teaching subjective pronouns and to include the subjective pronouns in initial teaching to help teach the discrimination of the appropriate use.

(pictures of males and females giving things to other people)
Instructor: "Show me, 'He gave the ball to her'."
STUDENT: *(Points and says)* "He gave the ball to her."
Instructor: "What happened?"
STUDENT: "He gave the ball to her. "
Instructor: "Who gave the ball?"
STUDENT: "He did."
Instructor: "Who did he give the ball to?"
STUDENT: "Her."

Or, in a game type format, have the child mand for an action along with other people manding for the same action. Vary the people requesting the action and performing the actions so that all forms of the pronouns can be taught. Also vary the people to whom the child speaks to teach him to discriminate the pronoun usage depending on to whom he is talking.

(Multiple males and females present playing catch.)

STUDENT: "Throw the ball to me."
Instructor: "Who threw the ball?"
STUDENT: "He did."
Instructor: "Who did he throw to?"
STUDENT: "Me."
Instructor: "Tell me what happened."
STUDENT: "He threw the ball to me."
Instructor: "Throw the ball to me."
STUDENT: *(Throws)*
Instructor: "Tell me what happened."
STUDENT: "I threw the ball to you."
Instructor: "Tell daddy what happened."
STUDENT: "I threw the ball to her. "

(female is the "thrower)

STUDENT: "Throw the ball to me."
Instructor: "What happened?"
STUDENT: "She threw the ball to me."
Instructor: "Tell her."
STUDENT: "You threw the ball to me."

Plural objective pronouns can be taught in the same manner or by having "teams". (It's our turn. Throw it to us. We threw the ball to them.)

Finally, make sure the child is discriminating all of the conditions under which it is and is not appropriate to use pronouns. Take the child out in the hallway with one other person, away from other people and have one person perform an action. Ask the child if Daddy (who's waiting in the room) can see what happened. When the child responds, "no" remind him that Daddy needs to know who performed the action. Prepare Dad to ask, "What happened?" when the group re-enters the room. The child should respond by either giving the person's name (i.e. Mommy sang a song.) or pointing while relaying, "She sang a song."

Adverbs- Adverbs are words that are used to describe actions. Adverbs can be taught by building on the child's requests for actions (mands). For example, if the child can ask you to walk, ask him if you should walk "quickly" or "slowly". If he asks you sing, does he want you to sing "loudly" or "quietly"? If you're banging on a drum, prompt him to tell you to "play quietly!" "Help" him jump on the trampoline by holding his hips and let him mand (request) to jump "high" or "low". When you push him on the swing, does he want you to push hard or softly? Does he want to go fast or slow? High or low? Just as when teaching other parts of speech, once the child is manding (requesting) using the adverbs, it's much easier to teach him to label (tact) and receptively identify them. To teach the tact, transfer from the mand. For example, once he consistently asks you to "walk slowly" ask, "How am I walking?" to teach him to tact (label) "slowly".

To get the 2-word response of the adverb and verb, say, "Tell me what's happening." to get "walking slowly" or "slowly walking". Prompt the responses both ways so the child will be flexible in combining phrases into sentences later. Adverbs can be found in different locations in sentences so we don't want him to be "stuck" using just one sentence form. For example, we might say, "He walked slowly down the street." or "He slowly walked down the street." or "He walked down the street slowly" to describe the same event. We want the child to have this same flexibility in using sentence forms.

To teach the child to respond receptively, have two identical objects performing two identical actions with only the adverb differing. For example, have one Pooh dance quickly and another dance slowly. Ask him to identify each. If cars are racing, ask which one went down the ramp quickly and slowly. Have 2 people play a drum and ask who's playing loudly and who's playing quietly.

A good time to teach adverbs is when you are teaching the child to imitate the speed of an action. As he learns to do this, begin tacting the adverbs that go with the actions. Let him tell you how to perform the actions! As with all other parts of speech, we want to be sure to teach all verbal operants (functions) of adverbs. Intraverbal adverbs can be taught by teaching the child to identify things that run fast then teaching the reversal so he can respond to, "How does a tiger run?" with no visual stimuli present.

While all of these more "abstract" parts of speech may be more difficult for some children with autism to learn, we can teach them if we are consistent and precise in our teaching and capitalize on the child's interests to be sure that learning these parts of speech benefits the child.

Building Sentences

When should we start working on sentences?
The answer to this depends on the individual child but in general, two word combinations should be targeted as soon as the child has at least 50 "words" that are used to request (mand), and can be receptively identified and labeled (tact) with no prompting. Deciding when and how words are combined into phrases and sentences should take into consideration the current skills of the child. For example, how many words can the child successfully imitate? Does the child spontaneously imitate (echo) long sentences? Is the child able to mand with single words with no prompting? Does the child echo 2 or more words without prompting?

As discussed previously, some children with autism have no difficulty using complete sentences in an echoic or imitative fashion. These children may use sentences in a "cut and paste" fashion but have difficulty combining words into sentences in a flexible manner. For these children, it is very important to "break down" their sentences to be sure they are using each "piece" for a variety of functions and then to build word combinations back up, being sure to continue asking questions requiring some single word responses at times. For example, even if a child is able to say "I see a little red sock on the floor." When he comes into contact with it, it is also important that he be able to respond to "what is that? (sock), "What color is it?" (red), "Where's the sock?" (on the floor) "What size is the sock?" (little). In addition, it would be important to be sure the child is able to use the same sentence form to tact (label) different sizes and colors of socks he sees on the floor and in different locations.

Other children may be able to use single words to request and label items with no prompting but have a great deal of difficulty combining words. There may be a breakdown in articulation of words when the child attempts to use words with multiple syllables and/or when two or more words are combined. For these children, it will be important to slowly increase the length of their sentences as the child will have more difficulty producing words correctly as the complexity of the utterance increases.

As with all other teaching, if the child exhibits escape behaviors or stops spontaneously requesting and labeling things, look at the difficulty of your targets and adjust accordingly. We don't want to lose progress by trying to combine words too soon!

Should children be taught to use all the "little words" such as "a", "the"(articles) to produce grammatically correct sentences or is it OK to teach "telegraphic" or "baby talk" type of word combinations? This is a question commonly asked and there is some disagreement among professionals as to the correct answer. It is probably best for the decision to be based on the needs and learning history of the individual child as well as the age of the child.

Typically developing children first begin forming sentences with incorrect grammar and gradually learn to produce correct word endings and sentences. The problem lies in that once some children with autism learn a "rule" or a specific way of saying something; it is often difficult to change! For these children, it would be important to teach correct grammatical forms or forms appropriate to the situation from the beginning. The "rule of thumb" is that if the child is able to echo the correct form easily, teach it but don't stress word endings at the expense of building longer utterances.

On the other hand, if a child has severe difficulty combining words into sentences and demonstrates more articulation difficulties when the length and complexity of words and sentences increases, it may be beneficial to teach more "telegraphic" type sentences. Our goal is to teach the child to communicate

as much as possible. The "little words" that carry little or no meaning in a sentence may be dropped in order that the child may be able to communicate more complex ideas. For example, let's say a child is unable to imitate more than 4 syllables. If he attempts any phrases/sentences longer than 4 syllables, his articulation becomes unintelligible. For this child, teaching him to say, "read big red dog" to request the Clifford book may be more successful than to attempt to teach him to request the same book by saying, "I want to read the Clifford Book" because "I want to" carries very little "communicative value" and adds a great deal of length and "Clifford" is a difficult word because of the "cl" blend. The point is, look at what is important for the child to be able to communicate to you and teach him a way to tell you based on his current skills. If a response has to be consistently prompted, it is most likely too difficult for the child at this time and it is unlikely that the child will use the response functionally.   Remember, we want the child to be approaching us all day long, telling us what he wants!

In what order should word combinations be taught?
This is another area where there is some disagreement among professionals. Dr. Partington and Dr. Sundberg recommend that a developmental continuum be followed and suggest the following order:

>   Noun+ Noun (Two mastered tacts together- ball, car)
>   Noun+Verb (ball rolling) Note that verb + noun combinations are given as examples in the manual
>   Adjective + Noun (big ball, little truck)
>   Verb + Adjective + Noun (bouncing red ball)

On the other hand, Dr. Carbone suggests the following order be used when teaching tacts:

>   Noun + Noun (ball and shoe)
>   Verbs
>   Carrier Phrase + Noun (It's a ball)
>   Noun + Verb (ball rolling)
>   Adjectives
>   Tact item when told feature, function, class
>   Tact feature, function, class when told item
>   Adjective + Noun + verb (white bear running)
>   Tact features
>   Tact with carrier phrases, properties and verb (It's a red ball rolling.)
>   Tact with carrier phrases, properties and verb (with 2 properties) (It's a little, red ball rolling.)

In his description of the sequence to use to teach mands, Dr. Carbone suggests the following:

>   Single word mands for items, activities and actions
>   Requests others actions
>   Requests with carrier phrases
>   Requests others to stop an activity and help
>   Requests others attention
>   Requests information (asks who, what, where, when, how, which, whose, why questions)
>   Requests future events
>   Requests using adjectives, prepositions, adverbs, pronouns

Finally, when looking at the way typically developing children learn to combine words (Bloom and Lahey, 1978, Brown, 1973) we find that children first begin combining a series of single isolated words without regard to a specific order. These isolated words may occur with or without co-occurring jargon.

For example, a child may say, "mommy" (looking at mommy) "doggy" (pointing to doggy) to request his mother's attention to a dog. Pauses between the words, equal stress and falling intonation patterns separate the two words as individual utterances. When children begin combining words, they typically do so in a manner that indicates the relationship between the words. For example, when the "noun" is completing the action, the noun comes before the verb. (Ex: mommy sit, doggy bite). When the noun is the thing being acted upon, it typically follows the verb (ex: hit ball, drink juice). The following combinations or semantic relations are typically the first to be used by typically developing children:

        Agent + action- *noun + verb* (mommy push)
        Action + object *verb + noun* (eat banana)
        Agent + object *Noun + noun* (boy (kick) ball)
        Action + location *action + noun* (jump bed)
        Entity + location *noun + noun* (mommy kitchen)
        Possessor + possession *noun + noun* (mommy(s) shoe, daddy(s) nose)
        Entity + attribute- *adjective + noun* (red car, cup broken)
        Demonstrative + entity *pronoun + noun* (there cookie, this doll)

In addition, research in the way typically developing children learn language demonstrates that when children begin to acquire longer sentences, they typically either combine previously learned word combinations or expand one such as learning "daddy throw" and "throw ball" being combined to "daddy throw ball", or learning, "big ball", "throw ball" and then combining "throw big ball".

As we know, children with autism do not often develop along a "typical" continuum, however, looking at the developmental literature in combination with the specific functions (verbal operants) of language may give us the best information needed to determine how and what to teach with regards to word combinations.

If we accept that the mand (request) is the only verbal operant (function of language) to directly meet the needs of the child, it seems to follow that the mand should be used to teach most word combinations just as it is used to teach "first words". The child should first be taught to clarify requests using two word combinations and then these mands (requests) should be transferred to two word labels (tacts). The word order taught (i.e. noun + verb, adjective + noun etc.) would depend on the request the child is making and the correct "grammar" of the combination when it is transferred to a tact. For example, instead of just manding (requesting) a cup, the child might be taught to request one of two available cups which would require the use of an adjective to clarify the request. For initial teaching, the instructor might say each option in a questioning manner: "Red cup? Blue cup?" Or, the instructor might wait for the child to reach towards a specific cup, give an echoic prompt for the mand and then fade the echoic prompt. Finally, the response can be transferred to the SD, "Which one (cup) do you want?"

When transferring to the tact, the instructor would simply say, "Tell me about this." Or "Describe this", immediately after the child has used the two word combination to get the same two word response as a tact. Later, the instructor would repeat the SD for the tact response (SD ="Describe this" in the presence of the blue cup) to separate it further from the transfer trial.

If a child requests a specific action from a person, such as "mommy walk", the tact transfer target would be "mommy walking" (noun + verb). On the other hand, if the child requests that an item be acted upon, such as "open juice", the transfer to tact would be "What are you doing?" R= "opening juice".(verb + noun). In either of these cases, an echoic prompt would have to be provided given that the verb form changes.

Using the above reasoning for choosing targets results in less of an emphasis on specific combinations to be taught in a sequential fashion and instead focuses on a wide variety of different word combinations depending on the objects and actions in which the child is interested. Nouns, verbs, adjectives, prepositions and adverbs may all be chosen in combination with one another.

Teaching techniques for word combinations/sentence formation

1. Mand to Tact transfers- One way to teach combinations is to transfer from the mand (request) as described above. The child is first asked to clarify their request, then the response is transferred to the tact. Example:

> Instructor: "Which ball do you want'?
> STUDENT: "Blue ball."
> Instructor: "Tell me about this. "
> STUDENT: "(It's a) blue ball."

2. Building tact combinations- This teaching procedure involves using responses the child has mastered to "build" longer and longer utterances.   Example:

> Instructor: "What's the boy doing?"
> STUDENT: "Kicking." (mastered response)
> Instructor: "What's he kicking?" (touching the ball)
> STUDENT: "Ball." (mastered response)
> Instructor: "That's right! The boy's kicking the ball.   What's happening?"
> STUDENT: "The boy's kicking the ball." (echoic)
> Instructor: "Good job! Tell me what's happening?" (transfer trial)
> STUDENT: "The boy's kicking the ball."   (BIG reinforcement!)

Once the child is able is consistently using the phrases to respond, they can be combined to form even longer utterances. Example:

> Instructor: "What's happening?"
> STUDENT: "The sleigh's flying. "
> Instructor: "Which sleigh?"
> STUDENT: "The little sleigh."
> Instructor: "Where is it flying?"
> STUDENT: "In the sky."
> Instructor: "Tell me about this."
> STUDENT: "The little sleigh's flying in the sky."

3. Expanding Utterances- A technique often used with typically developing children is to reinforce their correct utterances and also add one more word/phrase to tact the environmental event. This technique can also be used with children with autism and is especially successful with children with a strong echoic. Example:

> STUDENT: "car" (pointing to a picture of a car in a book)
> Instructor: "That's right! Red car"

STUDENT: "red car."

This can also be accomplished by using a "fill-in" type task. Example:

Instructor: "Tell me about this."
STUDENT: "Mommy sleeping."
Instructor: "Right! Mommy's sleeping _____ "
STUDENT: "In the bed."
Instructor: "Right! Tell me about this."
STUDENT: "Mommy's sleeping in the bed."

4. Contingent Comments- Once a child has learned to make comments which are associated with your comments, a variety of sentence forms are easier to teach. You might start by teaching these with simple mands. Example:

Instructor: "I want a cat." (as you take the cat)"
STUDENT: "I want a dog." (prompted as he takes the dog)

Later, other sentence forms can be taught. Example:

Instructor: "I have a red marker."
STUDENT: "I have a blue marker."

Things to be aware of when teaching combinations

1. <u>Continue single word responses when appropriate</u>. Remember to continue to go back and be sure the child is able to give single word responses and to respond to questions appropriately.

2. <u>Teach the child conditions under which further information is needed.</u> We want to be sure to teach the child when it is and is not necessary to use descriptors and clarifications. For example, let's say a child is at the butterfly garden with hundreds of butterflies present and he wants his mother to see a particular butterfly. In this context, saying, "Mommy, look at the butterfly!" would not be enough information. He would need to request that she look for a very specific butterfly in a specific location. "Mommy, look at that blue and white butterfly at the top of the cage!" On the other hand, if there were only one butterfly present in the yard and the child wanted to show it to his mother, saying, Mommy, look at that orange and black butterfly on the purple flower" would indeed sound a bit "odd" as it would be more information that needed for the situation.

3. <u>Be careful to reinforce correct combinations even if you don't get the combination you had in mind!</u> It's easy to get so focused on a specific target that we forget to really listen to what the child is saying! For example, if you have a "color + noun" target in mind when asking the child which sticker he would like, be sure to reinforce if he mands for the "shiny dog sticker"! (I've actually seen a correction procedure run on this so don't laugh!)

4. <u>Be sure to teach words in a wide variety of combinations to avoid responses getting chained together</u>. For example, teach multiple objects with the same adjective (big ball, big house, big shirt, big pants) and the same object with multiple adjectives (big shirt, blue shirt, striped shirt, warm shirt)

5. <u>Be careful that you are not requiring so much that the child is no longer making an effort</u>. If you see a drop in manding (requesting) after beginning to teach word combinations, the target response may be too hard for the child. For example, if a child is manding using single words with no prompts but stops or greatly reduces manding when an adjective is added, back off a bit or reinforce each response as a single word and combine the words as a model for the child without requiring the combination as a response.

    STUDENT: "Cookie."
    Instructor: "Which one?"
    STUDENT: "Big."
    Instructor: "Big cookie!" (*as she gives the child the cookie*)

    (*If the child begins requesting a cookie with the word "big", be sure you have him say "cookie" before getting the cookie!*)

6. Some professionals suggest beginning to increase the length of utterances with carrier phrases. While this may be fine for some children, <u>stress function of the words used to expand utterances for children who have difficulty imitating longer utterances</u>.

Building Emerging Social Skills

For many parents, it's very important that their children learn to play with and enjoy being with other children. Especially if parents are very social themselves, it may be very painful for them to see their children alone and isolated. Perhaps there is a feeling that their child "feels lonely" and the emotions the parents associate with "loneliness" are not ones they want their children to feel.

When we consider who we, as adults, choose to spend time and socialize with, it's generally accepted that we choose to be around people who are reinforcing to us. These friends may be reinforcing because they enjoy doing the same things or talking about the same topics we do. They may compliment us, support us when we are in need, or offer some other type of generalized reinforcement. We do the same for them. We generally don't choose to be around people who are aversive or punishing. In addition, while we may tolerate many people who don't generally reinforce us in order to work or participate in organizations, we don't choose to be around them if we don't have to. In this case, the reinforcing value of the activity or work may compensate for the "aversiveness" of an individual. On occasion, people who we initially may find "aversive" we end up enjoying after enough "pairing" with other reinforcing conditions.

If we understand and accept this about why and with whom we choose to socialize, it gives us insight into how we can teach "social skills" to our children. The first important step is to associate (pair) other children with things that the child finds pleasurable (reinforcers). This is the same procedure we use when first teaching the child to enjoy being around adults. We find out what types of touches, sounds, movements, tastes and sights (stimuli) the child enjoys and provide that to them with no expectations of anything in return. (Non-contingent reinforcement).

The problem is other children may not be as interested or as skilled in providing this non-contingent reinforcement to the child. In fact, children, in their typical wonderful nature, tend to be loud, active, pushy and quite unpredictable. Young children tend to be naturally "egocentric" and would much rather take than give. These natural childlike behaviors may be very aversive to some children with autism due to the nature of their sensory system. If this is the case, being forced into contact with typically developing children for long periods of time can actually pair other children with aversive conditions or punishment and thus make it even more difficult to teach social skills.

In addition to making it more likely that the child will steer away from typically developing children, inappropriate attempts to socialize may actually increase self-stimulating behavior. It is important to remember that an overload of sensory input can actually be quite painful to the child with autism. When children are in a painful situation, their self-stimulatory behaviors tend to increase as a defense to the overload. As we know, self-stimulating behaviors are automatically reinforcing. The more they are engaged in, the more they will occur in the future. It is critical that the child not be allowed to just "sit and stim" in the classroom, shutting out all that goes on around him. To untrained observers, it may appear that the child is very good at entertaining himself, but trained observers can tell the difference between "stimming" and solitary play.

What are we to do then? Do we keep the child isolated if contact with other children appears to be aversive? The author suggests this is not necessary and in fact it is quite important to determine environmental modifications that may help to gradually desensitize the child with autism to the environment. Our goal is not social isolation but a gradual increase in the child's ability to tolerate the environment and learn to enjoy being around other children. In the meantime, pairing just one child

with reinforcement can be conducted during play dates or other carefully controlled and monitored situations.

1. Modify

Determine if any changes can be made in the environment to allow the child to be more comfortable. Some ideas to consider include the following. If the child has exhibited sensitivity to different types of lighting, perhaps that can be changed. Are children allowed to wander from center to center or are there limits to the number of children that can be in any one center at a time? Often, the presence of fewer children in the immediate environment will be more tolerable. Limiting the number of children allowed in each center using sticks or other choice type materials can help. During circle or group time, perhaps the child can sit away from the group if too much "closeness" is difficult for the child to tolerate. If there tends to be too much confusion and unpredictability during transition times, perhaps the child can transition just before of just after the other children. The specific modifications necessary can only be determined on an individual basis because each child with autism differs in what they can and cannot tolerate.

Unfortunately, the child is unable to tell us what bothers him so we can only infer based on his behaviors in the specific and/or other similar settings in the past. While we don't want to intentionally subject the child to anything that he may find aversive, we also have to be careful not to reinforce any negative behaviors by removing the aversive conditions immediately following a negative behavior (negative reinforcement). Therefore, it is better to plan ahead and avoid situations which may be difficult rather than react after the child "tells us" he's uncomfortable in the only way he knows how.

2. Desensitize

To desensitize the child to a classroom full of other children, take him into the classroom for very short periods of time, reinforce heavily before the child begins to show any signs of "distress", and leave promptly after reinforcing. Gradually increase the length of time spent in the classroom as the child is able to tolerate the environment. It is often helpful to bring all of the child's favorite reinforcers into the classroom situation at least initially to pair the setting with reinforcement. Many parents have found it helpful to visit the setting when no other children are present. The child and parent play in the setting with all the child's favorite toys and all of the child's favorite reinforcers are given freely. The pairing of the "place" often makes it easier for the child to tolerate when other children do arrive.

3. Pair

Initial pairing with other children is often best conducted with one other child present. Perhaps a somewhat older child can be enlisted to help teach the child with autism. Some children really enjoy being "teacher helpers" and will gladly take on the role. It is important to offer the typically developing child reinforcement for their efforts. First have the child deliver all of the child's favorite reinforcers with no demands. Play the child with autism's favorite games, including the typically developing child. Talk to the typically developing child about how the child likes and does not like to be talked to, touched, played with etc. and reinforce the typically developing child when he/she takes these factors into considerations when playing with the child.

Try to enlist the help of a child or two in the class if the child is mainstreamed in a typically developing class. If the child is in a self-contained setting, check out the possibilities of enlisting a child in the same grade in the school. Perhaps an entire classroom can be recruited with specific children rewarded for completion of their work or demonstrating appropriate behavior by being allowed to participate. Again, be sure the reinforcement for the typically developing children is very "dense". Soon, all of the children in the typical classroom may be working for the chance to become a "special

friend"! This type of "reverse mainstreaming" is often most effective for the child with autism who has difficulty tolerating different settings or large groups of people.

Teachers can often be of assistance in determining which children would be good candidates. Call the parents of the children you wish to enlist prior to speaking with the child. While some parents may be fearful of a situation or disorder they do not understand, most are eager to be of help.   Make sure you stress the benefits to the typically developing child as well as the benefits to your own child.   Let the parent know the teacher recommended their child because of their helpful attitude and recognize that this attitude is because the parent has instilled helpfulness as a value in their home!   Offer to meet with the parents ahead of time and allow them to meet your child. Give them information about autism in general and about your child in specific. Sometimes the general public has a very strong misconception about the nature of autism and each child is so different that it is not possible for them to "know" your child based on information they've received in the media. People are typically most frightened of things they don't understand so the more information you can offer, the less likely it is that the parents will express concerns.

The typically developing children involved in such supportive roles often gain a great deal of self confidence and pride in helping others. In addition, it's often a first step in understanding how and why people are all different and special.   During these times, it should be easy to convince parents and teachers how important it is for all of us to understand and be sensitive to the differences between us!

Typically developing children often begin to support the child with autism in the classroom, in the cafeteria or on the playground. For example, the child might inform another student or teacher that the child with autism "doesn't like loud sounds" nor "needs a break". This can be very helpful to the classroom in general because often the teacher has so many things requiring attention that she is unable to "tune in" to the special needs of the child with autism.   The more people who are aware and sensitive to the child's behaviors, the more likely it is that problems can be addressed before a tantrum begins!   In addition, long, fast friendships are often formed between the children that can grow as the children grow allowing additional opportunities for the child with autism to participate in social settings such as birthday parties and play dates.

4. *Request (mand)*
Once the child with autism is approaching his friend for reinforcement, teach the typically developing child how to prompt the child to request his reinforcers. Model the appropriate prompting techniques, taking turns with the typically developing child. Reinforce the child's ability to prompt correctly. Children can be very quick learners and can become wonderful teachers! Early mands should be for the child's strongest reinforcers and multiple situations should be contrived throughout the school day. For example, let the typically developing child deliver snacks at snack time and toys during play time.

For the "early learner" or those just beginning to tolerate being around other children, the socialization process should occur gradually and carefully.   While the final outcome we desire is that all children are able to learn in the same setting, we have to be sure that we place the child in a setting that he can tolerate as well as learn.

If it is not possible to gradually immerse the child in a classroom setting, parents often have reported success starting this gradual process in a class that is geared towards a favorite activity of the child. For example, a child who loves music may be successfully mainstreamed in a Kindermusic class or a child who enjoys movement may be enrolled in a gymnastics class.

Determining Classroom Readiness

There are three major factors to look at when considering placing of a child with autism into a typical classroom setting.   All parents would love to see their child thrive within a typical classroom setting, but it is important to realize where their child's needs would best be served.   In order to determine appropriate placement we must look at the following three conditions:

1. The goals that the child will be working on that year
2. What environments and additional services that are available
3. Teaching skills of the instructional staff

Every child with special needs is entitled to an Individualized Education Plan (IEP).   This plan is developed by both professionals from various fields and the parents of the child. The IEP states the goals and objectives that the team feels are appropriate for that particular child. It is important that the goals chosen are attainable and measurable. They should be specific and derived from prerequisite skills that the child already exhibits. The IEP should identify critical skills that the child must learn in order to acquire additional skills without highly specialized instruction. The goal is to help the child become as independent as possible and decrease his/her need for restrictive environments.

After the team has developed the IEP, the next step is looking at implementation. At this time it is important for the team to look at the goals just written and determine where teaching will occur. This is an important step in the process. It is important to look at the child's current classroom setting (including peers, instructional staff, set-up, etc). It may not be possible to work on some of the objectives in that setting (i.e. Teaching a child to work on conversational behavior if all of his peers are non-verbal). It is the responsibility of the team to determine the appropriate setting for instruction to occur. Most placement for children with autism involves a combination of educational settings. Each child should be taught with as few restrictions as possible. The setting should be determined by the individual child's ability to function and participate within the setting. Success within the setting is determined by the child's ability to learn from that environment. The team needs to look not only at that particular child's learning history, but also at the availability of resources that can be offered to that child. The team must look at classroom size, student to teacher ratio, and the background training given to the instructors. It is important for the classroom teacher to be aware of the child's special needs and be properly trained to implement effective teaching procedures for that particular child.

The major advantage of inclusion within a typical classroom setting is the ongoing models of typical language and social interaction. Children are not only able to learn the right words to say, but also when to use them. There are many opportunities for modeling of appropriate language for the child to imitate.

This being said, it is important for the team to determine if the child will benefit from these models. Is the child verbal? Does the child have emerging skills of verbal imitation and motor imitation? Does the child have basic communication skills that will allow him to attend to critical aspects of the models? Do the peers have the skills required to help the child? Are they initiating interaction? Are they able to engage the child?

When considering inclusion the team must also look at the disadvantages of inclusion. First and foremost, inclusion lends way to decreased abilities for individualized instruction. The child is now learning with the group and must learn new skills with little or no 1:1 time. The child must be able to understand receptive instructions with ease and have strong imitation skills. It is difficult for the teacher

to deliver individualized instruction and individualized reinforcement. Praise and completion of task serve as primary reinforcement within the classroom setting. It is rare that the teacher will be able to capture the individual motivation of the children.

Another thing to consider is the behavior of the child. Inclusive settings are often less tolerant of disruptive behaviors because of the negative effects it may have on other children. Within an inclusive setting, the function of the child's behavior may not be determined. Instead the behavior may be treated topographically (i.e. if any child screams/hits another child ,he is removed from the activity.). If the function of that behavior was a means of escape, then the behavior was inadvertently reinforced. The instructors may not have the training or the time to devote to the complexity of behavior and may unknowingly reinforce maladaptive behaviors.

Obviously, there are a lot of things to consider when determining if a child is ready for an inclusive setting. It is important to look at all factors. The key is individualization. First determine what the child's educational needs are and then determine the best place for implementation. You may find that a combination of settings is the best situation for that child. Whatever the decisions are, make sure that there is accurate data taken on the child's rate of acquisition and be sure to meet as a team frequently. The child's needs may change over the course of a year. It is important to review his accomplishment and adjust the situations as needed.