Intensive Intervention Practice Guide: System of Least Prompts

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What is it?

Research and experience show that all learners, regardless of diagnosis, need frequent practice and feedback to develop useful skills (MacDuff, Krantz, & McClannahan, 2001). Educators are tasked with helping all students learn new skills and rewarding their efforts when they succeed. However, students with a diagnosis such as autism often do not learn from common everyday events or interactions with peers. These students may not immediately respond to natural cues such as spoken instruction, leaving educators to determine how to effectively teach adequate communication skills. Teachers need to help students display new functional responses, provide frequent and immediate feedback, and allow many opportunities for skills to be practiced and generalized across multiple settings. All of this must be done in such a way as to ensure that the skills can be performed independently, without extra cues from others (MacDuff, et al., 2001).

In this *Current Practice Alert*, we investigate the system of least prompts (SLP), which is also referred to as least-to-most *prompting* and increasing assistance (Neitzel & Wolery, 2009). SLP is a systematic prompting procedure in which an instructor provides increasing assistance to an individual until they provide the intended response. The ideology behind SLP is the assumption of the individual's competence with the particular skill and that it is valuable for them to have the opportunity to perform the skill independently. Though the instructor presumes the individual can accomplish the task without additional assistance beyond a *stimulus*, they are ready with predetermined prompts to assist the individual if help is needed. Only at the point of struggle (often identified as an incorrect response or three seconds of nonresponding [Neitzel & Wolery, 2009]) will the instructor intervene and provide the prompts. Therefore, SLP provides a context in which an individual is guaranteed to complete a task at the most independent level possible and that the instructor will not provide more assistance than necessary.

SLP can be used to teach behaviors that are discrete (e.g. raising a hand or pointing to a picture) and those that are *chained* (e.g. hand washing or putting on pants). Specifically, it is often used to teach children and adults with significant disabilities functional skills such as making phone calls (Manley, Collins, Stenhoff, & Kleinert, 2008), cooking (Mechling, Gast, & Fields, 2008), office skills (Smith, Ayres, Alexandra, & Mataras, 2013) and using money (Browder & Grasso, 1999). It is used with the same population to teach academic skills such as reading sight words (Gast, Ault, Wolery, Doyle, & Belanger, 1988), listening comprehension (Hudson, Browder, & Jimenez, 2014), and number identification (Skibo, Mims, & Spooner, 2011). SLP is also used to teach communication skills to students (Filla, Wolery, & Anthony, 1999), transition skills (Cihak, Fahrenkrog, Ayres, & Smith, 2009), and appropriate behavior (Heckaman, Alber, Hooper, & Heward, 1998). For the remainder of this article, we will use the example of teaching a student to request an item using a communication device to put SLP in context. In any natural situation where the student might

require or want an item, an instructor would wait to provide assistance until the student has been given multiple opportunities to ask for the item. The instructor would provide predetermined levels of assistance to support the student, but always allow for the maximum level of independence in responding. The specific steps will be described in the *How does it work?* Section.

For whom is it intended?

SLP can be used with anyone, but it is most often cited in research and used in practice with individuals who have moderate to severe intellectual disabilities and/or autism (Spooner, Knight, Browder, & Smith, 2011). Research about using SLP with students tends to focus on children in early childhood or students aged 18-22, and is sparser for elementary to middle schoolers. However, there is nothing in the research that exists to support that SLP is more or less effective with any specific age groups. Educators should use SLP because prompting hierarchies provide a systematic method of guiding students to learn and use new skills, as well as, a framework for teachers to communicate about a student's learning and level of independence.

How does it work?

SLP involves a predetermined set of prompts at an increasing level of assistance. Before beginning instruction, the team needs to specifically identify which skill they are teaching and what it will look like when the individual responds correctly; complete a task analysis of the target skill; determine the prompts to be used; and identify reinforcement to be used (Figure 1). To illustrate this process, we will use the example of teaching a child to request an item using a communication device. The target skill or behavior needs to be described in observable, measurable terms to guarantee that data can be collected and that success can be easily recognized. If the target skill is a chained behavior, more task analysis and operational definitions are necessary (Neitzel & Wolery, 2009). For our example, we will define the target behavior as using the communication device to construct the sentence, "I need paper," and hitting the "text-to-speech" button on the device.

Figure 1.

Prior to implementing SLP
1. Operationalize target behavior/skill
2. Complete a task-analysis of the behavior/skill
3. For each skill in the task-analysis, determine the following prompts
   a. Natural/original prompt
   b. Non-controlling prompt
   c. Controlling prompt
4. Determine reinforcement schedule at each level of prompting (what will be used, how/ how much will be delivered)

In order to be prepared to prompt at exactly the right moment, the team needs to do a task analysis of the skill. Task analysis involves breaking down the larger skill into multiple steps on the way to completing the task (Collins, 2012). For each step in the larger task, the team must come up with a hierarchy of prompts. For a child to request an item with a communication device, they need to first acknowledge the need for an item, then scroll through the device, pick out the correct parts of the sentence, and hit the "text-to-speech" button to verbally "say" the request aloud. This specific example assumes that the student would be in close enough proximity to the conversation partner that they would be able to acknowledge the request.

The team then needs to determine what cues will prompt the student to perform the target behavior. Those cues may occur naturally in the environment (e.g. using the bathroom), at the conclusion of a prior activity (e.g. the next step in making a peanut butter sandwich after spreading the peanut butter), or externally (e.g. the buzzer on an apartment intercom). Prompts are generally classified by intrusiveness or restrictiveness, with natural cues being the least intrusive and total physical prompting being the most (Collins, 2012). The team will always start with the least intrusive prompt possible and increase the level of intrusiveness if the individual does not perform the correct response. All of these prompt decisions must be made and the whole team must be trained in delivering the prompts before starting the procedure with the individual. The team may decide on the number of prompts they need for the individual and their task, but the general rule is to have the original/natural prompt (independent), a minimal assistance prompt (or non-controlling prompt), and a maximum assistance prompt (or controlling prompt). For our example, the original/natural prompt is the cue to begin a writing activity and the student does not have any paper left in his/her writing folder. If other students request paper and the teacher delivers it, this is also considered an original/natural prompt. The non-controlling prompts could include the instructor moving closer to the student, gesturing to the communication device,

and possibly asking if the student needs anything. The controlling prompt would be first explicitly showing and telling the student to use his/her communication device. If the student needs more prompting, this could include physically assisting the student to push the correct buttons on the device to request the paper.

The last piece of SLP that needs to be in place before starting the procedure with an individual is reinforcement. The instructor will deliver reinforcement to the individual for correct responses and the success of SLP hinges on the effectiveness of the reinforcer. If the individual is not motivated to perform the task, SLP will not be effective. The team can conduct preference assessments, observations, and/or interviews with the individual and the rest of the team to determine the most effective reinforcement. This may change after the procedure begins, based on level of motivation displayed by the individual.

SLP always begins by first allowing the individual to respond independently. If the individual does not respond accurately, the instructor administers a predetermined minimal assistance prompt. If the individual still does not respond accurately, the instructor administers a predetermined maximal assistance prompt to ensure a correct response. Reinforcement is required to increase the individual's likelihood of responding correctly. The multiple opportunities and increasing levels of prompts are used for each opportunity the individual has to respond. Prompts should be tailored to the child and consistent across implementing staff. Every responding opportunity follows the pattern of independent opportunity, minimal assistance prompt if necessary, then maximal assistance prompt if necessary. For this example, the natural reinforcement is that they would receive the paper. In addition to this, the team would provide social praise in the form of verbal encouragement (e.g., "Here is your paper! Thanks for using your device to ask!") and physical rewards (e.g., high fives or fist bumps).

Putting it all together, the original prompt is the natural situation that occurs in which s/he requires paper to complete a task (see Figure 2). If the child requests help, that would be considered independently completing the task and s/he would be reinforced. If the situation does not automatically prompt the student to request the paper, the instructor would provide a non-controlling prompt such as moving closer to the child, gesturing to the communication device, or modeling the request. This is considered non-controlling because, although it is more intrusive than the natural prompt, the child is not forced, or controlled, to perform the action; the instructor merely makes the target behavior (requesting paper) easier for the student. If the child requests the paper after the non-controlling prompt, they are reinforced. If they do not request help at this point, the instructor would deliver the predetermined controlling prompt. For this example, the controlling prompt would be physically assisting the child to request paper on their communication device. Note that the controlling prompt must require the child to perform the action.

Figure 2.

Steps of SLP
1. Natural/original prompt
    a. Student performs target response: deliver reinforcementNon-controlling prompt
    b. Student does not perform target response: proceed to non-controlling prompt
       Complete a task-analysis of the behavior/skill
2. Non-controlling prompt
    a. Student performs target response: deliver reinforcement
    b. Student does not perform target response: proceed to controlling prompt
3. Controlling prompt

How practical is it?

SLP has been used to teach a wide variety of skills including play and academic skills, and conversation behaviors for students with mild to severe disabilities as well as children without disabilities. This method is simple to train staff and inexpensive to implement. However, SLP is most effective when everyone working with an individual on a particular skill to be implementing the prompting procedure the same way. The wait time before prompting, the levels of prompting, and the identification of correct and incorrect responses must be uniform across the team (Neitzel & Wolery, 2009).

How adequate is the research knowledge base?

Wolery et al. indicated the system of least prompts is a traditional instructional strategy that is used to teach both discrete responses and chained tasks (1986). In a systematic review of twelve different instructional strategies, it was noted that the system of least prompts was used more frequently than any other method. The research notes and documents the use of systems across a variety of skill domains including community and daily living, social/leisure, vocational, self-care, motor, language and cognitive domains West and Billingsley (2005). The systems of least prompting procedure has a long history and a strong research base in teaching individuals with a variety of disabilities and of various ages (Doyle, Wolery, Ault, & Gast, 1988). Demchak, conducted a literature review on response prompting procedures, and concluded that most-to-least prompting is associated with fewer errors than least-to-most prompting. Constant time delay and

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least–to-most prompting are equally effective in teaching chains but constant time delay is more efficient. Progressive time delay is more efficient than least-to-most prompting. More comparative research on prompt fading methods would be useful to help guide practitioners.

How effective is it?

Learning is a process of understanding how to respond to specific and changing cues across environments. Teachers use prompts to help their students become successful. Because response prompts are supplementary, educators fade them, so the students respond appropriately when only the natural cue is present. Effectiveness and efficiency of teaching are often cited as critical factors in evaluating chaining procedures. The system of least prompts is considered to be effective because it is a fading method designed to achieve appropriate student responding when only the natural cue is presented. Systematic fading of prompts is also important to promote prompt-free and independence performance. The popularity of the system of least prompts may be accounted for by its ease of application since it does not require an assessment to determine student growth or a frequent review of student performance data to determine instructional decisions. Given the self-fading qualities, systems of least prompts would seem useful where numerous individuals (peers, educators, paraprofessionals, support professionals) who have not had extensive training in systematic instructional procedures may provide educational support and procedures for students with significant disabilities (West & Billingsley, 2005). As with SLP (and any type of prompt fading), practitioners need to make sure they are using reinforcement differentially based on independence. Less independence should result in lower levels of reinforcement (e.g., just praise but no concrete reinforcer). Using reinforcement effectively is critical to the success of SLP, otherwise there is no reinforcement for increasing independence. Finally, there is some research that SLP can be made more efficient by adding in a time delay (Libby, Weiss, Bancroft, & Ahearn, 2008). Essentially practitioners would add in a set delay before providing the most intrusive prompt. This gives the student the opportunity to respond independently before prompting.

What questions remain?

Given the popularity of the systems of least prompts, it is surprising that there is a lack of research in regards to examining procedural variations that might increase the efficacy of this strategy West and Billingsley (2005). Although easy to employ, widely used, and frequently recommended, the system of least prompts is often less efficient than other prompt fading procedures (Ault, Wolery, Doyle & Gast, 1989). A primary goal of instruction is to teach students to respond appropriately to task stimuli, and instructional strategies aid in achieving this goal by ensuring effective and efficient transfer of stimulus control from the teacher delivered prompts to intended discriminative stimuli. An instructional strategy is considered useful when students acquire skills being taught with the procedure and efficient when it minimizes time and effort to learn the skill (Wolery, Ault, & Doyle, 1992). Other strategies that are errorless in nature (e.g. most-to-least prompting, progressive time delay) produce results more quickly, as students do not experience the opportunity to respond incorrectly. It is important to keep basic learning science in mind, specifically that practicing doing something incorrectly will require more opportunities to practice responding correctly, therefore increasing the amount of time necessary to perform the skill correctly without prompting. Because the system of least prompts is widely recommended as an effective instructional method for students with severe disabilities, future research should continue to examine ways by which efficiency of the systems of least prompts might be maximized by analyzing additional parameters of the strategy.

Terms	Definition
Stimulus	A **stimulus** is any object, event, or person that evokes a behavior
Chained Behavior	**Chained behaviors** are those which involved a series of linked actions to complete
Prompting	A **prompt** can be defined as a cue or hint meant to induce a person to perform a desired behavior. A fancy way of saying this is: An antecedent that induces a person to perform a behavior that otherwise does not occur.
Progressive Time Delay	**Progressive time delay** increases the amount of **time** between the natural cue to perform a task and when you would provide help. The **time** is increased over a number of trials
Reinforcement	**Reinforcement** is an event that increases behavior. In the classroom, **reinforcement** occurs as teachers manage the environmental events that follow students' desired ways of behaving so to increase the strength and future likelihood of that behavior.
Original/ natural prompt	**Original/natural prompts** refer to the environment itself that would elicit the target behavior, without any additional supports or cues
Controlling prompt	**Controlling prompts** are stimuli that are added to the target stimulus or after the target stimulus to help the student make the target response that requires the student to perform the target behavior. It might be a physical **prompt**, a verbal **prompt**, or a positional cue.
Non-controlling prompt	**Non-controlling prompts** are stimuli that are added to or after the target stimulus that increases makes performing the target behavior easier for the student, but does not require the student to perform the target behavior.
Hierarchy of prompts	A **prompting hierarchy** is a systematic method of assisting students in the learning and skill acquisition process. **Prompts** are only used as a support to students when necessary and only for as long as is necessary, with a plan in place for phasing out all levels of **prompts**.

Where can I learn more?

- **Fields, C. J. (2013). Tips for home and school: Using the system of least to most prompts [handout]. Retrieved from http://unr.edu/ndsip/tipsheets/UsingLeasttoMostPrompts.pdf**
  This handout describes SLP in an easy-to-read, straight-forward way that makes it a great resource to share with families, paraprofessionals, and other staff members.

- **Griffen, A. K., Ault, M. J., & Pennington, R. C. A teacher's toolbox of knowledge: System of least prompts (SLP) instructional procedure [handout]. Retrieved from registration.ocali.org/rms_event_sess_handout/5807_Handout.pdf**
  This handout explains the vocabulary and basic procedure of SLP.

- **Inge, K. *Autism Q&A: Using a least to most prompts teaching strategy*. Retrieved from https://vcuautismcenter.org/resources/factsheets/content.cfm/1007**
  This resource is for practitioners who understand the basics of SLP, but have specific implementation questions.

- **Ledford, J.R. & Chazin, K.T. (2016). System of least prompts. In *Evidence-based instructional practices for young children with autism and other disabilities*. Retrieved from http://vkc.mc.vanderbilt.edu/ebip/system-of-least-prompts**
  This website presents an overview of SLP as well as videos of its implementation, all presented in a format similar to this publication.

- **Neitzel, J., & Wolery, M. (2009). *Steps for implementation: Least-to-most prompts*. Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina. Retrieved from http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/Prompting_Steps-Least.pdf**
  This is a step-by-step guide for implementing SLP.

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