Module: Prompting

Steps for Implementation: Least-to-Most Prompts

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Preparing for the Intervention

The least-to-most prompting procedure goes by many different names, including the system of least prompts, and increasing assistance. The least-to-most prompting procedure can be used with discrete (single behaviors or relatively short duration) and chained skills (a series of behaviors sequenced together to form a complex skill). With this procedure, a hierarchy of prompts is used, and this hierarchy has a minimum of three levels. The first level is always the independent level (i.e., no prompts), and the remaining levels are sequenced from the least amount of help to the most amount of help. The last level of the hierarchy should be a controlling prompt – one that results in the learner doing the behavior correctly.

Step 1. Identifying the Target Skill/Behavior

In Step 1, teachers and other practitioners define the target behavior or skill that they want a learner with ASD to acquire.

1. Teacher/practitioners define the target behavior in terms that are observable and measurable.

For example, “Manuel will increase his social skills” is not an observable or measurable definition of a target behavior. On the other hand, the definition, “John will initiate (by speaking, giving a toy, or touching) three interactions with peers” allows teachers/practitioners to observe directly the target behavior and measure the learner’s progress.

2. Teachers/practitioners identify the target behavior as being either:

    a. *a discrete task*. A discrete task is one that requires a single response and is of relatively short duration. Examples include pointing to objects, identifying letters, and answering questions.

    b. *a chained task*. Chained tasks are those requiring a number of individual behaviors that are sequenced together to form a more complex skill. Chained tasks require teachers and practitioners to determine (1) the number and sequence of steps in the chain, (2) whether to teach one step at a time, or (3) whether to teach all steps at the same time. Examples of chained tasks include washing hands, getting dressed, putting on coat, cooking, and transitioning from one class to the next. In most cases, teach the chain in the sequence that is usually used by others who are competent at completing the task.

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Step 2. Identifying the Target Stimulus

In Step 2, the teacher/practitioner must identify the target stimulus. The target stimulus is the event or thing that cues the learner with ASD to engage in the target behavior after instruction has stopped.

1. Teachers/practitioners identify one of the following as the target stimulus:

    a. *a naturally occurring event*. Examples: Having dirty hands after finger painting is the target stimulus for hand washing; needing to use the bathroom is the target stimulus for asking to use the restroom or moving to the bathroom and using it.

    b. *completion of one event or activity*. Examples: Completing an instructional activity is the target stimulus for putting materials away, cleaning up the area, and moving to the area for the next activity; finishing one job is the target stimulus for doing the next job (e.g., finishing stocking a shelf in the store, is the target stimulus for taking the boxes to the trash).

    c. *an external signal*. Examples: A ringing bell may signal it is time to go to the next class; a work shift is completed in an employment situation; or the clothing is dry and should be taken from the dryer, sorted, folded, and put away.

Sometimes the external event may be something someone else does. For example, when the teacher passes out a test, this may be the target stimulus for learners to write their names on the answer sheet; or a peer greeting the learner with ASD is the stimulus for returning the greeting; or the target stimulus for answering a question is when someone asks a question.

Clearly specifying the target stimulus allows the teacher to ensure learners are attending to the target stimulus before starting the chain. This will reduce dependence on teacher instructions and teacher prompts.

Step 3. Selecting Cues or Task Directions

In Step 3, teachers and other practitioners identify the stimulus that will cue the learner to perform the target skill. A cue basically tells the learner that it is time to use the target skill. Cues and task directions are bridges used in instruction to help learners identify the target stimulus and then engage in the target response. For example, if a teacher is teaching a boy to take off and hang up his coat when he enters the classroom, the target stimulus is going indoors (i.e., entering a room from outside cues most of us to take off and hang up our coat). However, during instruction, the teacher would likely greet the child warmly, and then say, “Take off your coat and hang it up.” This statement tells the boy that some behavior is expected before he starts his school day. This statement does not tell him how to do the skills, it just tells him that it is time to do them.

1. Teachers/practitioners select at least one of the following cues to begin the teaching exchange (trial):

a. *material or environmental manipulation*. Getting the materials set up and ready before the learner comes to the activity (e.g., setting up tasks for individual work time, setting the table before snack, placing playdough and toys on the table, arranging desks for small group work).

b. *task direction*. Telling learner to get his coat on to go home, giving a picture card to go wash hands, presenting a flashcard with a sight word on it and asking, "What is this?"

c. *naturally occurring event*. Ringing phone, fire alarm, school bus arriving after school.

2. Teachers/practitioners identify one of the following as a time to give the cue/task direction:

   a. *at the first prompt level (independent level)*. For example, if the teacher wants a learner with ASD to learn to wash his hands, the target stimulus is dirty hands, and the cue might be the teacher saying, "Time to wash your hands." This task direction would not be repeated. This is most appropriate when a learner with ASD is starting to use the target skill independently.

   b. *at each step of the prompt hierarchy*. In a prompt hierarchy, prompts are sequenced from least to most assistance. For example, if a teacher wants a learner with ASD to learn to wash his hands, the target stimulus is dirty hands, and the cue might be the teacher saying, "Wash your hands." If the learner does not respond, the teacher might then say, "Wash your hands" while pointing to the faucet. If the learner does not respond again, the teacher again says, "Wash your hands" while taking the learner's hand and placing it on the faucet. In this example, the cue/task direction is provided at the independent level, and at each additional prompt level of the hierarchy. This is most appropriate when a learner is first being taught how to use the target skill.

Step 4. Selecting Reinforcers

Step 4 is focused on selecting reinforcers that are appropriate for individual learners with ASD, task demands, and target skills. The goal of reinforcement is to increase the likelihood that the learner with ASD will use the target skill again in the future. Therefore, selected reinforcers should be highly motivating to the learner with ASD.

1. When choosing reinforcers for learners with ASD, teachers/practitioners identify:

   a. what has motivated learners in the past and
   b. learners' deprivation state (i.e., What do they want that they can't easily get?).

For example, a learner with ASD may continually request Goldfish crackers that are placed on a high shelf; however, the teacher only gives them to the learner once a week. Because the

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learner wants the Goldfish crackers, but cannot easily get them, this is considered his deprivation state.

2. Teachers/practitioners identify a reinforcer that is appropriate for the target skill and instructional task.

The chosen reinforcer should be as natural as possible. That is, it should be related to the activity that is being implemented. For example, it would be natural for a learner with ASD to get free time or have access to a preferred activity/object after taking part in a challenging, non-preferred learning activity. Another example would be to use food as a reinforcer during food related activities such as snack time or lunch when the target skill is requesting.

Some examples of positive reinforcement include:

- preferred activity/favorite toy (e.g., special job, squishy ball, sand table),
- free time,
- verbal praise,
- food-related activity,
- opportunities to be away from others,
- objects used in stereotypic behavior,
- preferred objects and games, and
- time with a favorite adult or peer.

Please refer to *Positive Reinforcement: Steps for Implementation* (National Professional Development Center on ASD, 2008) for more information about reinforcement.

Step 5. Identifying Activities and Times for Teaching

Least-to-most prompting can be used during direct instructional sessions (e.g., individual, small groups). It can also be embedded into other ongoing activities such as free time, play time, large group instructional activities, transitions, in community-based activities, and at times the learner with ASD needs to use the target behavior. For example, a teacher could work on "requesting help" when a learner is getting his coat on to go home at the end of the day. The selection of activities and materials is dependent upon the skill(s) that a learner or small group of learners need to acquire. Teachers and other practitioners also should consider using favorite activities or materials during teaching activities to increase motivation.

When identifying the activities and times for teaching with the least-to-most prompting procedure, the teacher/practitioner must consider a number of issues. These include whether teaching can occur in the situation in which the learner with ASD needs the skill, whether the teaching will be embedded into other activities, and whether the skill will be taught during direct instructional sessions (individual or group).

1. Before implementing the intervention, teachers/practitioners identify all the times during the day the learner may need to use the target skill.

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This is easy with some skills, such as putting on and taking off clothing, washing hands, using a spoon, cleaning up a work area or station, or going to the bathroom. When this arrangement is used, then the teacher/practitioner must decide who will do the instruction.

2. Before embedding prompting procedures, teachers/practitioners identify specific routines and activities in which they can be incorporated to teach target skills.

For example, free time can be used to teach social interactions, conversations between children, pretend play, and so forth. Circle time or large group instructional time may be a time to embed instruction on academic tasks. When embedding, the teacher/practitioner must decide who will do it, what will cue the teacher to implement a trial (e.g., learner beginning a particular activity, learner interacting with a specific toy), and how much time will pass between trials (e.g., five minutes, 15 minutes, two hours).

3. With skills that will be taught during direct instruction (individual or in small groups), teachers/practitioners identify when and where the instruction will occur.

Step 6. Selecting the Number of Levels in the Hierarchy

In Step 6, teachers and other practitioners select the number of prompt levels to be used in the prompt hierarchy. With the least-to-most prompting procedure, the hierarchy must have at least three levels, but it may have more. The first level is always the independent level (no prompts are used), and the last level uses the controlling prompt (one that ensures the learner with ASD responds correctly). The other prompt levels, called intermediate levels, provide more help than the independent level and less help than the controlling prompt.

1. When selecting the number of prompt levels, teachers/practitioners consider:

    a. *task characteristics*. With easy skills, fewer levels of the hierarchy are recommended, and with more difficult skills, more levels of the hierarchy may be necessary. These decisions, of course, are made individually for each learner and task. Often, a three-level hierarchy is adequate (independent level, intermediate level, and controlling prompt level). However, sometimes, the intermediate prompt levels have information in them that is useful to learn. For example, when teaching a learner to “sound out” words, the intermediate prompt levels might be the sounds for individual letters or blends, or rules for applying phonetic principles (e.g., “an ‘e’ on the end makes the middle vowel say its name”); and the controlling prompt level might be a verbal model of the word.

    b. *learner characteristics*. As more levels are added to the prompting hierarchy, learners are required to wait longer during initial instruction to obtain the assistance needed to respond correctly. Having to go through several prompt levels before adequate help is available may result in less attention and more interfering behavior (e.g., disruptive, stereotypical, repetitive). For example, if a learner with ASD has difficulty staying engaged in a task for a long period of time, then a prompting

hierarchy that includes several levels would not be a good choice. On the other hand, if a learner needs quite a bit of assistance to complete a skill successfully then a prompting hierarchy with more levels would be appropriate.

c. *time available for instruction*. In general, when more levels are included in a prompting hierarchy, each trial takes longer (particularly during initial instruction) and fewer trials can be implemented during instructional sessions.

The least-to-most prompting procedure requires a minimum of three prompt levels (independent, intermediate, and controlling prompt). There is no limit to how many levels can be used, but generally no more than five levels are practical. Five levels would have an independent level, three intermediate levels (each providing more assistance than the former), and the controlling prompt. The least-to-most procedure must always start with the independent level and end with a controlling prompt.

Step 7. Selecting the Types of Prompts to Be Used

In Step 7, teachers and other practitioners select the types of prompts that will be used at each level of the prompting hierarchy. These prompts may be from the same or different types of prompts.

1. Teachers/practitioners select at least one of the following prompts for each level of the prompting hierarchy:

    a. gestural,
    b. verbal (e.g., clues, hints, commands, questions, rule statements),
    c. visual (e.g., pictures, objects),
    d. model (full, partial—can be verbal or motoric), and/or
    e. physical (full, partial).

Teachers and other practitioners use any number of prompt combinations. Within the hierarchy, teachers and other practitioners can use different types of prompts (e.g., gestural, full physical) or different variations of the same type (e.g., partial physical prompts followed by full physical prompts).

2. Teachers/practitioners choose prompt types based upon:

    a. *learner characteristics*. Teachers should consider the individual learner with ASD when selecting prompts. For example, if the learner does not like to be touched, then full physical prompts might not be a good choice. Conversely, if the learner seeks being touched, then full physical prompts may not be a good choice, either. For learners who can easily imitate others, models are often good prompts; but if learners can not imitate adults, then models would not be a wise choice.

    b. *skill characteristics*. Teachers and other practitioners should consider matching the prompt type with the skill being taught. For example, if a teacher is trying to teach a

learner how to respond to "What's that?" then verbal and model prompts would be most helpful. If a learner is being taught how to follow his picture schedule, then gestural or and pictorial prompts might be more helpful in this situation.

The last prompt level in the hierarchy must always be the controlling prompt. That is, when the prompt is provided, the learner with ASD will do the target behavior.

Step 8. Sequencing Prompts from Least-to-Most Assistance

In this step, teachers and other practitioners arrange prompts from least to most intrusive. That is, they organize the prompt hierarchy so that the first level is the independent level. In this level, the target stimulus and perhaps a cue or task direction are present. Teachers/practitioners then provide prompts that provide progressively more assistance. The last level in the prompting hierarchy ensures that learners with ASD use the target skill successfully (controlling prompt).

1. When sequencing the prompting hierarchy, teachers/practitioners determine which type of prompt provides a learner with:

    a. the least amount of assistance,
    b. more information, and
    c. the most amount of assistance (i.e., enough to be correct).

The following questions may be helpful when teachers and other practitioners attempt to sequence prompts from least to most assistance:

- Which types of prompts have been used to teach a learner new skills?
- Has the learner been taught how to use this type of skill before, or have other practitioners focused on different types of skills?
- What types of prompts have been most successful when teaching the learner a variety of skills?
- When a prompt is needed, what type of prompt is used most often with the learner?
- If this skill/task has been successfully taught to other learners with ASD, what was the least-to-most sequence?
- Does the learner use the skill correctly when each prompt is used separately? (Wolery, Ault, & Doyle, 1992).

In the example that follows, the hierarchy has four levels. The first level is the independent level. In the first prompt level (2nd level of the hierarchy), the teacher uses as visual prompt (holding up the pitcher and having an inquisitive facial expression). In the second prompt level (3rd level of the hierarchy), the teacher uses a verbal prompt in the form of a question. In the last prompt level (4th of the hierarchy), the teacher uses a verbal model of the target response.

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The following table provides an example prompt hierarchy selected for a learner with ASD.

Skill: Requesting "more"

Level	Cue and Type of Prompt	Example
Independent (Learner is able to perform the target skill without any additional assistance.)	*Target stimulus*: Empty cup when the learner is thirsty *Cue*: Pitcher of juice Material/environmental manipulation	Taylor finishes a cup of juice at snack. Taylor reaches for the pitcher of juice that is slightly out of reach.
Intermediate (first prompt level)	*Target stimulus*: Empty cup when the learner is thirsty *Cue*: Pitcher of juice Gestural prompt	Teacher holds up juice pitcher, shrugs shoulders, and raises eyebrows as if to say, "What do you want?"
Intermediate (second prompt level)	*Target stimulus*: Empty cup when the learner is thirsty *Cue*: Pitcher of juice Verbal prompt	Taylor reaches for the juice pitcher. Teacher says, "What do you want?"
Controlling (Prompt is provided that ensures the learner will use the target skills correctly.)	*Target stimulus*: Empty cup when the learner is thirsty *Cue*: Pitcher of juice Model prompt	Taylor reaches for the juice pitcher. Teacher says, "More, please." Taylor says, "More." Teacher pours Taylor more juice.

Step 9. Determining the Length of the Response Interval

After each level of the prompting hierarchy, the learner with ASD has the opportunity to respond. This is called the response interval. At each level, teachers/practitioners provide learners with the same amount of time to respond. If the learner responds correctly, the teacher/practitioner provides reinforcement (e.g., more juice, "Good job," preferred activity). If the learner does not use the target skill correctly, the teacher/practitioner provides the prompt in the next level of the hierarchy.

1. When selecting a response interval, teachers/practitioners time how long it takes the learner to complete similar skills/tasks.

2. When determining the length of the response interval, teachers/practitioners consider:

    a. *learner characteristics*. Teachers/practitioners consider factors such as how long it usually takes the learner to respond when the learner knows how to do the behavior. Adding a couple of seconds to this usual time is generally adequate for determining the length of the response interval.

b. *task characteristics*. Teachers/practitioners might consider how long it takes another learner with ASD to use a similar skill. For example, if it takes another learner four seconds to respond to a verbal prompt, then the teacher might try using four seconds as the response interval for this particular learner with ASD.

c. *the amount of time a learner will be allowed to begin and complete the task*. For example, a learner with ASD may begin writing his name within 4 seconds of the cue; however, it may take him 2 minutes to complete the task. In this case, setting the response interval at 6 seconds for the learner to start the task, and 2.5 minutes to complete it is reasonable. For tasks that require more than one step (e.g., setting the table, getting dressed, washing hands), teachers/practitioners use the same response interval for each step; however, some skills may require more time than others to complete (e.g., turning on water takes less time than rubbing soap between hands).

This information gives teachers and other practitioners a good starting point for the response interval. The response interval for each level of the prompt hierarchy should be the same to make it easy for the teacher/practitioner to remember, and to make it predictable for the learner.

3. Teachers/practitioners identify an initial response interval of 3 to 5 seconds.

Generally, the response interval is only a few seconds. Often 3, 4, or 5 seconds is adequate. The longer the response interval, the longer each trial (particularly during initial instruction) will take.

Because this procedure requires the learner to wait for the assistance, the procedure will be more effective with learners who wait for help when they are faced with unknown tasks. This waiting need only be for a small number of seconds. This procedure will be less effective with learners who impulsively respond regardless of whether they know the correct response.

Implementing the Intervention

Step 1. Establishing Learner Attention, Delivering the Stimulus, and Providing the Cue

1. Teachers/practitioners establish the learner's attention by:

   a. delivering the target stimulus,
   b. using an attention-getting strategy (e.g., saying learner's name; saying, "Look;" having the learner touch the stimulus); or
   c. presenting the cue or task direction.

Eye contact is often used as an indication of attention, but other behaviors such as matching the stimulus, touching it, repeating the task direction also have been used. Once attention is

secured, the teacher/practitioner presents the cue or task direction to let learners know what they are expected to do.

EXAMPLE: A teacher says, "David." David looks at the teacher. She presents a flash card with the word "stop" on it (target stimulus) and says, "What is this, David?" while pointing at the flash card.

The teacher secured the learner's attention by saying his name. The target stimulus is the word "stop." The cue or task direction in this example is the teacher saying, "What is this, David?"

Step 2. Waiting for the Learner to Respond

1. Teachers/practitioners wait for the learner to respond before providing increased support.

Prompting procedures often are used in conjunction with time delay, another evidence-based practice. Teachers/practitioners generally wait 3 to 5 seconds before providing any additional assistance to the learner with ASD. **Please refer to *Time Delay: Steps for Implementation* (National Professional Development Center on ASD, 2008) for more information about time delay.**

Step 3. Responding to Learners' Attempts

In Step 3, teachers and practitioners respond to learners when they use the target skill correctly, incorrectly, or when they do not attempt to use the skill at all.

1. If the learner's response is correct, teachers/practitioners immediately provide positive feedback by:

    a. offering reinforcement (e.g., praise, access to materials, break) and
    b. stating what the learner did (e.g., "You said, 'More.' Here's more snack," "You said, 'Two times two is four.' That's right. Two times two is four.")

2. If the learner's response is incorrect, teachers/practitioners:

    a. interrupt the incorrect response and
    b. deliver the next prompt in the hierarchy.

3. If the learner does not respond, teachers/practitioners use the prompt in the next level of the prompting hierarchy.

4. Teachers/practitioners continue through the prompting hierarchy until a correct response (prompted correct response) occurs, and then deliver the reinforcer.

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Step 4. Monitoring Learner Outcomes

An important component of the least-to-most prompting procedure is collecting data to monitor learner outcomes. When using this prompting procedure, learners can make five types of responses:

- *unprompted correct responses.* Correct response at the independent level of the hierarchy. This is the goal of instruction; thus, these responses should be reinforced and counted.
- *prompted correct responses*. Any correct response that occurs after any of the prompt levels of the hierarchy. These responses should be reinforced and counted.
- *unprompted errors.* Incorrect responses made at the independent level of the hierarchy (before any prompts are delivered). These responses should also be counted.
- *prompted errors.* Incorrect responses made after any of the prompt levels of the hierarchy. Again, these responses should be counted.
- *no responses*. Learner does not make any response after the delivery of the last level in the hierarchy.

Teachers and other practitioners should track all of these responses because their occurrence provides valuable information about the learner's performance and progress.

1. Teachers/practitioners record each type of response that occurs.

Usually, the only responses that are recorded are the last one in the trial.

2. Teachers/practitioners review data to determine if progress is being made.

The first step in this process is to determine whether the unprompted and prompted correct responses total 100% of the learner's performance. The second step is to see if the percentage of unprompted correct responses is increasing over time.

The following tables illustrate two data sheets that can be used when teaching discrete tasks and tasks that require a number of different steps. The first data collection sheet is used with learning activities that focus on teaching discrete skills (e.g., answering questions, pointing to letters). The second data collection sheet is used with chaining tasks that include multiple steps (e.g., washing hands, putting on coat, transitioning from one class to the next).

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Table 1. Example Data Collection Sheet for Discrete Skills

Trial	Target stimulus	Level 1	Level 2	Level 3	Level 4
1	Pitcher of juice	0	0	-	+
2	Box of crackers	0	-	0	+
3	Bottle of bubbles	0	0	-	+
Summary Data		0 correct	0 correct	0 correct	3 correct

Key: + = correct; - = incorrect; 0 = no response Adapted from Wolery, Ault, & Doyle (1992)

Table 2. Example Data Collection Sheet for Chaining Tasks

Trial 1 Washing hands		Level 1 (Independent)	Level 2 (Verbal)	Level 3 (Model)	Level 4 (Physical)
1. Turn on water		0	-	0	+
2. Add soap to running water		0	0	0	+
3. Put dishes in sink		0	-	-	+
4. Wash dishes with sponge		0	0	-	+
Trial 2 Washing hands		**Level 1 (Independent)**	**Level 2 (Verbal)**	**Level 3 (Model)**	**Level 4 (Physical)**
1. Turn on water		0	0	-	+
2. Add soap to running water		0	0	-	+
3. Put dishes in sink		0	0	-	+
4. Wash dishes with sponge		-	+	+	+
Summary Data	Correct	0 correct	1 correct	1 correct	8 correct
		0%	12.5%	12.5%	100%
	Incorrect	1 incorrect	2 incorrect	5 incorrect	0 incorrect
		12.5%	25%	62.5%	0%
	No response	7 no response	5 no response	5 no response	0 no response
		87.5%	62.5%	62.5%	0%

Key: + = correct; - = incorrect; 0 = no response Adapted from Wolery, Ault, & Doyle (1992)

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These data help teachers make decisions about when to make changes in the prompting procedure and whether the learner is beginning to respond at lower levels in the hierarchy. The following table displays common problems and solutions that teachers/practitioners might encounter when using the least-to-most prompting procedure.

Table 3. Common Problems and Solutions When Implementing the Least-to-Most Prompting Procedure

Problem	**Solution**
Learner consistently makes errors at the final level in the prompting hierarchy.	Teacher selects a new, more controlling prompt that will ensure that the learner uses the skill correctly.
Learner consistently makes errors at an intermediate level in the prompting hierarchy.	The teacher (1) increases the number of levels in the hierarchy (use an additional prompt), (2) selects a new type of prompt, or (3) examines the difficulty of the task.
Learner consistently waits for a prompt instead of attempting to respond to the independent level after several sessions of instruction.	The teacher differentially reinforces prompted and unprompted correct responses **OR** eliminates reinforcement for prompted correct responses altogether.
Learner consistently fails to respond at any level, including the final level.	The teacher finds a more powerful reinforce.

Adapted from Wolery, Ault, & Doyle (1992)

References

Wolery, M., Ault, M.J., & Doyle, P.M. (1992). *Teaching students with moderate and severe disabilities: Use of response prompting strategies*. White Plains, NY: Longman.