

Healthy Manding

Mand instruction does not result in the same outcomes for all learners. Some learn new vocabulary quickly, and others very slowly. In this section, we're especially interested with those things that some students learn other than vocabulary.

Aaron

Aaron was taught to mand last summer. His teachers immediately noticed that he became more engaging. He started approaching his teachers more frequently. He noticed whether or not his teachers were in the room. Having discovered the capacity to access reinforcers simply by asking, Aaron became more interested in a wide variety of play and social behaviors. His teachers were able to teach Aaron to imitate motor responses, echo, and label objects with great ease after teaching him to mand.

Phil

The same teachers taught Phil to mand last summer, too. He was just as excited as Aaron to discover this new power, and started to approach his teachers much more frequently. In fact, Phil tried to prevent his teachers from leaving. If teachers made a move toward the door, or started to put the cap back on the bubbles, Phil would whine and grab their clothing.

After Phil learned to ask for "bubbles" (i.e., "bubu"), his teachers started to teach him to mand "eat". But Phil kept on saying "bubbles" while fixating on whatever food his teachers had in hand. After 4-5 prompts, some whining and several attempts to grab the food, Phil would finally say "ee". After 5-6 consecutive requests for "ee", Phil finally started saying "ee" without first saying "bubu". Noticing this, Phil's teachers decided the best thing was to "give bubbles a holiday" until Phil really learned to mand "eat".

Within 2 days, Phil was consistently saying "ee" without first saying "bubu". Now it was time to reintroduce the bubbles. Guess what Phil said the first time he saw the bubbles? That's right. He said "ee". It took his teachers several attempts, and caused Phil some real frustration, to get Phil to start saying "bubu" again. Now what? Put the "eat" mand on holiday?

Roger

Roger learned several mands easily from this same dedicated group of teachers, but became pushy when teachers tried to transition out of a mand training session. When his teachers tried to turn off the iPad, Roger yelled “iPad” and blocked his teacher’s hands from taking the iPad. Roger also quickly repeated his mands if it took teachers more than 1 second to get a reinforcer. When he asked for “Pop”, his teacher sometimes had to go to the fridge, and Roger followed her, loudly repeating “pop” another 6-7 times.

Tony

Tony learned to request 7 different reinforcers, but only when asked “What do you want?” and with the potential reinforcer visibly present. Tony usually requires an echoic prompt (i.e., he has to be told what to say) the first time he requests a reinforcer during a session, and he can then repeat that mand for the next several minutes as long as his teachers continue to ask him what he wants.

Manding		
<u>Too little (Tony)</u>	<u>Just right (Aaron)</u>	<u>Too much (Phil and Roger)</u>
Waits for teachers to approach	Spontaneously mands a variety of reinforcers at a good rate	Mands at a very high rate
Prompt dependent	Responds to prompts and corrections	Repeats mands multiple times before reinforcement
Very low rate	Perseveres during errors or confusion	Intolerant of prompts or corrections
Gives up easily	Tolerates delays and “no”	Intolerant of delays or “no”

What happened with Phil, Roger and Tony? Why didn’t they reap the same wonderful benefits as Aaron? Their teachers all sewed the same mand training.

The primary reason for the difference is that Aaron’s mand training made him more responsive to his teachers. Aaron not only became more interested in his teachers, but also readily responded to echoic prompts and gestures. Phil and Roger did not. Phil was far too focused on the reinforcer to allow any attention to his teacher. Rather than seeking information or assistance to fix his mand, Phil just became frustrated and repeated the wrong mand more loudly.

Roger had no problem learning new mands, but wouldn't tolerate any delays in reinforcer delivery. This means there is little opening to teach Roger new behaviors after he mands. It also means that he will likely be given reinforcers while whining, unless his teachers try to put whiney mands on extinction (i.e., withhold reinforcement for whiney mands.) And since Roger is emotional when manding, if he does make an error, or if his teachers would like to expand his utterance or improve his articulation, he will not respond well to their prompts.

If Roger's teachers do try to put his mands on extinction, his whines will quickly increase in intensity and there is a good chance that he will eventually escalate to physical aggression. His teachers will need to steadfastly wait through all problem behaviors without providing Roger any type of feedback until he is calm. Some of them will fail to do so. Some will try to calm Roger. *Many will remind Roger that he can have the "pop" when he is calm. [text box: Challenging student behaviors provide an excellent chance for teacher errors....inadvertent reinforcement, which worsens problem behaviors in the future. Phil learned to whine and grab when frustrated. Some teachers will miss these behaviors and reinforce inappropriate mands. Some will remind him to calm down in order to get what he wants. Some will provide "sensory breaks". Some will attempt to ignore the behavior, which will be great if they can wait until the behavior extinguishes, but will be disastrous if the behavior escalates to a level that demands teacher attention.]

Failure to appreciate the complexity of mand training may result in problems with learning other skills, spontaneity and collateral repertoires.

Impact on Learning Other Skills

Not only do Aaron, Phil, Roger and Tony learn new mands differently than each other, but the impact mand training has on future instruction also differs for each. For example, Aaron has learned to respond well to echoic prompts and to gestural prompts. His teachers are now able to use echoic prompts (i.e., tell Aaron what to say) to teach him new tacts (labels). When teaching "receptive body parts", his teachers can point at the correct body part. Aaron also references his teachers socially, and appreciates their positive feedback.

Neither Phil nor Roger has learned to respond to any prompts, and each is in fact frustrated by teacher attempts to prompt. If teachers want to teach Phil or Roger to tact (label) something, their echoic prompts will probably be ineffective, and may be "turn-offs".

Spontaneity

Tony has learned to mand, but not spontaneously. For now, he's very content to access infrequent "reinforcers" while minimizing interactions with his teachers. Perhaps his spontaneity is low because he prefers to avoid interactions, or perhaps he doesn't "think" he is supposed to mand until he is asked what he wants. It's sad to imagine that Tony is waiting around for the opportunity to ask for things, especially if some of these serve basic human needs, such as drinks, jackets, bathroom, etc. And, some day, Tony may not be so patient. He will eventually want something badly enough, for long enough, that he becomes aggressive, self-injurious, or destructive to property.

Collateral Repertoires

For ease of comparison, all students described above mand vocally. Students can also mand through sign language, PECS (Picture Exchange Communication System), Augmentative Communication devices, writing, typing, pointing, morse code or smoke signals (though smoke signals are no longer allowed in public restaurants or government buildings). For purposes of describing repertoires collateral to mand development, mand form is of little importance*.

[Text box: a student learning sign language may become more responsive to physical prompts and/or models, whereas a student learning to speak may become more responsive to vocal prompts. A student learning to use PECS may more readily learn to communicate with a listener, rather than near a listener, as the training sequence requires the student to hand a picture to a listener. AC devices may be less likely to lead to spontaneity, as students may not naturally have them available whenever communication is necessary.]

As students learn to mand, there are several additional repertoires that can, but may not, develop. We call these "collateral repertoires", and for the most part, they can be categorized as things that happen before, during, or after a mand opportunity. We've added item codes from *The Inventory of Good Learner Repertoires* beside repertoire descriptions. We will later elaborate upon the meaning of these repertoires.

Before the mand

- calm approaches (the full "A" domain, C12, C13)
- manding attention (D11-12, E18)

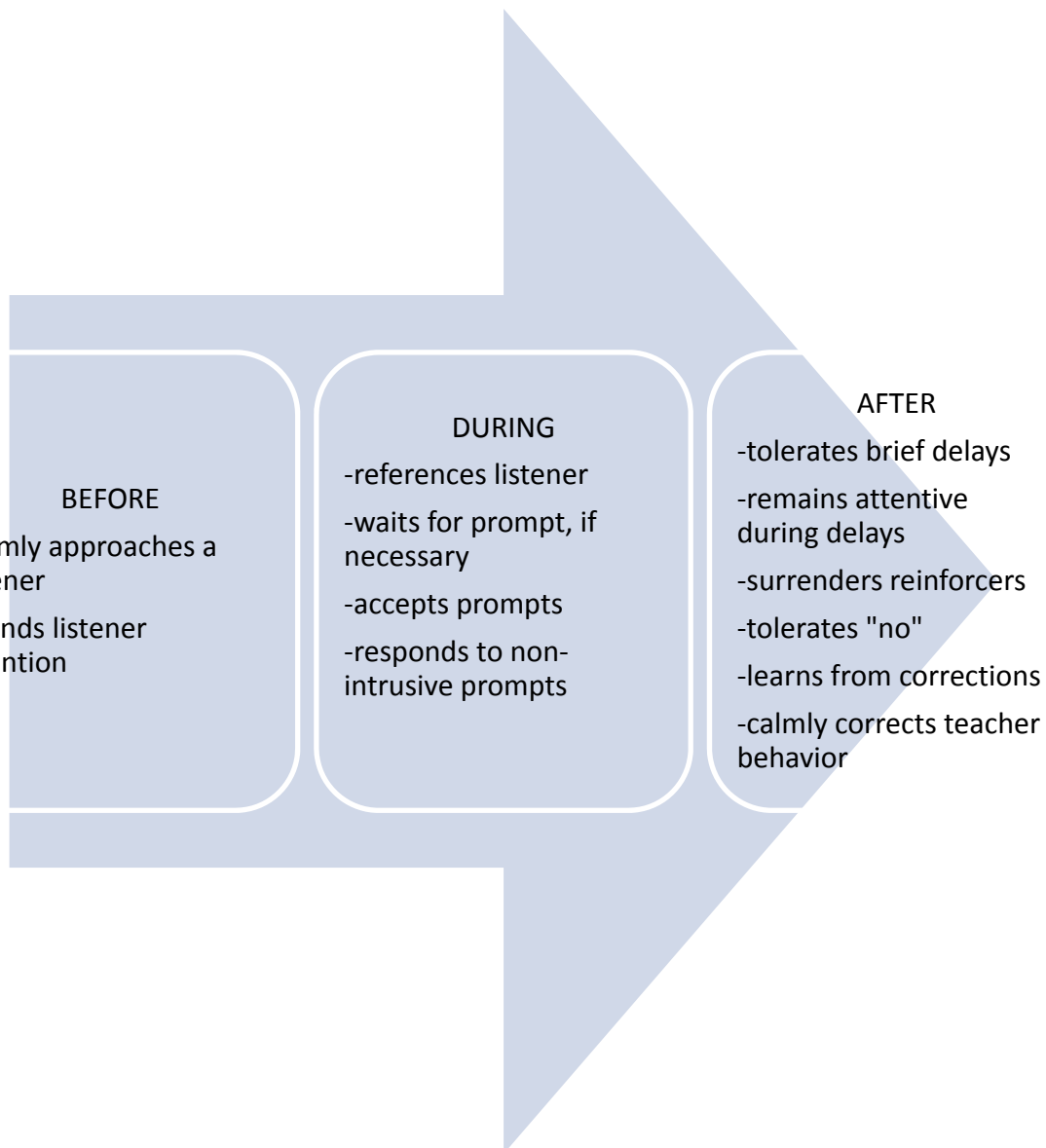
During

- references others
- accepting prompts (D4)
- wait to be prompted, as appropriate (B6) (instead of “scrolling” through possible mands)
- respond to non-intrusive prompts, such as modeling (D5)

After

- surrenders reinforcers (C1)
- tolerates brief delays (C4)
- remains attentive during delays (C5)
- tolerate “no” (C6)
- learn from corrections (D14)
- calmly correct teacher behavior (E18)

*If taught well, mands provide some indirect benefits, too, such as: conditioning others as reinforcers (D11, D12); and, recognizing that others control access to reinforcers (D1).



Excellent teachers develop those repertoires while teaching mands. Elsewhere in *Teaching Early Learner Repertoires*, we describe contrived exercises (e.g., “wait for permission”, “lollygag protocol”, etc.) that can be used to establish these repertoires if mand training has not already done so. But here, we strive to standardize teaching procedures that lead naturally to healthy mand repertoires, averting the need for contrived exercises. Our goal is to raise awareness of these procedures for everyone initiating mand training with students across the world and thereby improve the stability of healthy mand repertoires without the need for contrived exercises.

So, what are these excellent teachers doing? They are attending to more things than an average teacher, and are timing prompts, corrective feedback, and reinforcement accordingly.

Let's start with average mand training. Most teachers place primary emphasis on the "words" learned, attempting to teach as many words as possible, and to develop spontaneity. As such, typical mand data sheets look something like the one in Figure _____.

In interest of space, this form only contains room for 3 instructional opportunities, though a sheet like this usually provides room for data on 10-20 opportunities.

Figure _____

Reinforcer	<i>Bubbles</i>				<i>Eat</i>				<i>Music</i>				<i>Swing</i>			
	V	pv	item	Ind	V	pv	Item	Ind	V	pv	Item	Ind	V	pv	item	Ind
1																
2																
3																

V = Vocal prompt; pv = partial vocal; item = item visually present; Ind = independent

This data sheet provides a good way to track prompt fading for a student who needs quite a few repetitions in order for prompts to be faded. An observant teacher using this data sheet might capture the fact that Phil is not yet benefiting from prompts. Phil's data would have a lot of "E's" (i.e., echoic prompts), and hopefully his teachers will have scored "-" each time Phil failed to respond to an echoic prompt. Phil's data should look like this...

Reinforcer	<i>Bubbles</i>				<i>Eat</i>				<i>Music</i>				<i>Swing</i>			
	V	pv	item	Ind	V	pv	Item	Ind	V	pv	Item	Ind	V	pv	item	Ind
1			+		-											
2					-											
3					-											
4					-											
5					+											
6																

Too frequently, teachers fail to score non-responsiveness to prompts, only scoring the "+" for eventual responsiveness. If his teachers have only scored the fact that Phil ultimately responded to an echoic prompt, this data sheet will not help them capture Phil's issue.

Our experience tells us that teachers require training that emphasizes awareness of the need to repeat directions/prompts, or most will only score "+" to show that Phil eventually responded to an echoic prompt.

The data sheet in Figure _____ provides no way to track Roger's impatience. He'll score "+" for independent mands. Tony will score "+" with the item present, and sometimes with an echoic prompt.

Left unnoticed, manding challenges will lead to problem behaviors that interfere with future instruction, and some of these behaviors will inadvertently be reinforced, leading to further worsening. Teachers are not yet in position to teach Phil or Roger new skills easily, because each is panicked about getting what he wants and neither is responsive to prompts.

A data sheet like the one pictured below, in Figure ____, should help to capture the impediments to Phil’s and Roger’s healthy mand development.

Figure _____

Date	Mand Target	Found listener? (yes/no)	+/-/p	Calm? (Yes/no)	Tolerated brief delay? (Yes/no/NA)	Corrected teacher “confusion”? (Yes/no/NA)

You could use a sheet like this to probe the first mand for each target each day. Depending upon your current priority, it will probably be better for you to gather more direct data, such as by clicking “calm mands” and “whiney mands” throughout the day. Your data may also need to more specifically identify types of prompts.

I encourage special education teachers to include sub-goals from this page in their quarterly benchmarks.

Aaron would perform beautifully on this sheet, but he’s doing well anyway and should have an ambitious curriculum. After a few initial weeks of use, and after Aaron proves the ability to calmly persevere while listeners feign confusion, Aaron’s teachers can stop using this sheet.

What will Phil and Roger’s data look like? Each will score “-” for remaining calm while attempting to mand, and Roger will score “-” for failing to tolerate a brief delay in reinforcer delivery. The data sheet requires teachers to attend to whether students are calm.

Aaron, Phil, and Roger will all score well for “found listener”, but Tony will not. Tony continues to depend upon his teachers to approach him and ask what he wants.

Basic mand training

Mand training requires student motivation (i.e., students ask for items/activities that they want). For a review of how to establish student motivation for manding, please see *Teaching Language to Children with Autism or Other Developmental Disabilities* (Sundberg & Partington, 1998). Sundberg and Partington (1998) also teach you which prompts to use for students learning vocal or sign language, and how to fade those prompts.

Here, we’re going to add details for earning the collateral repertoires described above. If you prefer to think of it another way, here we are helping you avoid developing tyrannical manding machines, scrollers* [text box: a student is sometimes referred to as a “scroller” when, rather than pausing to consider the correct mand form, he simply rifles through learned words until his listener reinforces], prompt-dependent manders, and students who mand to themselves.

Early Mand Training

Let’s say your student tends to like potato chips. Who doesn’t? You’ve never worked on mands with this guy, so he doesn’t really know it’s possible to get potato chips when he wants them yet. He might initially be a bit sluggish or stand-offish. After establishing his interest in the chips, you will immediately begin work on his initiations (full A domain, C12-13, D11-12, E18). He will prove that he wants the chips at the same time as learning to initiate.

Shortly after he learns that he can access chips, he may become “impatient”...he may grab for the chips, whine, or even aggress. If you manage his impatience correctly (as scripted below), you will make progress on several more collateral repertoires, including at least (the full A domain, social referencing, B6, D4-5)

1. Approach him and hand him a chip, while simultaneously saying “chip”.
2. Wait for him to finish chewing the chip and licking his fingers. Watch him closely for any indications that he wants more chips. Does he look your way? Does he look in any places he has seen chips in the past?
3. At the subtlest indication, ask him “chip?” while extending another potato chip close enough for him to take. (*Allowing him to turn towards you begins to establish your learner’s capacity to find a listener for his mands, and it also proves that he wants a chip at that moment.)

4. Repeat steps 2 and 3 several times, gradually requiring him to provide clearer indications that he wants another chip.
5. After you have delivered several chips for slight improvement in your student's ability to find a "listener", and your student is now at least subtly "approaching" you at a reasonable rate, prepare to prompt a mand. The next time he approaches you, hold the chips slightly out of his reach and say "chip?"
 - a) If he calmly says anything at all, enthusiastically say "yes, chip!" and give him a chip.
 - b) If, at any point in this process, your student protests, even very slightly, move the chips a little further from him. (*This includes even modest resistance of physical prompts to perform a sign.) I usually add a short verbal, like "ooh" as I move the reinforcer away. I use this to "mark" the behavior that I'm correcting. Never prompt a mand while your student is actively protesting!
 - c) If, at any point in this process, your student reaches for the chips before you have extended a chip to him, shadow his hand away, pull the chips a little further from him, and prompt him to say "chip". *Be certain that he is not protesting at the time you prompt "chip". You cannot try to prompt fast enough to compete with a pushy manner, nor loud enough to shout over a loud/incorrect manner. In fact, you should pause very briefly after pulling the chips back, and assure your student is ready to receive your prompt. Ideally, your student will reference you before you prompt "chip". **If you really get this timing right, not only will your student not resist prompts, he will "ask" for them.
 - d) If you've pulled the chips back slightly for any reason, and your student leaves, let him go. Wait up to a few minutes, and if he returns, prompt a mand. If he doesn't return, move on to a different activity or a different reinforcer.
6. If your student's mand approximation falls below your current expectation (and your expectation is well-founded), follow it with a prompt for a better response. If he tends to repeat his mand attempts, wait until there is a break in his mand repetition before prompting.
7. If a relatively novice student approaches you and calmly mands with the incorrect form (e.g., he says "eat" when it's clear he wants "movie"), wait briefly for a break in his responding, prompt the correct response, and reinforce if he now responds correctly.

More Advanced Mand Training

As your student gains competence manding at least several different reinforcers, you can raise your expectations in several ways. *Of course, you can also continue to add new vocabulary, fade prompts, and improve articulation. You may need to decide between those priorities and

some of the new challenges described below, but your learner should ultimately be taught to overcome all of these challenges.

1. If your student errs on a “mastered” mand, wait for your chance to prompt (i.e., when he is not actively manding or protesting, and ideally references you for help). After he responds correctly to your prompt, ask him again “What do you want?” This is a “transfer trial”, and it should improve first-attempt accuracy in the future.
2. Sometimes, after an accurate mand, move a little more slowly than usual to deliver the reinforcer. (*This is the “Lollygag Protocol”.) You may take only a few seconds more than usual.
 - a) If your student remains attentive and calm, deliver the reinforcer.
 - b) If he begins to protest, “mark” that with a quick vocal “ooh” while simultaneously freezing progress toward getting the reinforcer. A student experienced with this modest form of corrective feedback will immediately stop protesting. You can then deliver the reinforcer.
 - c) If your student left you or began engaging in another behavior (e.g., self-stimulatory) while you slowly readied his reinforcer, you can call his name once, at a conversational volume, and say “I have your _____.” Do not call his name or mention that you have the reinforcer more than once! If he notices that the reinforcer is available, terrific! If not, wait 5-10 seconds, then put the potential reinforcer away.
3. After establishing good patience and attending with #2 above, you can follow some mands with a direction to “wait”. Your student needs to be manding at a pretty good rate before you introduce this expectation, because the waiting will at least temporarily weaken the mands. Go to page ____ and follow the “tolerance for delays in reinforcer delivery” protocol.
4. After steps 1-3 are all well-established, you will:
 - a) Sometimes follow a mand by acting confused (such as by giving your student something he didn’t ask for). Your student must calmly correct your behavior, and if he protests, you will freeze as described above.
 - b) Sometimes pretend not to notice that your student has manded (setting the occasion for a more pronounced attention mand, or perhaps for a repeated attempt at an attention mand). As always, your student must remain calm, or you will freeze as described above.
 - c) Sometimes tell him “no”. If he calmly accepts this, feel free to offer other good options. If he protests, ignore.