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DEVELOPMENT AND EVALUATION OF A DECISION-MAKING TOOL FOR  
EVALUATING AND SELECTING PROMPTING STRATEGIES

by

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MASTER'S THESIS

Presented to the Faculty of  
The University of Houston-Clear Lake

In Partial Fulfillment

Of the Requirements

For the Degree

MASTER OF ARTS

in Behavior Analysis

THE UNIVERSITY OF HOUSTON-CLEAR LAKE

MAY, 2020

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## **Dedication**

I dedicate this thesis to my mother, Jennifer, my father, Scott, my sister, Kenzie, my partner, Adam, my dog, Hazel, and my friends who have supported me at every point in this process.

## **Acknowledgements**

First and foremost, I want to express my gratitude to Dr. Dorothea Lerman for her tremendous guidance and support of this project. I also thank Kally Luck for the innumerable things she did to make this project happen. Thank you to Megan Skrbec and Amber Prell for their assistance in running sessions, scoring videos, and other day-to-day administrative tasks. Thank you as well to Samantha Boyle, Kristin Carpenter, Jenny Chen, Jacob Hillman, Lyndsy Reyes, and Pia Som for their assistance in conducting sessions and data collection. I must also thank each of my colleagues and participants who reviewed the SWEEPS materials and provided feedback. The SWEEPS has become what it is today thanks to these helpful comments.

## ABSTRACT

### DEVELOPMENT AND EVALUATION OF A DECISION-MAKING TOOL FOR EVALUATING AND SELECTING PROMPTING STRATEGIES

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An extensive literature has demonstrated the successful application of various response prompts and prompt-fading strategies for teaching students with developmental and intellectual disabilities. However, few practical resources exist to guide special-education teachers and clinicians in the evaluation and selection of a prompting strategy for a given student and a targeted skill. Across two experiments, we used a multiple baseline across participants design to develop and evaluate a decision-making tool to train 11 special-education teachers and 5 graduate students to evaluate and select appropriate prompting strategies for a variety of students and skills. The graduate students also implemented their selected prompting strategy in brief teaching sessions. Results indicated that the self-instructional manual was effective for improving their evaluation, selection, and implementation of appropriate prompting strategies. Social validity data collected from all participants suggested that they found the manual helpful. Results contribute to the

literature on the development of decision-making tools to guide teachers and clinicians in the selection of interventions to use with their students.

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## CHAPTER I: INTRODUCTION

Students with autism spectrum disorder (ASD) and other developmental disabilities often require alternative instructional procedures when learning new skills compared to those used with their typically developing peers (Green, 2001; MacDuff et al., 2001). The goal of any teaching procedure is to train a specific response to occur following the presentation or delivery of a particular stimulus (discriminative stimulus;  $S^D$ ). To accomplish this, the instructor reinforces the occurrence of the target response in the presence of the  $S^D$ . The instructor withholds reinforcement if the student emits an incorrect response in the presence of the  $S^D$  or if they emit the target response in the absence of the  $S^D$ . Stimulus control is established once the target response occurs more (or exclusively) in the presence of the  $S^D$  compared to in its absence (Cooper et al., 2007).

Since the 1960s, researchers in the field of applied behavior analysis (ABA) have developed and refined many instructional programs that instructors can implement with a large variety of learners to teach virtually any skill. These skills include receptive and expressive identification of objects, matching, hygiene, and vocational skills (Green, 2001; MacDuff et al., 2001; Matson et al., 1996). Instructors commonly provide prompts as part of these teaching programs. A prompt is any supplemental antecedent stimulus that increases the likelihood of the target response occurring in the presence of the relevant  $S^D$  (Cooper et al., 2007). The primary classes of prompts are response prompts and stimulus prompts. Response prompts, such as gestures, models, and physical guidance, involve the behavior of the instructor (e.g., touching the correct item in an array). Stimulus prompts, like stimulus fading and stimulus shape transformations, include modifications to existing stimuli (e.g.,  $S^D$ s) or the addition or removal of stimuli

(Cooper et al., 2007). For this study, the word “prompts” refers exclusively to response prompts because these are used more often in educational settings.

Ultimately, the instructor must remove (fade) any prompt they added to aid the student in learning a given skill. A skill is "mastered" once the instructor has removed all prompts, and the student emits the correct response in the exclusive presence of the  $S^D$  (i.e., stimulus control; MacDuff et al., 2001). Therefore, instructors should consider a couple of factors when determining which prompts to use and how to use them. First, any prompt used in teaching the response must result in the student responding correctly (Koegel et al., 1982). Second, as stated above, the prompt eventually needs to be removed.

Researchers have developed several prompt-fading strategies to accomplish this goal, including least-to-most (LTM) prompting, most-to-least (MTL) prompting, prompt delay, most-to-least prompting with a prompt delay (MTLD), and graduated guidance. These procedures have been evaluated in numerous comparative studies to determine their relative effectiveness and efficiency (see Demchak, 1990 and Libby et al., 2008, for a review). In general, each of these procedures can promote the acquisition of various types of skills; however, results are idiosyncratic across learners (Demchak, 1990; Cengher et al., 2016; Coon & Miguel, 2012; Gast et al., 1991; Libby et al., 2008; MacDuff et al., 2001; Riesen & Jameson, 2018; Seaver & Bourret, 2014; Walker, 2008; Wolery et al., 1992). Each prompting procedure and its optimal applications are described below.

### **Least-to-Most (LTM) Prompting**

In LTM prompting, the instructor first provides the students an opportunity to respond without prompts (i.e., independently) to the  $S^D$ . If the student does not emit the target response within this time (typically 3-5 s), the instructor then implements a system

of prompts with increasing levels of intrusiveness until the student emits a correct response. Authors such as Libby et al. (2008), MacDuff et al. (2001), and Wolery et al. (1992) have discussed several general contexts in which the LTM-prompting procedure may be optimal for a given student. First, it may be ideal to use with students who (a) have demonstrated quick acquisition of target responses with the procedure previously, (b) emit few errors during teaching, or (c) learn new skills relatively quickly.

Second, and related to the first point, LTM prompting may be an ideal procedure to use if the instructor has previously observed the student performing the target response independently. In other words, instructors can use LTM prompting to promote the maintenance of already mastered responses. Third, instructors can use LTM prompting before teaching a new skill to select the least intrusive, most-effective prompting level that is necessary to evoke the target response if the instructor plans to use MTL, prompt delay, or MTL D. Although unrelated to the student's learning tendencies, a fourth advantage in using LTM prompting may be that it is relatively easier to implement relative to other prompt-fading strategies (Riesen & Jameson, 2018).

Despite these benefits of LTM prompting, a limitation researchers commonly report in the research literature is that it tends to result in relatively more errors emitted by the student compared to other prompt-fading strategies (Demchak, 1990; Libby et al., 2008; MacDuff et al., 2001; Riesen & Jameson, 2018; Wolery et al., 1992). This may be problematic for two reasons. For some students, an increased number of errors (and corresponding delay or withholding of reinforcement) may evoke emotional responding or challenging behavior (Weeks & Gaylord-Ross, 1981). These challenging behaviors may delay the acquisition of the skill even further. The second reason higher levels of errors may be detrimental is that they may delay the proper transfer of stimulus control (Terrace, 1963).

### **Most-to-Least (MTL) Prompting**

In MTL prompting, the instructor immediately provides the level of prompting necessary (i.e., the most intrusive prompt) for the student to emit the target response. In subsequent teaching trials, the instructor systematically fades the intrusiveness of the prompt as the student emits the target response at the current prompting level.

Researchers and clinicians often refer to MTL prompting as "errorless learning" because it typically results in few (if any) student errors during learning (Libby et al., 2008; MacDuff et al., 2001; Wolery et al., 1992).

To systematically fade from relatively more-intrusive to less-intrusive prompts, the instructor selects a criterion that the student's responding must meet at the current prompt level. This criterion typically specifies a certain number of consecutive trials or sessions in which the student emits the target response at the current prompt level. One common fading criterion instructors use is the "rule of two," where the instructor reduces the intrusiveness of the prompt once the student emits the target response at the current prompt level in two consecutive trials (e.g., Libby et al., 2008). Conversely, the instructor increases the intrusiveness of the prompt if the student does not emit the target response at the current prompt level for two consecutive trials. An advantage of this method is that it may reduce the use of any single prompt with a student and thus reduce the risk of the student becoming prompt dependent (MacDuff et al., 2001).

Researchers have recommended several broad applications of MTL prompting in the literature. First, MTL prompting may be ideal when teaching students new responses because it tends to result in fewer errors (Libby et al., 2008; MacDuff et al., 2001; Riesen & Jameson, 2018). MTL prompting is also ideal for students who require relatively large numbers of teaching trials to respond at mastery level (Wolery et al., 1992). Third, it may be ideal for students who engage in challenging behavior or who begin to work more

slowly when they error frequently, (Libby et al., 2008; MacDuff et al., 2001; Riesen & Jameson, 2018; Week & Gaylord-Ross, 1982; Wolery et al., 1992). Finally, MTL prompting may also be beneficial for students who frequently error before the instructor prompts them (Wolery et al., 1992). In this case, researchers recommend that instructors teach the student to emit an observing response to reduce the likelihood of this type of error pattern (e.g., Grow & LeBlanc, 2013).

MTL prompting may be contraindicated for a student if they are prone to prompt dependency (Wolery et al., 1992). Instructors can reduce the risk of prompt dependency by quickly fading prompts, but this may be difficult to do if the learner does not typically acquire new responses rapidly.

### **Prompt Delay**

The prompt-delay procedure begins with the instructor presenting the  $S^D$  to the student, followed by a predetermined amount of time for the student to respond independently before the instructor provides a prompt. The instructor provides a single type of prompt (e.g., a model prompt) that consistently evokes the target response. Initially, the prompt delay may be brief (e.g., 2 s) or instant (i.e., 0-s delay). As the student emits the target response at the current prompting level, the instructor increases the delay before providing the prompt to give the student a longer opportunity to respond independently.

There are two broad variations of the prompt-delay procedure: the constant prompt delay and the progressive prompt delay. When using the constant prompt delay, the instructor sets the prompt delay at the terminal value (e.g., 5 s) from the beginning of teaching. In progressive prompt delay, the instructor fades the delay towards the terminal value based upon a predetermined criterion of consecutive correct responses in a format similar to the MTL procedure described above. Researchers have demonstrated that both

variations are effective for teaching a wide variety of skills to learners (Ault et al., 1988; Demchak, 1990; Heckaman et al., 1998; MacDuff et al., 2001; Oppenheimer et al., 1993; Walker, 2008; Wolery et al., 1992;). While both variations are useful prompting procedures, the progressive prompt-delay procedure may be superior for a few reasons. A recent review of the prompt-delay literature by Walker (2008) identified that the constant prompt-delay procedure might produce "more [student] errors to criterion, a greater magnitude of procedural modifications, and a delayed moment of transfer of stimulus control" than the progressive prompt-delay procedure. Therefore, if the instructor plans to use a prompt-delay procedure, the progressive prompt-delay procedure may be a better choice. For the remainder of this study, all descriptions of the prompt-delay procedure will refer to the progressive prompt-delay procedure.

As stated before, the prompt-delay procedure incorporates only one topography of prompt, while LTM and MTL prompting both create a hierarchy of response prompts that the instructor will use during teaching. This makes it a particularly advantageous prompting procedure for students who may only require minimal prompting before they begin to emit the target response.

Similar to the LTM procedure, the prompt-delay procedure may be beneficial for students identified to be "quick" learners, students who can tolerate waiting for a prompt, or for skills the student has already learned that are in maintenance (MacDuff et al., 2001; Oppenheimer et al., 1993; Wolery et al., 1992). A prompt delay may also be beneficial for students who are prompt dependent. As the student continues to respond correctly (either prompted or independently), the prompt delay is increased, which extends the time the student must wait to receive reinforcement for responding to the prompt. Therefore, the student contacts reinforcement faster when they respond independently rather than waiting for the prompt. When combined with differential reinforcement of independent

and prompted responses, the risk of prompt dependency may be significantly reduced (Cividini-Motta & Ahearn, 2013; Vladescu & Kodak, 2010). If, however, the student frequently responds incorrectly before the instructor prompts them or engages in challenging behavior when they are required to wait for a prompt, the instructor should avoid using the prompt-delay procedure and instead implement an errorless-teaching procedure such as MTL (Heckaman et al., 1998).

### **Most-to-Least with a Prompt Delay (MTLD)**

MTLD is procedurally identical to the original MTL procedure except that a constant prompt delay (typically 2 s) occurs before the delivery of the first prompt. One limitation of the standard MTL procedure is that the student does not have an opportunity to respond independently until the instructor fades the complete hierarchy of prompts. This may artificially reduce the efficiency of this procedure compared to the LTM and prompt-delay procedures, which both allow a student to respond independently from the beginning of teaching. Therefore, the MTLD procedure accommodates this by providing the student with an opportunity to respond independently from the beginning of teaching. Libby et al. (2008) recently compared this procedure to both the LTM and MTL procedures. The experimenters found that although LTM required slightly fewer trials for the participants to respond at the mastery criterion, MTLD produced fewer errors than LTM prompting and required fewer trials to mastery than the MTL procedure. The experimenters suggested that MTLD may be a good "default" prompting procedure to use with a student if the instructor has little information about the student's learning tendencies. Additionally, they suggested that the MTLD procedure may be beneficial for students who learn at a rate that is neither relatively quick or slow (i.e., moderate-paced learners).

The limitations of the MTL procedure are similar to those of the LTM procedure. This procedure is contraindicated for students who frequently error before the instructor prompts them, students who engage in challenging behavior when they error or must wait for a prompt, or for those who are prompt dependent.

### **Graduated Guidance**

Graduated guidance is a procedural variation of the MTL prompt-fading procedure in which the instructor provides only physical prompts that range from hand-over-hand guidance to guidance from the shoulder (i.e., the instructor taps or presses the student's shoulder). Instructors can fade these physical prompts in much the same way they would for the standard MTL procedure (i.e., fade the prompt across consecutive trials in which the student emits the target response at the current prompt level).

Researchers typically recommend using graduated guidance when teaching difficult motor responses (e.g., handwriting, vocational skills, etc.) or for students who have a limited imitative repertoire (Wolery et al., 1992). However, instructors should avoid using this procedure with students who find physical contact aversive or overly reinforcing (Wolery et al., 1992).

### **Dissemination to Practitioners**

An expansive body of literature has demonstrated the effectiveness of each of these prompt-fading strategies. Authors such as MacDuff et al. (2001) and Wolery et al. (1992) have provided extensive guidelines detailing conditions under which a given prompt-fading is recommended or contraindicated. However, few publications have attempted to synthesize this information into a practical resource that can guide practitioners in the evaluation and selection of prompting strategies. Special-education teachers and aspiring behavior analysts are two groups of practitioners who require or could benefit from focused training on prompting strategies.

Researchers have extensively documented the dissemination of behavior analytic technology to special-education teachers. For example, Lerman et al. (2004) trained four special-education teachers and one “teacher-in-training” using behavioral skills training (BST) to implement a variety of behavior analytic procedures, such as preference assessments, direct teaching, and incidental teaching with students. BST is an empirically validated training package consisting of instruction, modeling, rehearsal, and feedback (Reid et al., 2012). This model has since been refined and replicated in recent years (Lerman et al., 2008; Luck et al., 2018). Training such as this has become increasingly warranted since the passing of the Individuals with Disabilities Education Act of 1990 (IDEA; 2004).

The IDEA provides many rights to students with disabilities, including each student's right to a free, appropriate public education with an individualized education program (IEP). Each IEP contains many skills that the student’s teacher is responsible for teaching the student over the school year. This means that a special-education teacher will be responsible for creating, managing, and teaching many IEP goals for their classroom of students.

Aspiring behavior analysts seeking the Board Certified Behavior Analyst (BCBA<sup>®</sup>) credential require training on the use of prompts and prompt-fading strategies (Behavior Analyst Certification Board [BACB<sup>®</sup>], 2012). Although this is an essential part of behavior-analytic training, the use of prompts and prompt-fading strategies is only one item on the BACB<sup>®</sup>’s *4<sup>th</sup> Edition Task List*. Therefore, it behooves those charged with the training and supervision of aspiring behavior analysts to find practical tools that they can use to supplement this process.

Researchers have reported the use of self-instructional training methods such as enhanced written instructions (EWI; e.g., supplemental images, diagrams, examples, etc.)

and video modeling with voiceover instructions (VMVO) to be effective, resource-efficient training formats to train participants to perform a wide variety of skills (e.g., Berkman et al., 2019; Catania et al., 2009; Charlop-Christy et al., 2000; Graff & Karsten, 2012). Graff and Karsten (2012) compared the effects of standard written instructions with EWI to train 11 teachers to correctly implement two stimulus preference assessments (paired stimulus and multiple stimulus without replacement preference assessments). The standard written instructions were based upon the procedural descriptions of the assessments from the method section of a published preference assessment study. The experimenters first gave participants standard written instructions on how to complete the two assessments. All 11 teachers failed to demonstrate mastery for either of the two preference assessments with written instructions alone. The experimenters then provided participants with either EWI or the standard written instructions again plus an enhanced data sheet from the EWI materials. Although none of the participants demonstrated mastery of either assessment with written instructions plus the data sheet, all 11 participants demonstrated mastery of both assessments when given EWI. In their discussion of the results, the experimenters suggested that EWI may be a viable dissemination modality for “low-risk and generally applicable procedures.”

Berkman et al. (2019) recently evaluated the efficacy of both EWI and VMVO to improve 11 graduate students’ graph making using GraphPad Prism. In each trial of the study, the experimenters gave participants one of two hypothetical data sets and asked them to graph the data. In the first experiment (Task 1), the experimenters divided the steps to creating each graph into four sections and alternated back-and-forth giving the participants either EWI or VMVO for one section at a time. Once the participant completed training for all four sections, the experimenters then asked participants to choose to receive the entirety of their instructions in either the EWI or VMVO format. In

the second experiment (Task 2), the experimenters began training by first exposing participants to both formats and then asking the participants to select which format they would like to use to complete the entire task (i.e., they would receive instructions for all four sections in either EWI or VMVO). The results of this study demonstrated that both EWI and VMVO were effective in improving the participants' graph making; however, the majority of participants elected to receive their instructions in the EWI format.

Both EWI and VMVO appear to be promising training modalities for a variety of skills. Although both of these modalities require the trainer to dedicate time to creating the materials, these are both significantly less resource-intensive training modalities in the long term as compared to BST which requires a trainer to be present with each trainee for the duration of their training. Additional research is needed, however, to determine the parameters for which skills EWI and VMVO are effective in place of more time-intensive training modalities, such as BST.

As noted previously, the most appropriate prompting strategy to teach a skill is idiosyncratic across students. Also, the application of an inappropriate prompting strategy may lead to the student emitting an excessive number of errors, the delayed acquisition of new skills, and the creation of aversive learning conditions. Across two experiments, the purpose of the current study was to develop and evaluate the efficacy of a decision-making tool comprised of EWI to guide special-education teachers and graduate students seeking their BCBA<sup>®</sup> credential to evaluate and select appropriate prompting strategies to use with their students. The purpose of Experiment 1 was to assess the efficacy of the tool to increase special-education teachers' correct verbal selection of appropriate prompting strategies. Experiment 1 occurred across 4 weeks of an intensive summer teacher training program, and the experimenters updated the tool for clarity and efficiency across subsequent weeks based upon participants' performance and feedback.

Experiment 2, conducted with students entering a behavior analysis graduate program, extended Experiment 1 by assessing both the verbal selection and implementation of prompting strategies during brief teaching sessions.

CHAPTER II:  
GENERAL METHOD

**Participants and Setting**

Eleven certified special-education teachers from local school districts participated in Experiment 1. Table 1 lists each of the teachers who participated in Experiment 1, as well as their training group and their years of teaching experience. Participants were recruited from one of four 5-day sessions at a university-based teacher-training program, which trains teachers in basic instructional and behavior-reduction techniques of applied behavior analysis. One additional teacher participated in Experiment 1 but did not complete the study due to time constraints. The experimenters selected teachers to participate based on responses to a pre-study questionnaire indicating that they had received little to no formal training on the selection and use of response prompts and prompt-fading strategies.

*Table 1*  
*Experiment 1 Participants*

<u>Participant</u>	<u>Training Group</u>	<u>Years of Teaching Experience</u>
Kennedy	1	4
Allyn	1	15
Ellis	1	6
Kayden	2	5
Lynn	2	1
Riley	3	10
Everett	3	4
Kim	3	2
Beverly	4	18
Tommie	4	15
Loren	4	11

Five graduate students (Madeline, Bonnie, Celeste, Renata, and Jane) beginning their first semester at an on-campus masters-level behavior analysis program participated in Experiment 2. Participants were recruited from a university-based clinic that provided focused intervention to individuals with ASD. The experimenter recruited the participants by offering them the opportunity to receive additional training on the evaluation, selection, and implementation of various prompting strategies. Similar to the participants in Experiment 1, the experimenters selected participants for this study based on responses to a pre-study questionnaire indicating that they had received little to no formal training on the selection and use of response prompts and prompt-fading strategies. Participants had varying levels of experience implementing responses prompts and prompt-fading strategies but had never received formal training on the selection of these procedures. The experimenters gave a \$50 gift certificate to each participant contingent upon completing the study.

Eight children diagnosed with ASD receiving services in the university-based clinic mentioned previously participated as students in Experiments 1 and 2. The children ranged from 4-10 years of age, exhibited a variety of learning tendencies, and engaged in minimal problem behavior. For Experiment 1, each child's caregiver(s) signed a written consent form for them to participate in the teacher-training program as well as in any related research. In Experiment 2, the children participated in sessions as part of their routine clinical services. Sessions were conducted in empty therapy rooms equipped with a one-way mirror and video-recording equipment at a university-based clinic. All session rooms contained a table, two chairs, and the relevant materials needed to conduct each session (e.g., instructional materials, training binders, datasheets, etc.).

Sessions were conducted in empty therapy rooms equipped with a one-way mirror and video-recording equipment at a university-based clinic. All session rooms contained

a table, two chairs, and the relevant materials needed to conduct each session (e.g., instructional materials, training binders, datasheets, etc.).

## **Materials**

### **Training Binder**

Each participant received a three-ring binder that contained the manual and flowcharts and data-collection sheets for each prompt-fading strategy. Once the participant began the training, called Systematic Worksheet for the Evaluation of Effective Prompting Strategies (SWEEPS), the experimenter placed the SWEEPS manual, worksheets, flowcharts, and data-collection sheets in the binder. The SWEEPS is a series of worksheets, flowcharts, and supplemental instructions that offers recommendations for a prompting strategy to teach a given skill. Appendix A contains all of the SWEEPS materials. All of the recommendations included in the SWEEPS are based upon the body of the literature described previously.

Before Experiment 1, we recruited several graduate students enrolled in their second year of an on-campus behavior analysis program to pilot the SWEEPS with several learner profiles (described below) and evaluate whether the SWEEPS resulted in correct selections. We updated the SWEEPS for Experiment 1 based on their prompting strategy selections as well as their feedback on the design and ease-of-use of the SWEEPS.

Following each group training in Experiment 1, we modified the SWEEPS materials based upon our observations and feedback that we solicited from each group of teachers. After the first group of three participants, we (a) added scoring criteria to the “What to Do If You Marked Unsure” materials and (b) combined the selection datasheet and the main SWEEPS worksheet onto a single page. After the second group of two participants, we (a) redesigned the SWEEPS flowcharts for cleanliness, (b) updated the

“Selecting the Prompt-Fading Strategy Green Flowchart’s” recommendations for students who are prompt dependent, and (c) added procedural instructions to each section of the “What to Do If You Marked Unsure” materials.

### **Learner Profiles**

Participants received a different written learner profile detailing the target skill and the learning characteristics of a confederate student in each session. For the first three participants in Experiment 1, this learner profile was presented in written paragraph form. For all remaining participants, the information was presented in a bulleted list that first described the target skill, setup, and correct student response. The profile then listed the learner characteristics in the order they appeared on the SWEEPS. Many of the errors of the first three participants in Experiment 1 appeared to be a result of difficulty reading the profile.

Appendix B depicts an example of one learner profile used for the remaining participants. In this example, the instructor is tasked with teaching Dominic (a confederate student) to fold a towel. The learner profile states that Dominic (a) cannot imitate motor movements, (b) has never worked on this skill before, (c) has never been observed to fold a towel independently, (d) this is a difficult motor task for him, (e) does not engage in challenging behavior or work more slowly when he responds incorrectly or must wait for a prompt, (f) learns new skills relatively slowly, (g) is not prompt dependent, (h) does not tend to respond incorrectly before a prompt is provided or without attending to the materials. The learner profile also states that the instructor is not sure if Dominic resists, avoids, or overly enjoys physical prompts.

Based on this information, the instructor should first conduct an assessment to determine Dominic’s response to physical prompts. In this example, Dominic does not resist, avoid, or overly enjoy physical prompts. Based on these variables, the SWEEPS

indicates that physical prompts are appropriate while model and gestural prompts are contraindicated. Additionally, the SWEEPS indicates that graduated guidance would be the most appropriate prompt-fading procedure.

We created three sets of twelve learner profiles to present to participants. The twelve profiles in each set corresponded to one of the twelve different outcomes that could occur on the SWEEPS prompt-fading strategy flowchart. These profiles also sampled various combinations of response prompts to ensure each response prompt was appropriate or inappropriate to include an equal number of times.

We randomized the order of learner profiles for each participant; however, the first five learner profiles each participant received resulted in a recommendation for each of the five prompt-fading strategies. Therefore, each participant encountered at least one learner profile in their pre-training that resulted in a recommendation of each of the five prompt-fading strategies. Each participant also encountered learner profiles that fit each prompt-fading strategy at least once in post-training.

### **Assessment Stimuli**

Two bags of stimuli were present in the session room for all pre-training and post-training sessions. The stimuli in these bags were for the purpose of conducting an assessment of the unsure skill specified in each learner profile. Each bag contained a task requiring a motor response (e.g., ring stacker or string and beads; hereafter referred to as a motor task) and pictorial stimuli that the participant could use to assess vocal responding. None of the stimuli in these bags were ever used as targeted instructional materials in a learner profile (e.g., none of the learner profiles required the participant to teach the student to complete a ring stacker). The experimenter told the participant that the items in the "Known" bag were tasks that each confederate student had previously

mastered. The items in the "Unknown" bag were tasks that each confederate student had not mastered.

## **Response Definitions and Interobserver Agreement**

### **Dependent Variables**

In both experiments, experimenters collected data on the following: (a) The participant's assessment of student characteristics that were unknown for a given learner profile (unsure skills), (b) the written selection of the correct type(s) of prompt(s), (c) the written selection of the correct prompt-fading procedure to teach the specified skill to the given student, and (d) whether the participant conducted an assessment probe using LTM prompting to determine the initial prompt level (if the prompt-fading procedure was MTL, MTLD, or prompt delay). The experimenter scored all dependent variables as "Yes," "No," or "Not Applicable" (N/A) for each session. In Experiment 2, the experimenter also collected trial-by-trial implementation data as a direct measure of the selection of the correct type(s) of prompt(s) and prompt-fading procedure. These implementation data were depicted as a percentage of correct implementation for each session.

We operationally defined the correct assessment of the unsure skill as the participant conducting at least three assessment trials in which they evaluated the specified unsure skill in the given learner profile. For example, if the learner profile stated that the unsure skill was whether or not the student could imitate motor movements, the correct assessment of this skill consisted of conducting at least three assessment trials in which the participant provided the student with a model prompt. The experimenter did not score the participant's assessment of the unsure skill as incorrect if they assessed learner skills in addition to the one designated as "unsure." For example, if the unsure skill in the learner profile was the student's motor imitation skill and the

participant assessed both motor imitation and the student's response to physical prompts, the experimenter scored this as correct.

We operationally defined the written selection of the correct type(s) of prompt(s) as the participant selecting at least one type of prompt that was recommended (as opposed to contraindicated) for the given learner profile. For example, if the target skill was a motor task (e.g., receptive identification of pictures) and gestural, model, partial-physical, and full-physical prompts were recommended for the student, we scored the participant's response as correct if they selected any combination of these prompts with one exception. We scored the participant's selection as incorrect if they only selected either a partial-physical prompt or a partial-vocal prompt without also selecting the full-physical or full-vocal prompt. We also scored the participant's selection as incorrect if they included one or more type of prompt that was contraindicated for the learner profile. For example, if both partial-physical and full-physical prompts were recommended for a given student while gestural, model, partial-vocal, and full-vocal prompts were contraindicated, we scored the participant's selection as incorrect if they included one or more of these prompt types.

We operationally defined the written selection of the correct prompt-fading strategy as the participant selecting a prompt-fading strategy that was recommended (as opposed to contraindicated) for the given learner profile. For example, if the target skill was a difficult motor response for the student, the participant should select graduated guidance as the prompt-fading strategy. If two prompting strategies were recommended for the given learner profile (e.g., either LTM or prompt delay), we scored the participant's selection as correct as long as they selected one of those strategies. Additionally, the participant's number of selected types of prompts had to match the prompt-fading strategy. For example, if the correct prompt-fading strategy for a given

learner profile was LTM, the participant needed to select at least two types of prompts (e.g., gestural and model prompts). Conversely, if the correct prompt-fading strategy for a given learner profile was a prompt delay, the participant needed to select only one type of prompt (e.g., only model prompts).

As a direct measure of selection, we collected data on the participant's implementation of the recommended prompting strategy for each learner profile in a 6-trial teaching session in Experiments 2. We scored the participant's accuracy of implementation based upon the prompting strategy indicated for each learner profile. Appendix C depicts the scoring rules the experimenter used to assess their performance. For example, if the recommended prompting strategy for a given learner profile was a prompt delay using full-physical prompts, we scored the participant's accuracy of implementation based on this procedure. For each teaching trial, we collected data on the type(s) of prompt(s) the participant used and the sequence in which they delivered those prompts. We scored the participant's accuracy of implementation as correct if they delivered the prompts in a sequence (or delay) corresponding to the prescribed prompting strategy. We scored the participant's accuracy of implementation as incorrect if they delivered a prompt contraindicated for the given learner profile. The experimenter scored the participant's accuracy of implementation of the correct prompting strategy independently of their written selection. For example, if the participant's written selection of the prompting strategy was incorrect but they implemented the correct prompting strategy, we scored their written selection as incorrect and their accuracy of implementation as correct. If two prompt-fading strategies were recommended for a given learner profile, we scored the participant's accuracy of implementation based upon the procedure of the two that most closely matched their performance. For example, if the participant implemented MTL prompting, but either a prompt delay or MTL procedure

was recommended, we scored their accuracy of implementation using the prompt delay criteria because both of these procedures begin initially with immediate prompting.

We operationally defined the participant correctly conducting an assessment probe using LTM prompting to determine the initial prompt level as the participant conducting at least three trials in which they delivered the initial instruction of the trial without a prompt and then provided subsequently more intrusive prompts contingent upon incorrect responses. We did not score a trial as correct if the participant did not present an initial instruction without a prompt. We scored this skill as not applicable (N/A) if the participant did not select the correct prompt-fading procedure when the correct prompt-fading procedure was prompt delay, MTL, or MTLTD. We also scored this as N/A if they correctly selected LTM or graduated guidance as the prompt-fading strategy.

### **Interobserver Agreement and Procedural Integrity**

Independent, secondary observers collected interobserver agreement (IOA) data for all participant dependent variables listed above and procedural integrity data for both experimenters and confederate students for at least 30% of sessions conducted in each phase of this study for each participant. Independent, tertiary observers collected IOA data for the experimenter and confederate student procedural integrity for at least 30% of sessions conducted in each phase of this study for each participant. Secondary and tertiary observers collected data by reviewing each participant's session datasheets and by reviewing the participant's, experimenter's, and confederate student's performance either live during the session or from the session video. We calculated all integrity and IOA data using exact agreement by dividing the number of correct components or agreements by the total number of components or agreements plus disagreements. We converted the quotient into a percentage by multiplying by 100.

Experimenter integrity in each session included (a) reading the session script, (b) providing the written learner profile and modeling the appropriate setup, S<sup>D</sup>, and student response based on the target skill, (c) providing the correct instructional materials to the participant, (d) not providing feedback to the participant about their selection and implementation of the prompting strategy (except for during feedback sessions), and (e) providing both behavior-specific praise and corrective feedback to the participant on their selection and use of the SWEEPS (only during feedback sessions).

Experimenter integrity during training lectures included (a) providing all SWEEPS materials to the participant at the beginning of the training, (b) describing each section of the SWEEPS (Steps 1, 1a, 2, 2a, and 3), (c) describing the materials and procedures for the unsure skill component, and (d) correctly modeling the two example learner profiles.

Confederate student integrity included (a) correctly responding according to the confederate script for each learner profile and (b) not providing feedback to the participant during any session.

## **Procedures**

### **Pre-Study Training**

To use the SWEEPS, participants must be familiar with the types of response prompts and prompt-fading strategies that they can select when teaching skills to students. Thus, before baseline (i.e., pre-training) for the SWEEPS evaluation, the experimenter delivered an approximately 90-min PowerPoint™ presentation on basic discrete-trial training (DTT) procedures, response prompts, and the five prompt-fading strategies. The experimenter delivered this presentation face-to-face. The experimenter provided each participant with a written manual detailing all of the procedures included in the PowerPoint™ as well as procedural flowcharts and data-collection sheets for each

prompt-fading strategy. The experimenter described and modeled how to implement each of the prompts and prompt-fading strategies, but did not describe when or why to use one prompt or prompt-fading strategy versus another. The one exception was that the experimenter told participants to conduct a short probe of the target skill using LTM prompting to determine the initial prompting level if they were using prompt delay, MTL, or MTLTD prompting. The experimenter answered all participant questions concerning how to implement all described procedures but did not answer any questions about when or why to use one procedure versus another.

Following the presentation, the experimenter and participant moved to a session room to practice each of the response prompts and prompt-fading strategies. The experimenter used BST during this practice. The experimenter first provided the participant with a written and vocal description of each prompt-fading strategy. The experimenter used different combinations of each type of response prompt across each prompt-fading strategy to give the participant experience implementing each type of response prompt. Next, the participant modeled each possible student response (e.g., independent correct response, correct response following the first prompt, etc.). The participant then practiced each strategy in role-play with a confederate student (either a second experimenter or the primary experimenter). The experimenter provided behavior-specific praise and corrective feedback to the participant following each practice trial.

The purpose of this practice was to familiarize participants with each of the prompt types and the prompt-fading strategies and expose them to the procedural differences among them. Due to time constraints, participants in Experiment 1 practiced each prompt-fading strategy for four total trials rather than to a specific mastery criterion; however, the participant could request additional practice with each of the prompt-fading strategies. If the participant requested additional practice with a given prompt-fading

procedure, the experimenter continued to conduct trials until the participant stated they were comfortable with the procedure. In these cases, most participants requested fewer than six additional practice trials. Participants in Experiment 2 practiced each prompt-fading strategy until their accuracy of implementation met the mastery criterion of one 6-trial teaching session with 100% correct implementation of the prompt-fading strategy. Once the participant's accuracy of implementation met the mastery criterion for the first prompt-fading strategy (LTM), they moved to the second prompt-fading strategy (MTL), and so on, until their accuracy of implementation met the mastery criterion for all five procedures for a total of five, 6-trial session with 100% correct implementation.

### **Pre-Training**

Participants selected prompting strategies based upon information they received from a written learner profile about a student (see Materials section above). The participant received a different learner profile that contained a different target skill and learner characteristics in each session. An experimenter served as a confederate student and responded according to the learner profile during the session. The confederate student remained silently seated at the table opposite the participant during the session. The confederate student did not initiate any interactions with the participant but responded according to the learner profile when the participant interacted with them.

The experimenter began each session by giving the participant the learner profile and accompanying instructional materials. The experimenter vocally described the target skill and modeled the setup,  $S^D$ , and correct student response for the participant. Next, the experimenter asked the participant if they would like the experimenter to read the learner profile aloud to them or if they would like to read it to themselves. The experimenter then either read the profile aloud or provided the participant time to read it themselves. Following this, the experimenter instructed the participant to select the type(s) of

prompt(s) and prompt-fading strategy they would use to teach the skill to the student. The experimenter told the participant that they could reference any of the materials they received previously throughout the session. Additionally, the experimenter told them that they could interact with the confederate student if they wanted to assess anything with the student. The experimenter then pointed to the two separate bags of assessment stimuli (See Materials section) and told the participant that each confederate student had previously mastered the tasks in the “Known” bag and had not previously mastered the tasks in the “Unknown” bag.

Next, the experimenter told the participant to record their responses on their datasheet (See Appendix D) once they selected the type(s) of prompt(s) and prompt-fading strategy they would use to teach the skill to the student. Each participant had as much time as they wanted to make their selections, but was told that they would be completing five to ten different learner profiles before training. Finally, the experimenter told the participant that they would not receive any feedback on their selections and that the experimenter could not answer any questions that were not related to the instructions. Once the participant recorded their selections on their datasheet and handed it to the experimenter, the experimenter either ended the session and moved to the next learner profile (Experiment 1) or asked the participant to implement their selected prompting strategy (Experiment 2; described below). The experimenter told the participants that they were allowed to stop the session at any point or could leave the room in-between sessions to take a break. When the participant left the session room, the experimenter reminded the participants not to discuss the details of the sessions with any other participants, fellow trainees, or staff members at the clinic.

## **SWEEPS Training**

The experimenter delivered an approximately 90-min PowerPoint™ presentation on the SWEEPS materials and how to use them. The experimenter delivered this presentation to the participants face-to-face. The experimenter provided each participant with multiple copies of the SWEEPS materials and a written manual describing all of the procedures detailed in the PowerPoint™. The first five participants in Experiment 1 received training on an earlier version of the SWEEPS (see above for a description of the modifications).

The experimenter described each component of the SWEEPS, provided the rationale for why each learner characteristic was included on the SWEEPS, and finally modeled the use of the SWEEPS with two example learner profiles. The first example learner profile detailed a student learning a difficult motor task who could not imitate motor movements. This learner profile resulted in the recommendation to use graduated guidance with full-physical prompts (i.e., hand-over-hand, from the forearm, then the elbow, then the shoulder, etc.). The second example learner profile detailed a student who learns new skills relatively slowly and tends to be prompt dependent. This learner profile resulted in the recommendation to use prompt delay with a full-vocal prompt.

## **Post-Training**

Following the presentation on the SWEEPS, participants began post-training sessions. These sessions were procedurally identical to pre-training, except that the participants now also had access to the SWEEPS materials. The experimenter did not provide any feedback to the participants on their selection of the prompting strategy or their use of the SWEEPS. If a participant's correct responding did not demonstrate an increasing trend within three to five sessions, the experimenter conducted a feedback session with the participant.

### **Post-Training Feedback**

The experimenter provided the participant with feedback on their evaluation and selection of prompting strategies using the SWEEPS. As the experimenter provided corrective feedback, they oriented the participant to the applicable SWEEPS materials and reviewed how to use or navigate them. Feedback sessions typically lasted between 5-10 min. In most cases, the experimenter provided indirect feedback (e.g., “Make sure to follow the flowcharts carefully,” “Double-check your work,” “Be sure to use all of your materials”). The experimenter provided two participants, Allyn and Lynn, with direct praise and corrective feedback in their second feedback sessions after their error patterns persisted. Participants resumed post-training sessions as described above following each feedback session. If the participant emitted any further errors in their evaluation or selection of the prompting strategy in subsequent sessions, the experimenter conducted another feedback session with the participant.

### **Generalization Probes**

The experimenter asked the participant to evaluate and select prompting strategies for a child with ASD before and following training to assess generalization. The experimenter provided the participant with the same materials for each student as with the confederate students (e.g., both known and unknown vocal and motor tasks). The students were learners receiving focused-intervention services at a university-based clinic. Participants in Experiment 1 had no previous experience with any of the students prior to the sessions. Participants in Experiment 2 had little to no previous experience with the students. For sessions in which the participant did have previous experience with the student (e.g., they were that student’s primary therapist), the experimenters asked the participant to teach the student a new skill that had not previously been targeted with that student (e.g., reading advanced sight words). Participants completed their generalization

probes with the same student in both pre-training and post-training except for the rare occasion that the student was ill.

Before the generalization session, the experimenter and the student's BCBA<sup>®</sup> met to develop a written learner profile for them. An experimenter and the student's BCBA<sup>®</sup> independently completed the SWEEPS for the student to determine the characteristics that would be listed in the learner profile. After they both completed the SWEEPS, the experimenter and BCBA<sup>®</sup> compared their results. If they scored a different outcome on one or more items (i.e., one recorded "Yes" while the other recorded "No), they reviewed their data and remediated these discrepancies.

The target skill for each student was either a current acquisition target or a future one. During the session, the student was in the room playing with toys or other leisure activities. The student's primary therapist or the experimenter supervised the student while the participant made their selections. The experimenter told the participant that they were allowed to interact with the student at any time if they would like to assess something. The student's therapist did not give the participant any instructions on how to work with the student except to point out highly preferred items and how to manage problem behavior (this rarely occurred).

After the participants in Experiment 1 completed their post-training generalization probe(s), the experimenter debriefed them and provided both behavior-specific praise and corrective feedback on their performance. Participants in Experiment 2 did not receive feedback at this time and instead progressed to the next condition.

### **Removal of SWEEPS Materials**

After completing post-training sessions and generalization probes, participants in Experiment 2 completed additional sessions without the SWEEPS materials available. The purpose of this condition was to evaluate whether participants' correct selection and

evaluation of an appropriate prompting strategy maintained in the absence of the SWEEPS manual and accompanying materials. Sessions were procedurally identical to pre-training. Participants continued these sessions until their evaluation and selection of the prompting strategy were stable or on a decreasing trend for at least three sessions.

### **Social Validity**

After participants completed the post-training generalization probes, we administered an adapted version of the Intervention Rating Profile (See Appendix E; Eckert, Hintze, & Shapiro, 1999) to collect social validity data from participants on the SWEEPS. We also administered this questionnaire again following the completion of the removal of the SWEEPS condition in Experiment 2.

We also sent each participant a link to an anonymous Qualtrics™ survey approximately 2-4 months following completion of the study to learn about the participants' use of the SWEEPS materials.

CHAPTER III:  
EXPERIMENT 1

**Method**

**Types of Prompts and Prompt-Fading Training**

The experimenter delivered the PowerPoint™ presentation to the participants as a group for each 5-day session of the teacher-training program. In addition to the participants, six to eight additional special-education teachers and paraprofessionals not participating in the study attended each presentation. After the presentation, each participant moved to an individual session room with an experimenter to complete the pre-study training on the types of prompts and prompt-fading strategies. On average, each participant completed this training within 45 min to 1 hr.

**Pre-Training**

Participants completed pre-training sessions as described above. After each session, the experimenter and confederate student exited the room with all session data-collection sheets, restocked any missing materials (e.g., datasheets), and immediately began the next session. All participants, except for Lynn, completed all pre-training sessions within one 2-hr block. Lynn completed her remaining pre-training sessions during a second 30-min block.

For the first three participants, the data-collection sheet that they recorded their selections for the type(s) of prompt(s) and the prompt-fading strategy did not have the prompts and prompt-fading strategies listed. Instead, the participants wrote in all of their selections. We changed this to a selection-based response from an open-ended response for all subsequent participants because participants were making errors such as (a) writing down multiple prompt-fading strategy without specifying any response prompts

or (b) writing down multiple response prompts while not specifying a prompt-fading strategy.

### **SWEEPS Training**

Participants received the SWEEPS training in a group format as described above.

### **Post-Training**

Participants completed post-training sessions as described above.

### **Post-Training Feedback**

Kennedy, Allyn, Lynn, and Ellis experienced indirect feedback following at least one post-training session. Kennedy, Allyn, and Ellis all received feedback to double check their responses or to re-read the learner profile carefully. Lynn received feedback in the form of a textual prompt on a sticky note in her second feedback session, reminding her to conduct the LTM probe when she selected prompt delay, MTL, or MTL D.

### **Generalization Probes**

All participants completed one generalization probe with an actual learner in both pre-training and following post-training sessions. Riley completed two post-training generalization probes because the learner in her first probe responded independently and correctly in all trials during the LTM probe that she conducted to determine her initial prompt level with the learner. We asked Riley to complete a second probe with another learner who did not demonstrate any correct independent responses for the target skill.

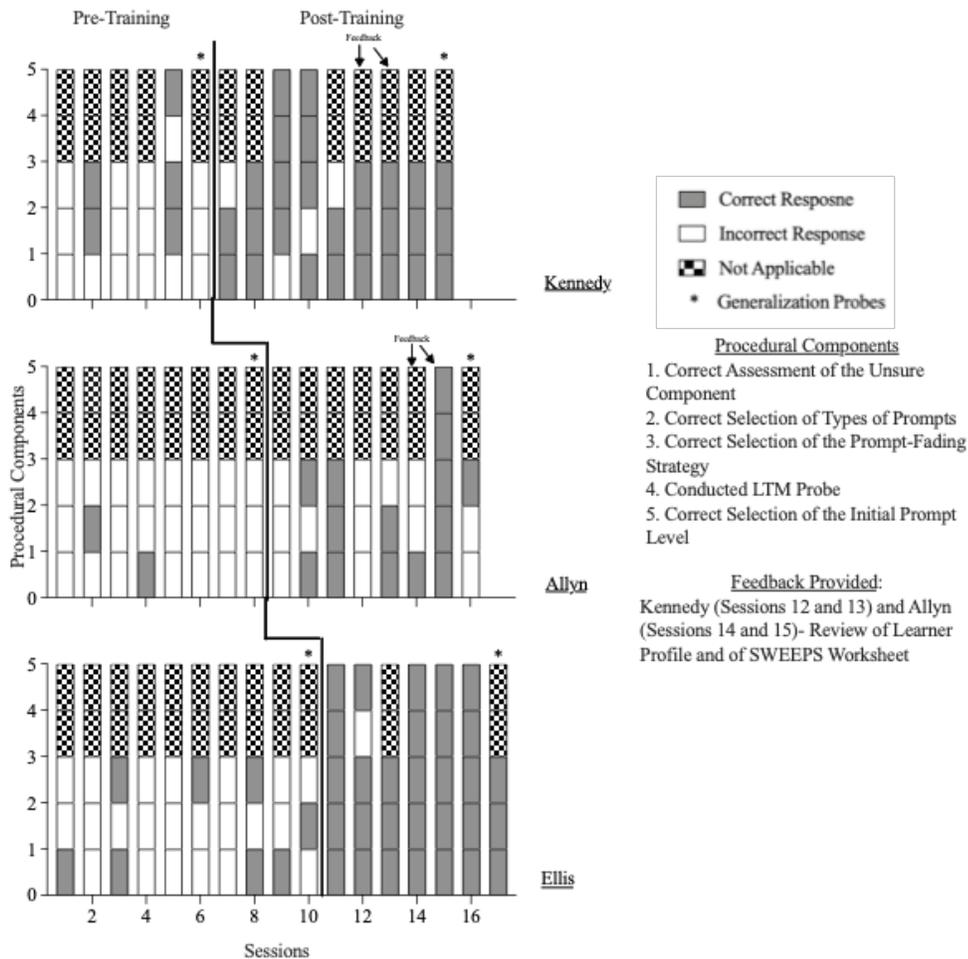
### **Experimental Design**

We used a concurrent multiple baseline design across participants who were enrolled in the same teacher-training program to evaluate the efficacy of the SWEEPS materials on the participants' correct evaluation and selection of prompting strategies.

## Results

Figure 1 depicts the results of the first group of teachers (Kennedy, Allyn, and Ellis). The stacked bars depict the five components of correct responding in each session.

*Figure 1*  
Evaluation and selection data for the participants in Experiment 1-Group 1



The x-axis depicts sessions. The y-axis depicts each of the procedural components of evaluation and selection: the assessment of the correct unsure component, selection of the correct type(s) of prompt(s), selection of the correct prompt-fading strategy, correctly conducted an LTM probe and selected the correct initial prompt level (when applicable). Empty bars depict procedural components the participant did not perform correctly.

Checkered bars depict components scored as not applicable (N/A). Asterisks denote generalization probes with an actual student. Sessions in which the participant received feedback prior to the session are denoted with an arrow.

During pre-training, Kennedy did not correctly assess the unsure component of the learner profile in any of her confederate student sessions or generalization probe. She selected the correct type(s) of prompt(s) and prompt-fading strategy in two of her five (40%) confederate student sessions but did not do so in her generalization probe. She also correctly conducted an LTM probe to determine the initial prompt level in one confederate student session but did not select the correct initial prompt level. In post-training sessions, Kennedy correctly assessed the unsure component in seven of eight (87.5%) confederate student sessions and her generalization probe. She selected the correct type(s) of prompt(s) in seven of eight (87.5%) confederate student sessions and her generalization probe. She selected the correct prompt-fading strategy in three of five (60%) confederate sessions before receiving feedback, and correctly selected the prompt-fading strategy in the remaining three confederate student sessions and her generalization probe following feedback on how to read the learner profile and to follow the flowcharts carefully. Finally, she correctly conducted an LTM probe and selected the correct initial prompt level in both applicable sessions.

In pre-training, Allyn correctly assessed the unsure component of the learner in one of seven (14%) confederate sessions and did not do so in her generalization probe. She selected the correct type(s) of prompt(s) in one of seven (14%) confederate sessions and did not do so in her generalization probe. She did not select the correct prompt-fading strategy in any of her confederate student sessions or in the generalization probe. Allyn also did not conduct an LTM probe in any of her pre-training sessions; however, we scored this component as N/A because she did not select the correct prompt-fading

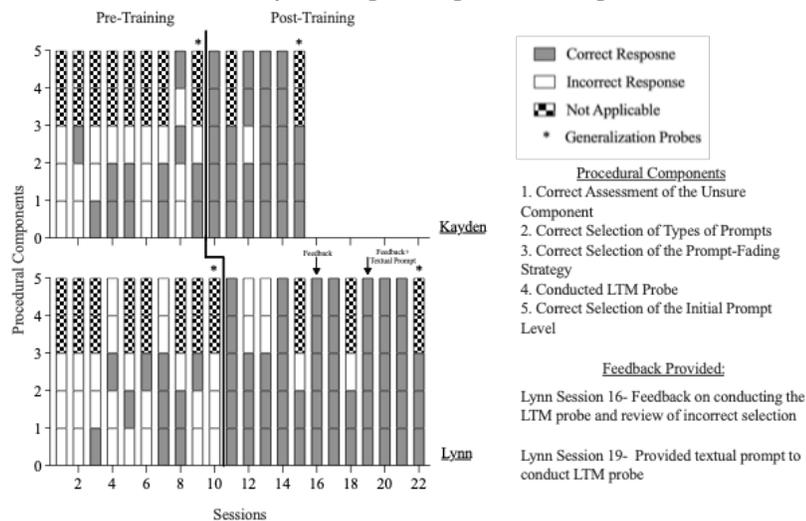
strategy when an LTM probe was indicated. In post-training sessions, Allyn correctly assessed the unsure component in three of five (60%) confederate student sessions before feedback. She correctly assessed the unsure component in both remaining confederate student sessions following feedback on how to read the learner profiles and to follow the flowcharts carefully but did not do so in her generalization probe. Allyn selected the correct type(s) of prompt(s) in two of five (40%) confederate student sessions prior to feedback. Following the first time Allyn received feedback to read the learner profile and flowcharts carefully, she still did not select the correct type(s) of prompt(s) but did do so following the second round of feedback which included descriptive corrective feedback and modeling of how to transfer information from the learner profile onto the SWEEPS worksheet and then how to follow the flowcharts. She did not select the correct type(s) of prompt(s) in her generalization probe.

In pre-training, Ellis correctly assessed the unsure component of the learner in four of nine (44%) confederate sessions and did not do so in her generalization probe. She did not select the correct type(s) of prompt(s) in any confederate student sessions but did do so in her generalization probe. She selected the correct prompt-fading strategy in three of nine (33%) of confederate student sessions but did not do so in her generalization probe. Ellis also did not conduct an LTM probe in any of her pre-training sessions; however, we scored this component as N/A because she either (a) did not select the correct prompt-fading strategy when an LTM probe was indicated or (b) selected the correct prompt-fading strategy that did not require an LTM probe. In post-training sessions, Ellis correctly assessed the unsure component of the learner, selected the correct type(s) of prompt(s), selected the correct prompt-fading strategy, and conducted an LTM probe (when applicable) in five of six (83%) of her confederate student sessions. She

selected the correct initial prompt level in all six post-training confederate sessions and the generalization probe (when applicable).

Figure 2 depicts the results of the second group of teachers (Kayden and Lynn). In pre-training, Kayden correctly assessed the unsure component in four of eight (50%) confederate student sessions and in her generalization probe. She selected the correct type(s) of prompt(s) in three of eight (37.5%) confederate student sessions and in her generalization probe. She selected the correct prompt-fading strategy in two of eight (25%) confederate student sessions but did not do so in her generalization probe. As applicable, Kayden did not correctly conduct an LTM probe in one opportunity but did correctly select the initial prompt level in that session. In post-training sessions, Kayden correctly assessed the unsure component, selected the correct type(s) of prompt(s), correctly conducted an LTM probe (when applicable), and correctly selected the initial prompt level (when applicable) in all five confederate student sessions and in her generalization probe. She selected the correct prompt-fading strategy in four of five (80%) confederate sessions and in her generalization probe.

*Figure 2*  
*Evaluation and selection data for the participants in Experiment 1-Group 2*

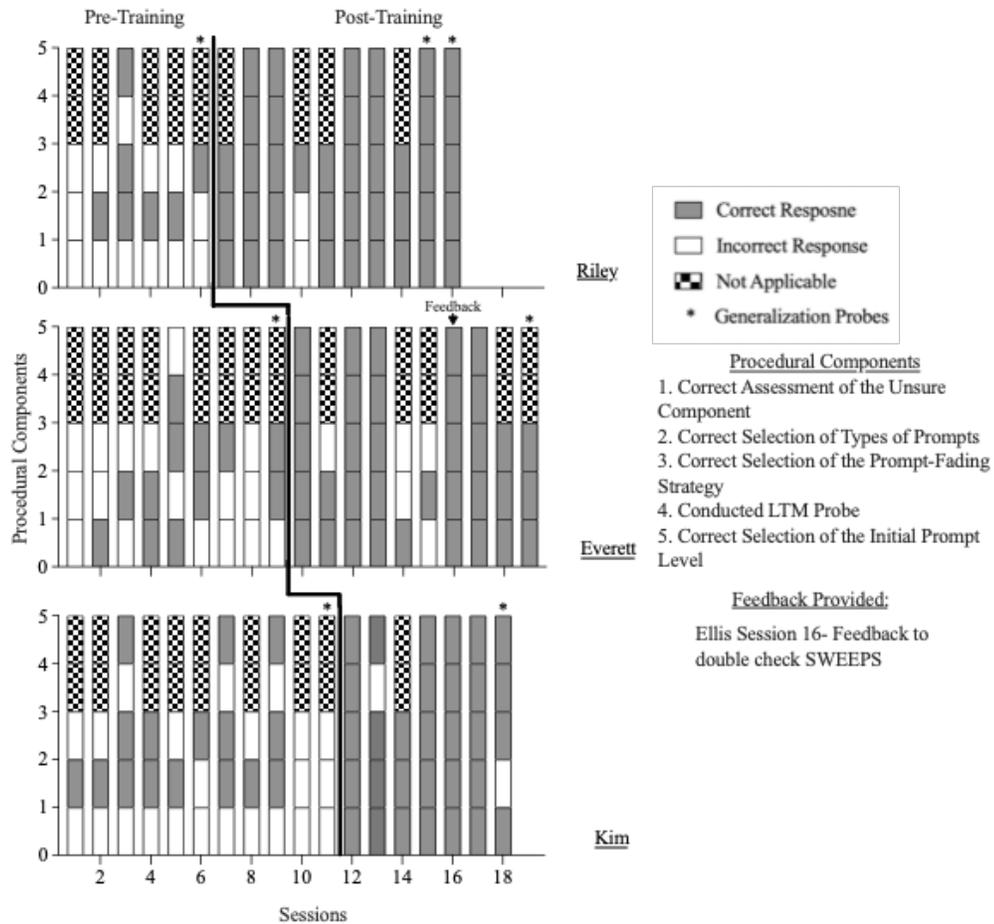


In pre-training, Lynn correctly assessed the unsure component and selected the correct type(s) of prompt(s) in three of nine (33%) confederate student sessions and did not do so in her generalization probe. She selected the correct prompt-fading strategy in four of nine (44%) confederate student sessions and did not do so in her generalization probe. When applicable, Lynn did not correctly conduct an LTM probe or select the correct initial prompt level in either of two opportunities. In post-training sessions, Lynn correctly assessed the unsure skill and selected the correct type(s) of prompt(s) in all eleven confederate student sessions and in her generalization probe. She selected the correct prompt-fading strategy in nine of eleven (82%) confederate student sessions and in her generalization probe. Lynn correctly conducted an LTM probe (when applicable) in seven of eleven (64%) confederate student sessions. The experimenter delivered feedback to Lynn on how to conduct the LTM probe and provided her with a textual prompt to remind her to conduct the probe. In both sessions 15 and 18, Lynn initially selected the correct prompt-fading procedure but subsequently changed it when she got to the portion of the SWEEPS related to conducting the LTM probe. In both instances, Lynn followed the instructions for conducting the LTM procedure incorrectly which resulted in her selecting an incorrect prompt-fading procedure and therefore made the scores for the LTM probe and the selection of the initial prompt level N/A.

Figure 3 depicts the results of the third group of participants (Riley, Everett, and Kim). In pre-training, Riley did not correctly assess the unsure component in any of her confederate student sessions or her generalization probe. She selected the correct type(s) of prompt(s) in four of five (80%) confederate student sessions but did not do so in her generalization probe. She selected the correct prompt-fading procedure in one of five (20%) confederate student sessions and in her generalization probe. In her one opportunity, Riley did not correctly conduct an LTM probe but did select the correct

initial prompt level. In post-training sessions, Riley correctly assessed the unsure component and selected the correct type(s) of prompt(s) in seven of eight (87.5%) confederate student sessions as well as in both of her generalization probes. She selected the correct prompt-fading strategy in all seven confederate student sessions and in both of her generalization probes. When applicable, Riley correctly conducted an LTM probe and selected the correct initial prompt level in all four confederate sessions and in both generalization probes.

*Figure 3*  
*Evaluation and selection data for the participants in Experiment 1-Group 3*



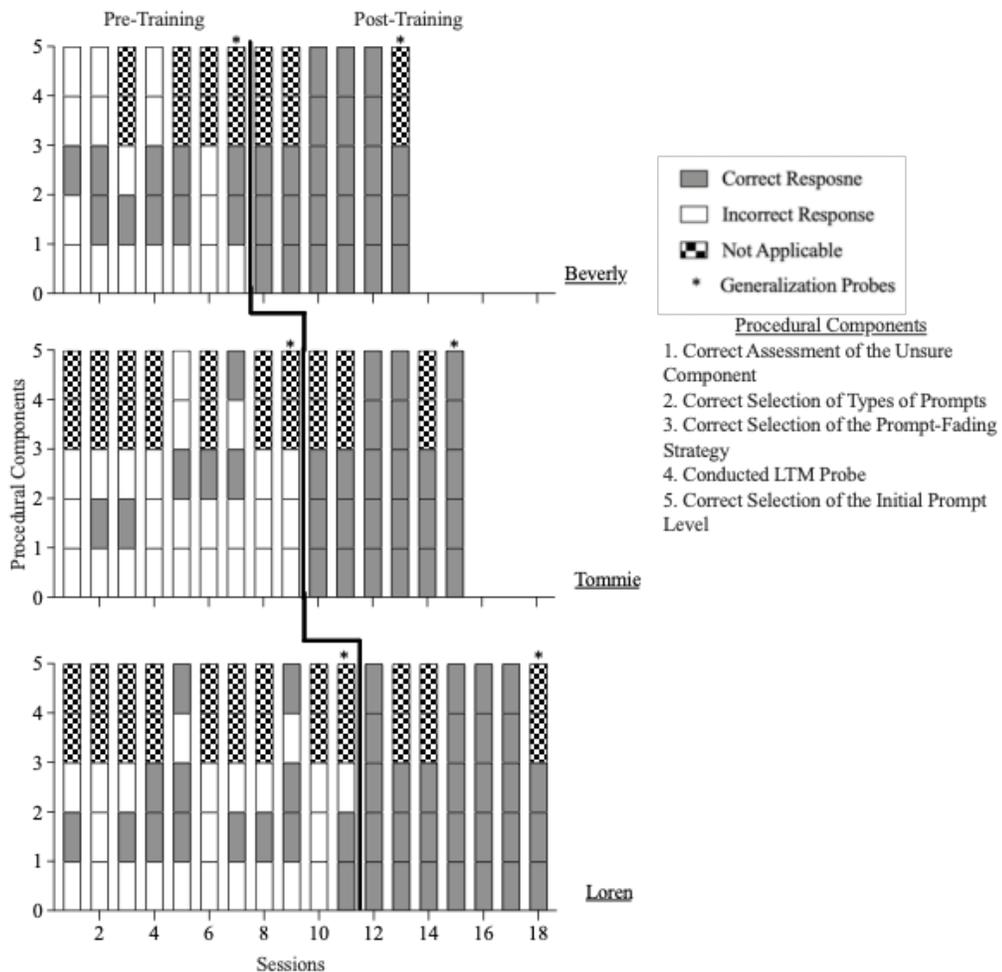
In pre-training, Everett correctly assessed the unsure component in three of eight (37.5%) confederate sessions but did not in his generalization probe. He selected the correct type(s) of prompt(s) and the correct prompt-fading strategy in three of eight (37.5%) of confederate student sessions and in his generalization probe. When applicable, Everett correctly conducted an LTM probe in his one opportunity but did not select the correct initial prompt level. In post-training sessions, Everett correctly assessed the unsure component and selected the correct type(s) of prompts in eight of nine (89%) confederate sessions and in his generalization probe. He selected the correct prompt-fading strategy in three of six (50%) sessions before receiving feedback to double-check the learner profile and his data on the SWEEPS to ensure they matched. Following feedback, Everett selected the correct prompt-fading strategy in all three confederate student sessions and his generalization probe. When applicable, Everett correctly conducted an LTM probe and selected the correct initial prompt level in all five opportunities.

In pre-training, Kim did not correctly assess the unsure component in any of her confederate student sessions or in her generalization probe. She selected the correct type(s) of prompt(s) in eight of ten (80%) confederate student sessions but not her generalization probe. She selected the correct prompt-fading strategy in five of ten (50%) confederate student sessions but not in her generalization probe. When applicable, Kim did not correctly conduct an LTM probe but did select the correct the initial prompt level. In post-training sessions, Kim correctly assessed the unsure component and selected the correct prompt-fading strategy in all six confederate student sessions and in her generalization probe. She selected the correct type(s) of prompt(s) in all six confederate sessions but not in her generalization probe. When applicable, she correctly conducted an

LTM probe in four of five (80%) confederate student sessions and in her generalization probe and selected the correct initial prompt level in all of them.

Figure 4 depicts the results of the fourth group of participants (Beverly, Tommie, and Loren). In pre-training, Beverly did not correctly assess the unsure component in any of her confederate student sessions or her generalization probe. She selected the correct type(s) of prompt(s) and the correct prompt-fading strategy in four of six (67%) confederate student sessions and her generalization probe.

*Figure 4*  
Evaluation and selection data for the participants in Experiment 1-Group 4



When applicable, she did not correctly conduct an LTM probe or select the correct initial prompt level in three opportunities. In post-training sessions, Beverly correctly assessed the unsure component and selected the correct type(s) of prompt(s) and prompt-fading strategy in all five confederate student sessions and in her generalization probe. When applicable, Beverly correctly conducted an LTM probe and selected the correct initial prompt level in all three opportunities.

In pre-training, Tommie did not correctly assess the unsure component in any of his confederate sessions or generalization probe. He selected the correct type(s) of prompt(s) in two of eight (25%) confederate student sessions but not in his generalization probe. He selected the correct prompt-fading strategy in three of eight (37.5%) confederate student sessions but not in his generalization probe. When applicable, Tommie did not correctly conduct an LTM probe in either opportunity but did select the correct initial prompt level once. In post-training sessions, Tommie correctly assessed the unsure component and selected the correct type(s) of prompt(s) and prompt-fading strategy in all five confederate student sessions and in his generalization probe. When applicable, Tommie correctly conducted an LTM probe and selected the correct initial prompt level in all three opportunities.

In pre-training, Loren did not correctly assess the unsure component in any of her 10 confederate student sessions but did do so in her generalization probe. She selected the correct type(s) of prompt(s) in seven of ten (70%) confederate student sessions and in her generalization probe. She selected the correct prompt-fading strategy in three of 10 (30%) confederate sessions but did not in her generalization probe. When applicable, Loren did not correctly conduct an LTM probe but did select the correct initial prompt level in two opportunities. In post-training sessions, Loren correctly assessed the unsure component, selected the correct type(s) of prompt(s), and prompt-fading strategy in all six

confederate student sessions and in her generalization probe. When applicable, Loren correctly conducted an LTM probe and selected the correct initial prompt level in all four opportunities.

The data from the IRP questionnaire are displayed in Table 2. Respondents across the 4 weeks reported that the SWEEPS would be an acceptable assessment tool to use with their students (M= 5.4-5.7, Range= 5-6). They also reported that the SWEEPS would be acceptable for a variety of students (M=5.1-5.8, Range= 4-6). These data suggest both participants and non-participants (i.e., the other teachers attending the training) found the SWEEPS materials to be a socially significant intervention package.

Additionally, five of the 11 participants completed the anonymous Qualtrics™ survey, and one additional participant replied with their answers to the experimenter's email that contained the link to the survey. Four of the six respondents indicated that they had used the SWEEPS at least once since receiving the materials. One of these respondents reported they had used the SWEEPS at least five separate times. The remaining two respondents reported that they had not looked at or used the SWEEPS materials since receiving the materials. One respondent explained why they had not used the SWEEPS, writing that all of her students “receive services in general education classrooms and I use limited types of prompts.” The other respondent did not provide an explanation.

Table 2  
*Intervention Rating Profile (IRP) for SWEEPS (Experiment 1)*

Question	<u>Group 1 (n=9)</u>		<u>Group 2 (n=8)</u>		<u>Group 3 (n=11)</u>		<u>Group 4 (n=3)</u>	
	<u>Mean</u>	<u>Range</u>	<u>Mean</u>	<u>Range</u>	<u>Mean</u>	<u>Range</u>	<u>Mean</u>	<u>Range</u>
1. This would be an acceptable assessment tool to use with my students	5.7	5-6	5.4	5-6	5.7	5-6	5.4	5-6
2. Most teachers would find this assessment tool appropriate	5.4	4-6	5.0	4-6	5.4	4-6	5.0	4-6
3. This assessment tool should prove helpful in identifying effective prompting strategies for my students	5.6	4-6	5.3	4-6	5.6	4-6	5.3	4-6
4. I would suggest this assessment tool to other teachers	5.6	4-6	5.3	4-6	5.6	4-6	5.3	4-6
5. I would be willing to use this assessment tool in my classroom	5.7	4-6	5.1	3-6	5.7	4-6	5.1	3-6
6. This assessment tool would <i>not</i> result in negative side-effects for the student	5.4	5-6	5.6	5-6	5.4	5-6	5.6	5-6
7. This assessment tool would be appropriate for a variety of students	5.8	5-6	5.1	4-6	5.8	5-6	5.1	4-6
8. This assessment tool is consistent with those I have used in my classroom	4.0	1-6	4.0	2-6	4.0	1-6	4.0	2-6
9. I like this assessment tool	5.6	5-6	5.1	3-6	5.6	5-6	5.1	3-6
10. Overall, this assessment tool would be beneficial for a student	5.8	5-6	5.5	5-6	5.8	5-6	5.5	5-6

## **Discussion**

Across four groups of special-education teachers, seven of the eleven participants' evaluation and selection of prompting strategies improved without any feedback from the experimenter. Four participants required one to two feedback sessions in order to demonstrate the correct evaluation and selection of prompting strategies. Overall, the feedback that we gave to these participants related at least in part to their reading comprehension of the learner profile. For Kennedy and Allyn, the learner profiles were written as one long paragraph, which may have increased the difficulty of extracting the necessary information for selecting the appropriate prompting strategy. Additionally, all eleven participants completed many sessions consecutively for extended periods of time within the context of an extensive teacher-training program. Therefore, these participants may have been experiencing fatigue during some sessions that impacted their accuracy in following the complicated flowcharts and completing the worksheet.

The task of evaluating and selecting an appropriate prompting strategy for a given student and a given skill is not a simple one. Instead, it is a series of conditional discriminations involving many possible procedural components. Practicing behavior analysts must engage in these discriminations frequently during standard clinical duties and could potentially benefit from a supplemental resource, such as the SWEEPS, to guide their decision-making process with their students. One limitation of these data is that we used an indirect measure of selection (i.e., written response) and did not directly measure their accuracy of implementation of these procedures. Therefore, in Experiment 2, we evaluated the efficacy of the SWEEPS materials in improving the integrity of aspiring behavior analysts' evaluation and selection using a more direct measure of selection (i.e., actual implementation).

CHAPTER IV:  
EXPERIMENT 2

**Method**

**Types of Prompts and Prompt-Fading Training**

The experimenter delivered the PowerPoint™ presentation to each participant individually rather than as a group due to differences in participant availability.

**Pre-Training**

Pre-training sessions were conducted exactly as described above, with one exception. Once the participant selected the type(s) of prompt(s) and prompt-fading strategy they would use to teach the skill, the experimenter asked the participant to implement their selected prompting strategy in a 6-trial teaching session. Once the participant completed the sixth trial, the experimenter ended the session and prepared for the next session. The experimenter did not provide any feedback on the accuracy of implementation of their selected prompting procedure.

**SWEEPS Training**

The experimenter delivered the PowerPoint™ presentation to each participant individually rather than as a group due to differences in participant availability.

**Post-Training and Post-Training Feedback**

Procedures were identical to those described previously. We conducted differing numbers of post-training sessions with each participant (Range= 5-10 sessions).

**Generalization Probes**

We conducted two generalization probes with actual students in both pre-training and following post-training sessions. One of the generalization probes for each participant was with a student who tended to learn new skills relatively quickly while the

other probe was with a student who tended to learn new skills relatively slowly and demonstrated learning characteristics such as no motor imitation or prompt dependence.

### **Removal of SWEEPS Materials**

Each participant experienced this condition between 2-4 weeks after their completion of post-training sessions due to a holiday break that occurred immediately after the post-training sessions.

### **Social Validity**

We administered the IRP to each participant twice: once before the removal of the SWEEPS condition and once immediately following this condition. Renata and Celeste only completed one survey following the removal condition. Following the second survey, the experimenter met with the participant to debrief them on the purpose of the study and to describe their performance. Due to an experimenter error, one participant (Celeste) did not complete her survey until after her debrief meeting.

We also sent each participant a link to an anonymous Qualtrics™ survey approximately 1 month following completion of the study to learn about the participants' use of the SWEEPS materials.

### **Experimental Design**

We used a nonconcurrent multiple baseline design across participants to evaluate the efficacy of the SWEEPS materials on the participants' correct evaluation, selection, and accuracy of implementation of prompting strategies.

## **Results**

Figure 5 depicts the results of the participants' evaluation and selection of prompting strategies, and Figure 6 depicts the accuracy of the participants' implementation of the prompting strategy. The x-axis in Figure 6 depicts 6-trial block sessions. The y-axis depicts the percentage of trials with correct implementation of the

appropriate prompting strategy. Asterisks denote generalization probes with an actual learner. Sessions in which the participant received feedback prior to the session are denoted with an arrow.

Figure 5  
Evaluation and selection data for the participants in Experiment 2

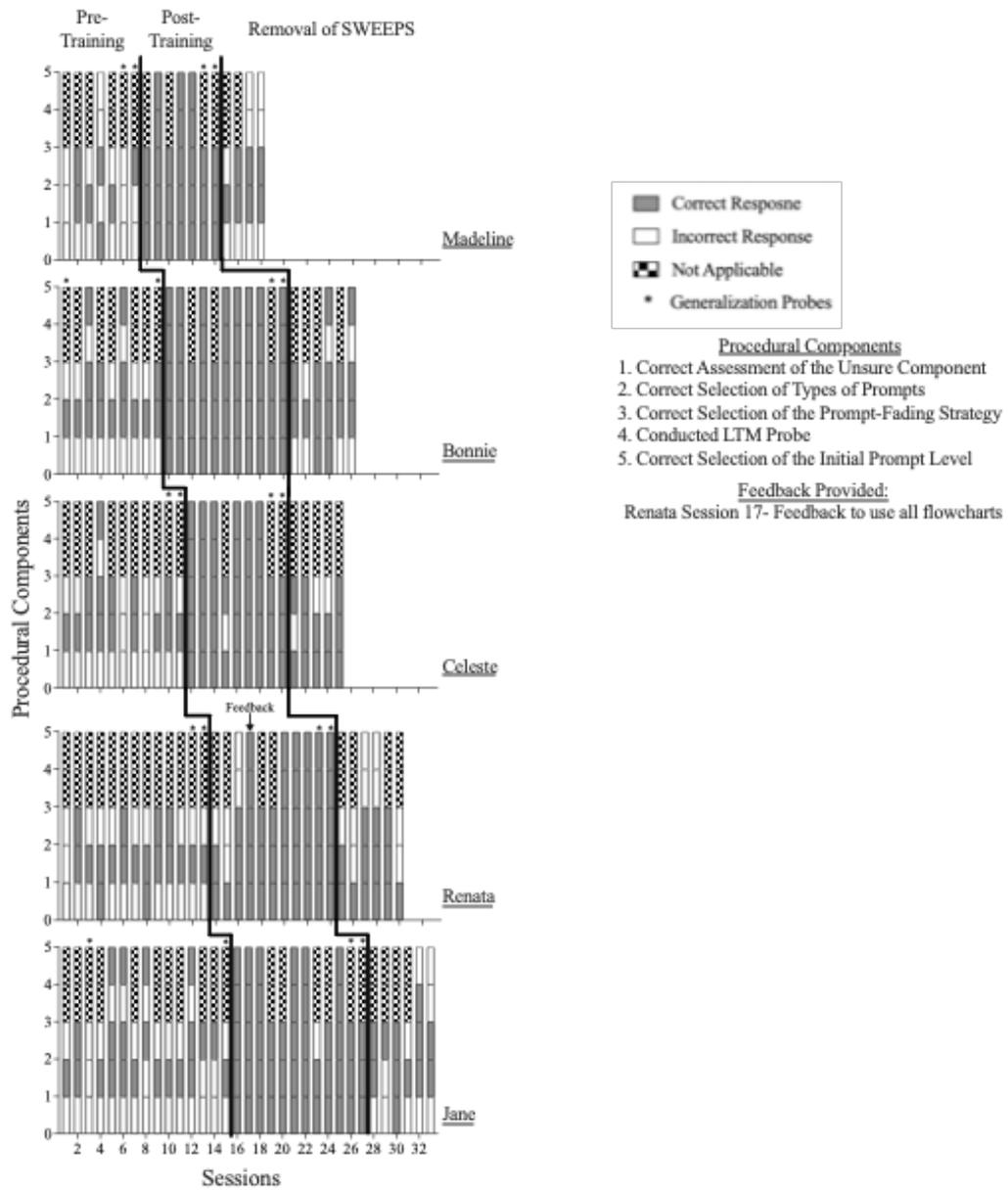
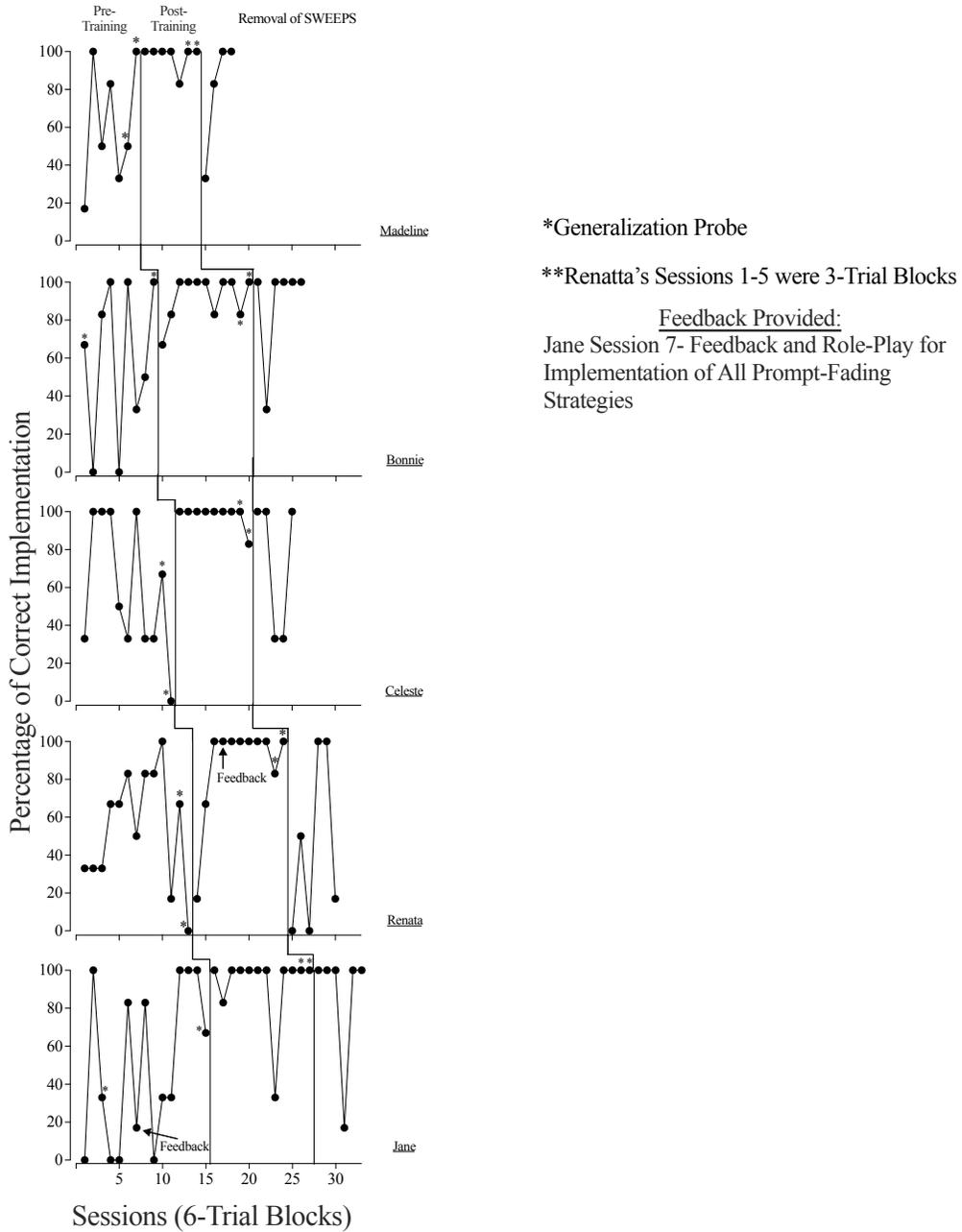


Figure 6  
Implementation data for the participants in Experiment 2



In pre-training, Madeline correctly assessed the unsure component in one of five (20%) confederate student sessions but not in either generalization probe. She selected the correct type(s) of prompt(s) in three of five (60%) confederate student sessions but

not in either generalization probe. She selected the correct prompt-fading strategy in two of five (40%) confederate student sessions and in one of two (50%) generalization probes. When applicable, Madeline did not correctly conduct an LTM probe or select the correct initial prompt level in one opportunity. Finally, Madeline's accuracy of implementation was variable ( $M = 62\%$ ) with a higher degree of accuracy occurring in sessions in which her written selection of the prompting strategy was accurate and a lower degree of accuracy occurring in sessions in which her written selection was not accurate. In post-training sessions, Madeline correctly assessed the unsure component and selected the correct type(s) of prompt(s) and correct prompt-fading strategy in all five confederate student sessions and in both generalization probes. When applicable, she correctly conducted an LTM probe and selected the correct initial prompt level in all three opportunities. Her accuracy of implementation of the appropriate prompting strategy was high ( $M = 98\%$ ). When she did not have access to the SWEEPS, Madeline continued to select the correct type(s) of prompt(s) in all sessions and selected the correct prompt-fading in three of four sessions, but did not continue to correctly assess the unsure component. She also did not continue to correctly conduct an LTM probe or select the correct initial prompt level in either of two opportunities. Her accuracy of implementation was variable ( $M = 79\%$ ) but remained high in sessions in which her written selection of the prompting strategy was accurate.

In pre-training, Bonnie did not correctly assess the unsure component in any of her seven confederate student sessions or two generalization probes. She selected the correct type(s) of prompt(s) in all confederate student sessions and generalization probes. She selected the correct prompt-fading strategy in three of seven (43%) confederate student sessions and in one generalization probe. When applicable, she did not correctly conduct an LTM probe but did select the correct initial prompt level in both

opportunities. Bonnie's accuracy of implementation of the appropriate prompting strategy was variable (M= 59%) with a higher degree of accuracy occurring in sessions in which her written selection of the prompting strategy was accurate and with a lower degree of accuracy occurring in sessions in which her written selection was not accurate. In post-training sessions, Bonnie correctly assessed the unsure component and selected the correct type(s) of prompt(s) and prompt-fading strategy in all nine confederate student sessions and in both generalization probes. When applicable, she correctly conducted an LTM probe and selected the correct initial prompt level in all eight opportunities. Her accuracy of implementation of the appropriate prompting strategy was high (M=92%). When she did not have access to the SWEEPS, Bonnie continued to select the correct type(s) of prompt(s) and prompt-fading strategy but only correctly assessed the unsure component in two of six (33%) sessions. Additionally, she did not continue to correctly conduct an LTM probe but did select the correct initial prompt level in both opportunities. Bonnie's accuracy of implementation of the appropriate prompting strategy was high (M= 89%), with the one session of low accuracy occurring in the session in which her written selection of the prompting strategy was not accurate.

In pre-training, Celeste did not correctly assess the unsure component in any of the nine confederate student sessions or either generalization probe. She selected the correct type(s) of prompt(s) in seven of nine (78%) confederate sessions and both generalization probes. She selected the correct prompt-fading strategy in five of nine (56%) confederate sessions but neither generalization probe. When applicable, she correctly conducted an LTM probe in one of two opportunities and selected the correct initial prompt level in both. Celeste's accuracy of implementation of the appropriate prompting strategy was variable (M= 59%) with a higher degree of accuracy occurring in sessions in which her written selection of the prompting strategy was accurate and with a

lower degree of accurate occurring in sessions in which her written selection was not accurate. After training, Celeste correctly assessed the unsure component and selected the correct prompt-fading strategy in all six confederate student sessions and both generalization probes. She selected the correct type(s) of prompt(s) in five of six (83%) confederate student sessions and both generalization probes. When applicable, she correctly conducted an LTM and selected the correct initial prompt level in all six opportunities. Celeste's accuracy of implementation of the appropriate prompting strategy was high (M= 98%). In the removal of SWEEPS sessions, Celeste continued to correctly assess the unsure component in all five sessions. Her selection of the correct type(s) of prompt(s) decreases slightly to four of five (80%) sessions and selection of the correct prompt-fading strategy decreasing to three of five (60%) sessions. Her accuracy of implementation of the appropriate prompting strategy was variable (M= 73%) with a higher degree of accuracy occurring in sessions in which her written selection of the prompting strategy was accurate and with a lower degree of accuracy occurring in sessions in which her written selection was not accurate.

In pre-training, Renata correctly assessed the unsure skill in two of eleven (18%) confederate student sessions but not in either generalization probe. She selected the correct type(s) of prompt(s) in ten of eleven (91%) confederate student sessions and in both generalization probes. She selected the correct prompt-fading strategy in four of eleven (36%) confederate student sessions but not in either generalization probe. Her accuracy of implementation of the appropriate prompting strategy was variable (M= 55%), with a relatively higher degree of accuracy occurring in sessions in which her written selection of the prompting strategy was accurate and with a lower degree of accuracy occurring in sessions in which her written selection was not accurate. In the first three sessions of post-training, Renata correctly assessed the unsure component in each

session, selected the correct type(s) of prompt(s) in two sessions, and selected the correct prompt-fading strategy in one session. When applicable, she did not correctly conduct an LTM probe or select the correct initial prompt level. Before the fourth session, the experimenter provided Renata feedback to use to the SWEEPS flowcharts (she was not referencing the second flowchart) and to read the procedures for conducting the LTM probe. In all subsequent sessions (six confederate-student sessions and two generalization probes) Renatta correctly assessed the unsure component, selected the correct type(s) of prompt(s), selected the correct prompt-fading strategy, conducted an LTM probe (when applicable), and selected the correct initial prompt level (when applicable). Her accuracy of implementation of the appropriate prompting strategy was high ( $M= 88\%$ ). When she did not have access to the SWEEPS, Renata continued to correctly assess the unsure component in all six sessions. Her selection of the correct type(s) of prompt(s) and correct prompt-fading strategy decreased slightly to four of six (67%) sessions and three of six (50%), respectively. Renata did not continue to correctly conduct an LTM probe or select the correct initial prompt level. Her accuracy of implementation of the appropriate prompting strategy was variable ( $M= 45\%$ ) with a higher degree of accuracy occurring in sessions in which her written selection of the prompting strategy was accurate and with a lower degree of accuracy occurring in sessions in which her written selection was not accurate.

In pre-training, Jane did not correctly assess the unsure component in any of her thirteen confederate student sessions or in her two generalization probes. She selected the correct type(s) of prompt(s) in ten of thirteen (77%) confederate sessions and in one of her generalization probes. Jane selected the correct prompt-fading strategy in seven of thirteen (54%) confederate sessions but not in either generalization probe. When applicable, she did not correctly conduct an LTM probe in any of four opportunities but

did select the correct initial prompt level in all of them. Her accuracy of implementation of the appropriate prompting strategy was variable (M= 50%). In the first six sessions, Jane's low accuracy was due to poor fidelity of providing prompts in a consistent hierarchy across trials. The experimenter conducted booster training for all five prompt-fading strategies before session 7. In all subsequent pre-training sessions, Jane's accuracy of implementation closely corresponded to the accuracy of her written selection of the correct prompt-fading strategy. After training, Jane correctly assessed the unsure component and selected the correct type(s) of prompt(s) in all ten confederate student sessions and in both generalization probes. She selected the correct prompt-fading strategy in nine of ten (90%) confederate student sessions and in both generalization probes. When applicable, Jane correctly conducted an LTM probe and selected the correct initial prompt level in all six opportunities. Her accuracy of implementation of the appropriate prompting strategy was high (M= 93%). Jane's accuracy of implementation in session 23 was low, which corresponded to the inaccuracy of her written selection of the prompt-fading strategy. Without access to the SWEEPS, Jane's correct assessment of the unsure component and conducting of the LTM probe occurred in just one of six (17%) and one of two (50%) sessions, respectively. She continued to select the correct type(s) of prompt(s) and prompt-fading strategy in five of six (83%) sessions. Jane's accuracy of implementation of the appropriate prompting strategy was high (M= 86%), with the only drop in accuracy occurring in the session in which her written selection of the prompt-fading strategy was inaccurate.

The data from the IRP questionnaire are displayed in Table 3. Each participant's ratings from pre-SWEEPS removal and post-SWEEPS removal are listed. Celeste and Renata only completed one survey following the removal of the SWEEPS. In general, participants rated their response to each question as either a 5 or 6 except for one

question. For the question, “This assessment tool is consistent with those I have used in my clinic,” participants rated their response in a range from 2-6. Across both sets of responses at the end of the post-training and withdrawal conditions, none of the participants’ responses changed by more than 2 points, and most responses did not change at all. Overall, these data suggest that participants found the SWEEPS to be an acceptable assessment tool.

Additionally, all five participants completed the Qualtrics™ survey. Two respondents reported having used the SWEEPS since their training while an additional respondent reported looking at (but not using) the SWEEPS. One respondent who reported not using the SWEEPS thus far wrote, “I actually plan to use the SWEEPS when I am unsure that least-to-most will be effective or whether physical prompts are aversive to my client because it's a great resource to have when you're unsure.” Another participant noted that the “prompting strategies were difficult to generalize to the school setting” but did not elaborate further on the difficulties they encountered. The third responding replied that the SWEEPS “has not been needed yet” for their clients.

### **Discussion**

These data demonstrate that the SWEEPS was successful in improving graduate students’ evaluation, selection, and implementation of appropriate prompting strategies. When we removed the SWEEPS from the participants, their evaluation, selection, and implementation returned to near pre-training levels. Only one of the five participants (Renata) required feedback to use all of the SWEEPS materials. Following this feedback, Renata’s performance improved and resembled that of the other four participants. All five participants reported high social validity in at least one measure.

One potential limitation of these findings is that the removal of the SWEEPS condition occurred approximately 2-4 weeks from the conclusion of the participants'

Table 3  
*Intervention Rating Profile (IRP) for SWEEPS (Experiment 2)*

Question	<u>Madeline</u>		<u>Bonnie</u>		<u>Celeste</u>		<u>Renata</u>		<u>Jane</u>	
	<u>1st</u>	<u>2nd</u>	<u>1st</u>	<u>2nd</u>	<u>1st</u>	<u>2nd</u>	<u>1st</u>	<u>2nd</u>	<u>1st</u>	<u>2nd</u>
1. This would be an acceptable assessment tool to use with my students	6	6	5	5	*	6	*	6	6	6
2. Most teachers would find this assessment tool appropriate	6	6	5	5	*	5	*	6	5	5
3. This assessment tool should prove helpful in identifying effective prompting strategies for my students	6	6	5	5	*	6	*	6	6	6
4. I would suggest this assessment tool to other teachers	6	6	6	5	*	6	*	6	5	5
5. I would be willing to use this assessment tool in my classroom	6	6	5	5	*	6	*	6	6	6
6. This assessment tool would <i>not</i> result in negative side-effects for the student	5	6	5	5	*	6	*	6	5	5
7. This assessment tool would be appropriate for a variety of students	6	6	6	6	*	5	*	6	6	6
8. This assessment tool is consistent with those I have used in my clinic	4	6	2	2	*	5	*	6	2	2
9. I like this assessment tool	6	6	5	5	*	5	*	6	6	6
10. Overall, this assessment tool would be beneficial for a student	6	6	5	5	*	5	*	6	6	6

post-training sessions due to the holiday break. Therefore, it is unclear whether the return to near-pre-training levels of performance was a result of the participants not practicing the selection for a prolonged time or whether the SWEEPS alone controlled performance; however, it is likely that the SWEEPS controlled the participants' correct selection given the complexity of the conditional discriminations involved in selecting an appropriate strategy. This complexity may apply specifically to the selection of the prompt-fading strategy. In pre-training and removal sessions, participants more often selected the correct types of prompts relative to the correct prompt-fading strategy. This may be a result of the relatively larger number of considerations that comprise the selection of a prompt-fading strategy compared to the selection of types of prompts. Additionally, all of the participants in this experiment worked in close-quarters within the same university-based clinic. Although we asked participants not to share details of the study with one another, it is possible this occurred while an experimenter was not present. Prior to beginning the removal of the SWEEPS condition, the experimenter asked each participant, "When was the last time that you looked at the SWEEPS?" Only one participant (Renata) indicated that she had looked at the materials prior to coming to the session that day. Renata was the first participant to experience the removal condition and did not know the purpose of the session ahead of time. The remaining four participants all indicated that they had not looked at the SWEEPS materials since their final post-training session.

## CHAPTER V: GENERAL DISCUSSION

Across two experiments, we developed and evaluated the efficacy of a decision-making tool manual to guide special-education teachers and graduate students seeking their BCBA<sup>®</sup> credential to evaluate and select appropriate prompting strategies to use with their students across a variety of skills. In Experiment 1, we evaluated the efficacy of the tool to increase the correct written selection of appropriate prompting strategies. In Experiment 2, we evaluated the efficacy of the tool via a more direct measure of selection by examining the participants' actual implementation of prompting strategies.

Despite an expansive literature base that describes the optimal uses of various types of response prompts and prompt-fading strategies, the SWEEPS is the first attempt to synthesize this information into a practical decision-making tool for teachers and clinicians to our knowledge. Tools such as the SWEEPS may be especially useful for populations such as special-education teachers and newly certified BCBA<sup>®</sup>s who may have relatively less experience selecting prompting strategies for diverse learners and targeted skills. Although school districts are increasingly hiring BCBA<sup>®</sup>s to support their special-education teachers, the BCBA<sup>®</sup> may be responsible for managing the district's entire body of students requiring special education services. Additionally, these BCBA<sup>®</sup>s are often tasked with targeting severe or disruptive problem behavior before skill-acquisition programs. Therefore, the SWEEPS might serve as a supplemental aid to clinicians in schools when a BCBA<sup>®</sup> is not available to advise the evaluation, selection, and implementation of a prompting strategy.

One limitation that is inherent in any decision-making tool is that it is not possible (or at least practical) to include every possible consideration from the literature. For example, the SWEEPS does not include guidance in the selection or use of differential

observing responses (DORs) or supplemental error-correction procedures that may be required for some students' responding to reach mastery performance. The dilemma when creating a decision-making tool becomes one of determining a balance between sufficient information to guide appropriate decision-making while not including too much information that makes the tool less practical to use. Although we believe that the SWEEPS contains sufficient information to make sound clinical judgments for most students in most cases, future research is required to determine participants' perceived practicality of different-sized decision-making tools and their impacts on student outcomes.

A second limitation is that decision-making tools capture best-practice recommendations at a specific moment in time. Research on the use of various prompting strategies continues to be published every year. Although the basic recommendations pertaining to the use of these prompting strategies have remained mostly consistent, there is always the possibility that future research will alter best-practice guidelines and would render the tool outdated and in need of updating.

A third limitation is that someone using the SWEEPS must be taught to implement all of the prompt-fading strategies in the SWEEPS. Similar to any decision-making tool, the person using the tool must be able to implement all of the various strategies detailed in it. If the person has not learned to implement one or more strategies in the tool, this could negatively impact a student's learning outcomes or could bias their use of the SWEEPS away from the unfamiliar or difficult procedure. Given the significant time and resource restraints placed on most special-education teachers, this may be difficult to guarantee unless efficient training modalities and instructional materials are included with the tool. A limitation of Experiment 1 is that we did not assess the participants' accuracy of implementation of the prompt-fading strategies.

Therefore, it is unknown if the participants returned to their classrooms and correctly implemented any of the strategies.

These inherent limitations, however, should not discourage researchers from synthesizing empirically validated procedures into practical resources that can be used by populations who would benefit from the information, such as special-education teachers and new BCBA<sup>®</sup>s.

One limitation of both Experiments 1 and 2 was that both required approximately 3-4 hr of direct training (lectures and BST on the prompt-fading strategies) from an experimenter. Given the limited resources that already exist in education and graduate school training settings, this may not be feasible for trainers to implement with those they supervise and train. Therefore, training modalities that require minimal direct interaction between a trainer and trainee, such as EWI and VMVO, may be beneficial in this process and should be explored further in future research. We are currently conducting Experiment 3 which evaluates the efficacy of a training package comprised of EWI and VMVO in place of these in-person training formats.

A second limitation of both experiments was that participants' correct selection (both written and accuracy of implementation) was variable in pre-training and in some post-training sessions in which they were incorrectly using the SWEEPS. This was correct guessing behavior. For example, In Kennedy's (Experiment 1-Group 1) fifth pre-training session, she selected the correct types of prompts, prompt-fading strategy, and the initial prompt level; however, she did not correctly assess the unsure component of the learner profile or conduct an LTM probe to determine the initial prompt level. Given that this study included a fixed number of types of prompts and prompt-fading strategies, it is not surprising to see participants select the correct prompting strategy in some portion of sessions through guessing.

A third limitation of this study is that the format of the learner profiles we gave participants (i.e., a bulleted list) in each session likely to not represent how instructors typically receive information about a student in a school or clinical setting. More than likely, an educator in a school will receive a large file of the student's previous and current IEPs which they must then review to learn more about the student. A clinician may receive multiple files from the student's school, other therapy providers, or no information at all when they begin designing instructional programs. Given these differences, it is unclear how the use of the SWEEPS would generalize to the selection of an appropriate prompting strategy when information about the student is in a less concise, organized format.

Some additional limitations of this study were that we received responses from only half of the participants from Experiment 1 on the Qualtrics™ survey sent out to collect information on their use of the SWEEPS. Because of this low return rate, we are unable to draw more extensive conclusions about the use of the SWEEPS across a larger pool of participants. Future researchers should investigate alternative methods for distributing surveys and other questionnaires to participants who are no longer physically present with the experimenters.

A final limitation is that not all of the participants in Experiment 2 continued to use the SWEEPS materials in their day-to-day clinical programming despite reporting on their IRP surveys that they were likely to continue using it. It is therefore unclear whether what other variables may have contributed to them not using the SWEEPS. Future researchers should investigate possible variables in graduate education and clinical practice that may create competing contingencies to utilizing resources that are rated as highly favorable.

Despite these limitations, decision-making tools like the SWEEPS and other self-instructional materials are worthwhile avenues for researchers and clinicians to explore as ways to disseminate behavior-analytic procedures to professionals both inside and outside of the field. These tools are not a substitute for well-trained clinicians in education settings or a comprehensive behavior-analytic training program for graduate students. Instead, they serve as a supplemental resource for educators and clinicians to reference as they develop effective instructional programs for their students.

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APPENDIX A:  
 SYSTEMATIC WORKSHEET FOR THE EVALUATION OF EFFECTIVE  
 PROMPTING STRATEGIES (SWEEPS)

<b>Systematic Worksheet for the Evaluation of Effective Prompting Strategies (SWEEPS)</b>					
<b>Developed by Landon Cowan and Dr. Dorothea Lerman</b>					
Student Name: _____	Date: _____				
Instructor Name: _____	Target Skill: _____				
<b>Step I. Selecting Prompts</b> (Mark “Yes,” “No,” “N/A,” or “Unsure” for each line)					
1. Does the skill require a vocal response? (If no, 1a and 1b are N/A)	Yes	No			
a. If yes, can the student imitate vocalizations?	Yes	No	Unsure	N/A	
b. Do you plan to include both partial- and full-vocal models?	Yes	No	N/A		
2. Does the skill require a motor response? (If no, 2a, b, and c are N/A)	Yes	No			
a. Are physical prompts possible for this skill?	Yes	No	N/A		
i. If yes, does the student:					
• Resist or avoid physical prompts?	Yes	No	Unsure	N/A	
• Overly enjoy physical prompts?	Yes	No	Unsure	N/A	
ii. Do you plan to include both partial- and full-physical prompts?	Yes	No	N/A		
b. Can the student imitate motor movements? (N/A if vocal response)	Yes	No	Unsure	N/A	
c. Do you plan to include gesture prompts for this skill? (e.g., pointing, tapping, nodding, etc.; N/A if “No” on 2b)	Yes	No	N/A		
<b>Important!</b> If you marked “Unsure” for any of these questions, be sure to reference the “What to Do if You Marked ‘Unsure’” materials before continuing to the next step.					
<b>Step Ia.</b> Now refer to the flowcharts titled “ <u>Selecting Prompts</u> ” to determine which prompt(s) to include. Then, circle which prompt(s) you will be able to use below.					
<b>Gestural</b>	<b>Partial- Vocal Model</b>	<b>Full-Vocal Model</b>	<b>Motor Model</b>	<b>Partial Physical</b>	<b>Full Physical</b>
<b>Step II. Selecting the Prompt-Fading Strategy</b> (Mark “Yes,” “No,” “N/A,” or “Unsure” for each line)					
3. Does the student have experience with this skill or other similar skills?	Yes	No	Unsure		
4. Have you seen the student do the skill independently before?	Yes	No			
5. Does the skill require motor responses that are difficult for the student?	Yes	No	Unsure		
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- |   |         |        |        |
|---|---------|--------|--------|
| 6. Does the student get upset, engage in challenging behavior, or work more slowly when they respond incorrectly or must wait for a prompt?   | Yes     | No     | Unsure |
| 7. If the skill requires a motor response, are you including model prompts?   | Yes     | No     | N/A    |
| 8. Are you going to include multiple types of prompts? (Based on Step 1a)   | Yes     | No     |        |
| 9. Does the student typically learn new skills relatively quickly or slowly?  | Quickly | Slowly |        |
|   | Neither | Unsure |        |
| 10. Does the student tend to wait for prompts before responding?  | Yes     | No     | Unsure |
| 11. Does the student tend to respond (incorrectly) before a prompt or without fully attending to the learning materials or your instructions? | Yes     | No     | Unsure |

**Important!** If you marked “Unsure” for any of these questions, be sure to reference the document, “What to Do if You Marked ‘Unsure,’” before continuing to the next step.

**Step IIa.** Now refer to the flowcharts titled “Selecting the Prompt-Fading Strategy” to determine which prompt fading strategy to include and circle it below.

<b>Least-to-Most (LTM)</b>	<b>Most-to-Least (MTL)</b>	<b>Progressive Prompt Delay (PD)</b>	<b>Most-to-Least with Delay (MTLD)</b>	<b>Graduated Guidance (GG)</b>
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**Step III. Determine Initial Prompting Level (MTL, MTLD) or the Single Prompt (Progressive Prompt Delay)**

- **SKIP THIS STEP** if you circled LTM or Graduated Guidance
- Circled MTL or MTLD?
  - Use Least-to-Most (LTM) prompting to determine the initial prompting level.
  - This will be the prompt that most consistently results in the correct response.
- Circled Progressive Prompt Delay?
  - If so, did you circle more than one type of prompt in Step 1a?
    - Use Least-to-Most (LTM) prompting with the circled types to identify the single prompt that most consistently results in the correct response
  - If not, **SKIP THIS STEP**

**Procedure**

1. Refer to manual (pg. 4) for instructions on how to arrange the teaching environment.
2. Identify a reinforcer for the student to work for.
3. Determine which types of prompts you will include in the assessment (based on results from **Step 1a**).

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4. On the data sheet (below), cross out any prompt that you will not include (e.g., if not using gestural prompts, cross it out).
5. Conduct five teaching trials with LTM prompting using the target stimuli (see manual p.18 and LTM Quick Reference for procedures).
6. Deliver reinforcer to student once they respond correctly.
7. Record the prompt level that was needed in order for the student to respond correctly on the data sheet below.
8. The prompt level which most consistently results in a correct response will be your initial prompt level (MTL/MTLD) or your single prompt (Progressive Prompt Delay).

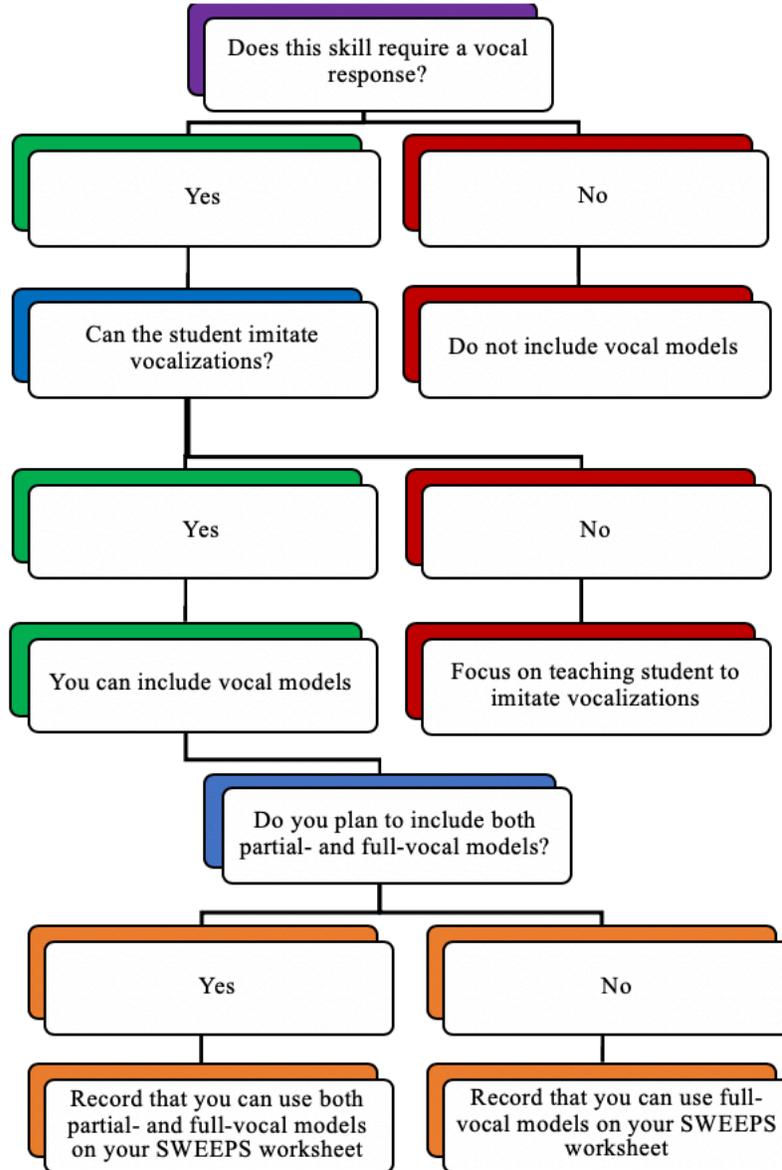
Trial	Prompt Level						
	Ind.	Gestural	Partial Voc. Model	Full Voc. Model	Motor Model	Partial Phys.	Full Phys.
1	Ind.	Gestural	Partial Voc. Model	Full Voc. Model	Motor Model	Partial Phys.	Full Phys.
2	Ind.	Gestural	Partial Voc. Model	Full Voc. Model	Motor Model	Partial Phys.	Full Phys.
3	Ind.	Gestural	Partial Voc. Model	Full Voc. Model	Motor Model	Partial Phys.	Full Phys.
4	Ind.	Gestural	Partial Voc. Model	Full Voc. Model	Motor Model	Partial Phys.	Full Phys.
5	Ind.	Gestural	Partial Voc. Model	Full Voc. Model	Motor Model	Partial Phys.	Full Phys.
<b>Total:</b>							

**Step IIIa Results:**

If using MTL or MTLD, the initial prompt level will be \_\_\_\_\_

If using Progressive Prompt Delay, the prompt will be \_\_\_\_\_

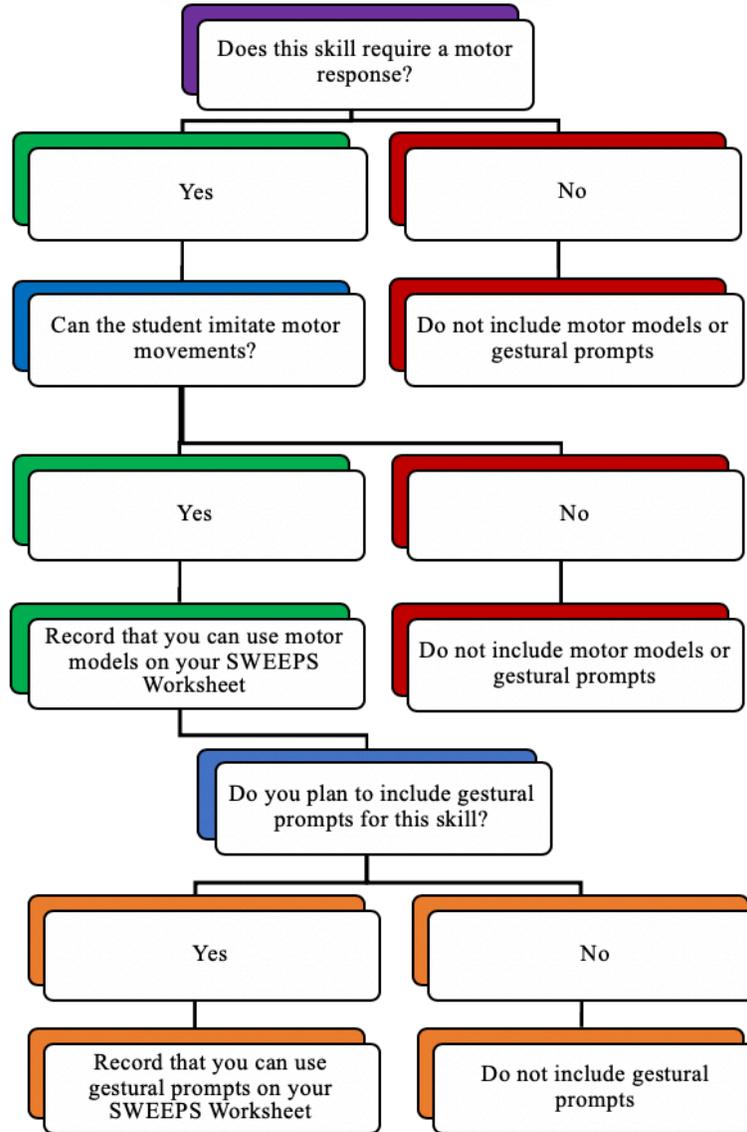
## Vocal-Model Prompts



### Examples of Vocal-Model Prompts:

- "App-" (partial-vocal model if the answer is "apple")
- "Car" (full-vocal model if the answer is "car")

## **Motor-Model Prompts**



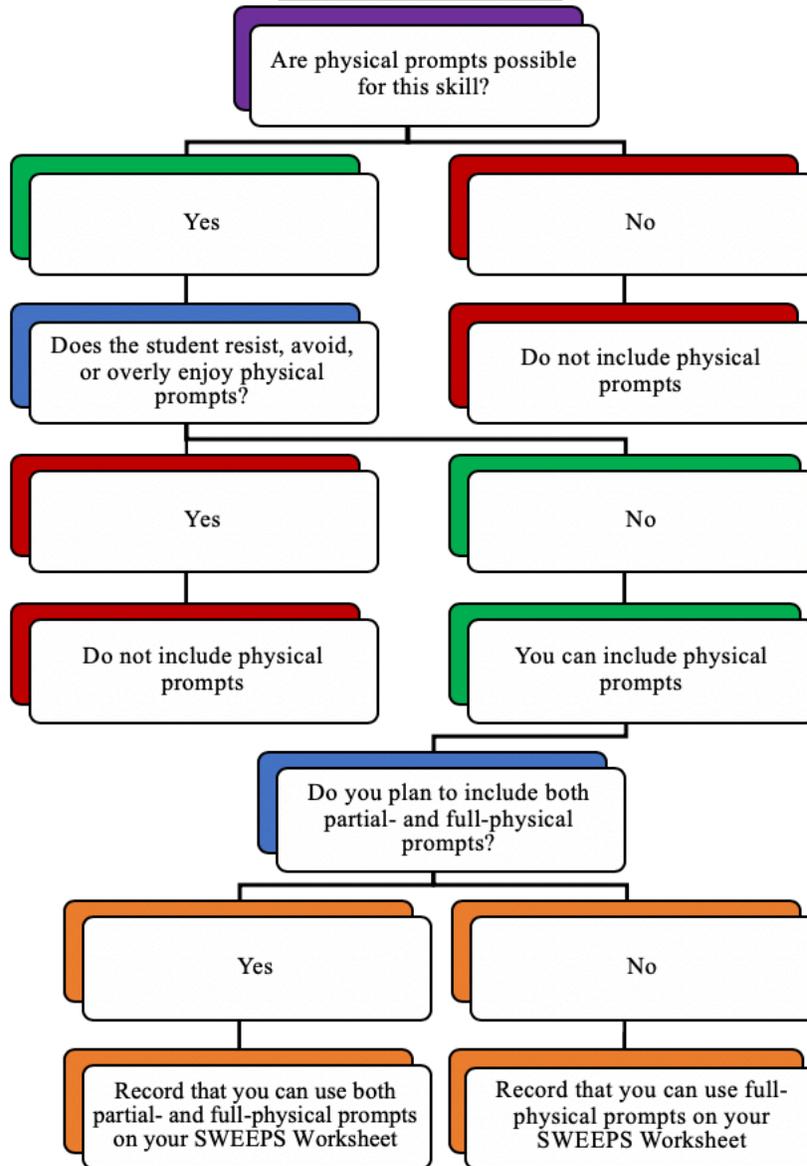
### Examples of Motor-Model Prompts:

- Touching the correct item (if student is supposed to touch the item)
- Demonstrating the next step in making a sandwich

### Examples of Gestural Prompts:

- Pointing at the correct item (if the student is supposed to pick up the item)
- Pointing at a loaf of bread (if the student is supposed to pull out a slice)

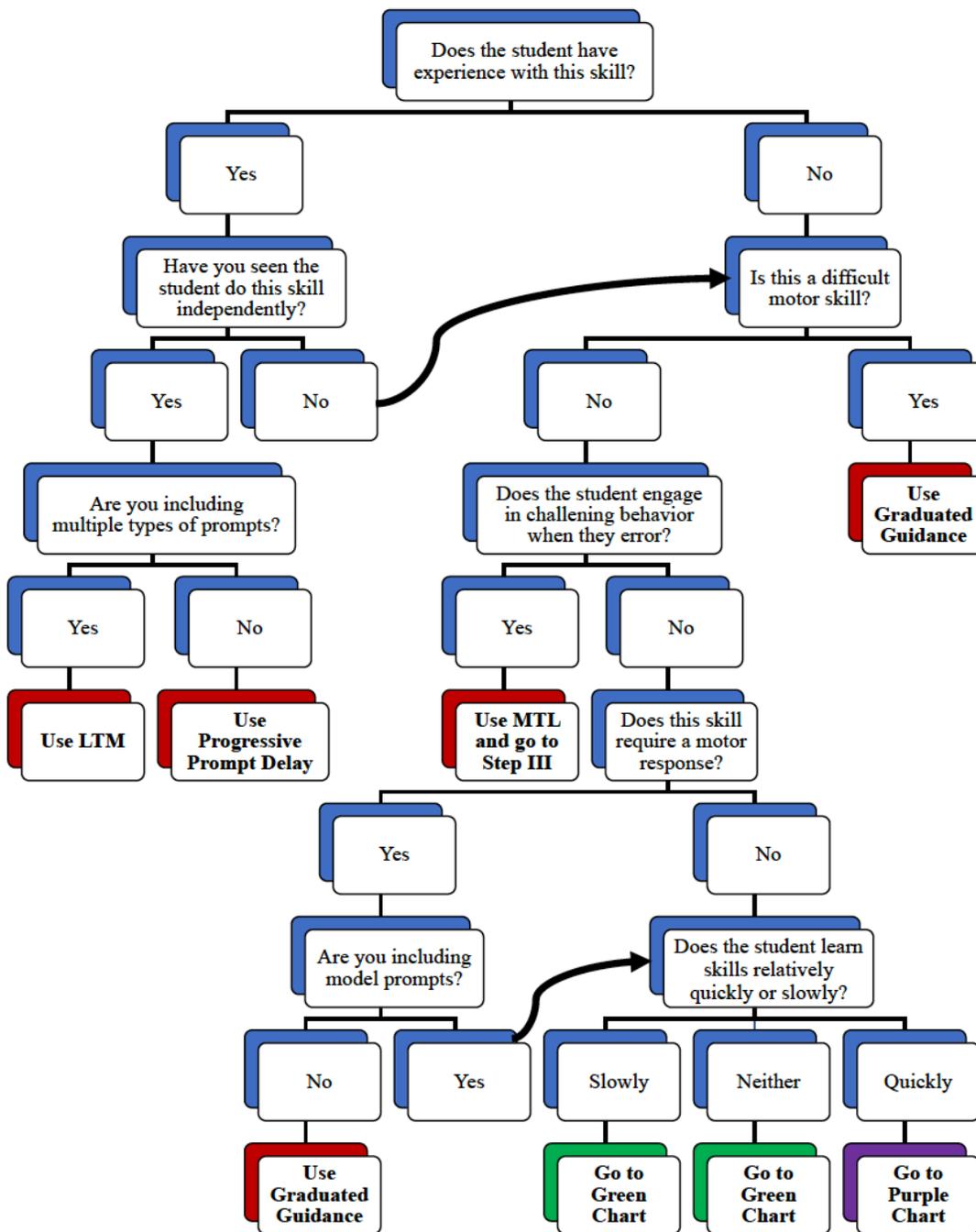
## Physical Prompts



### Examples of Physical Prompts:

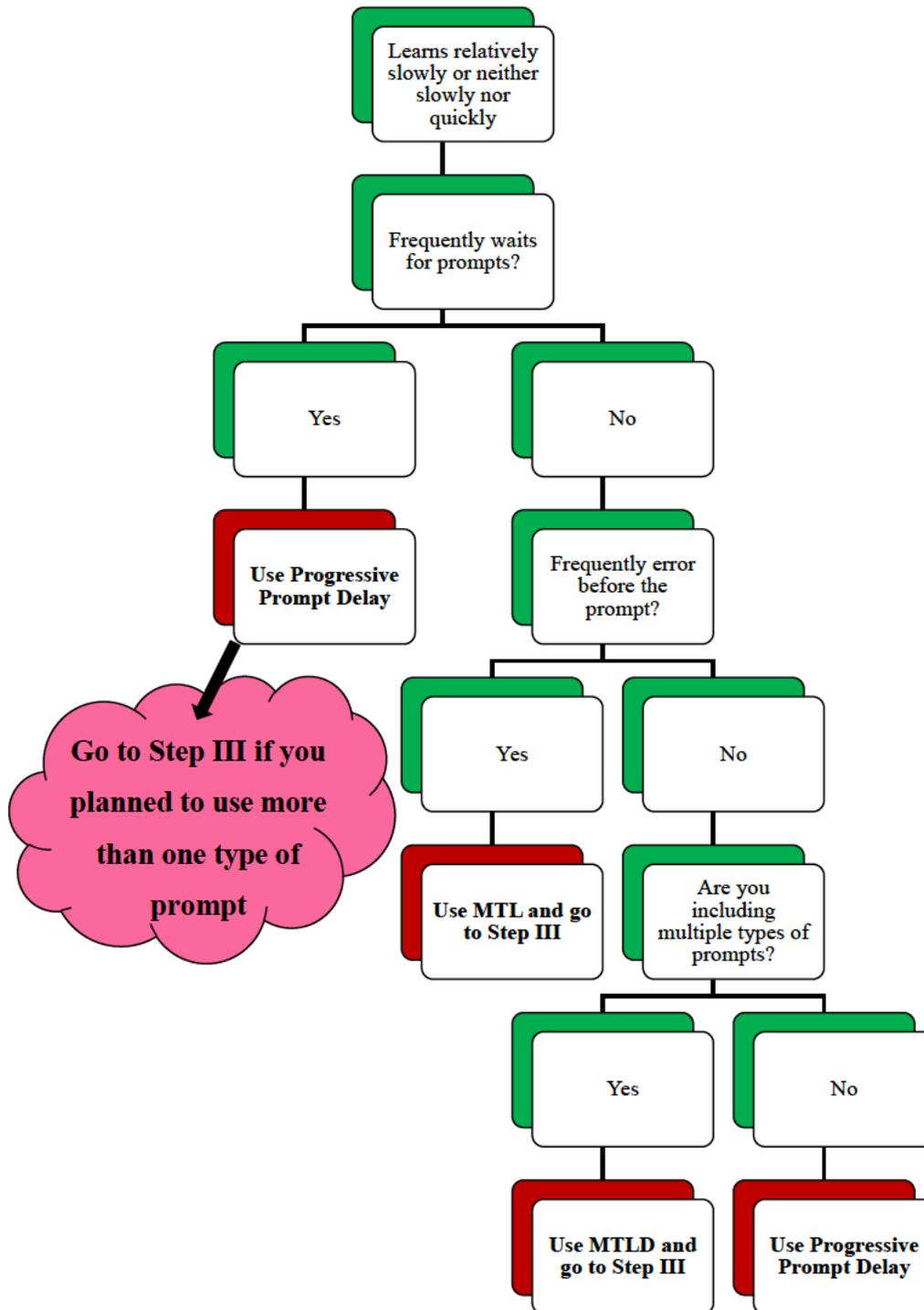
- Lifting student's arm above the correct picture in the array on the table (partial-physical prompt)
- Guiding the student's arms and hands through each step of making a sandwich (full-physical prompt)

## Selecting the Prompt-Fading Strategy



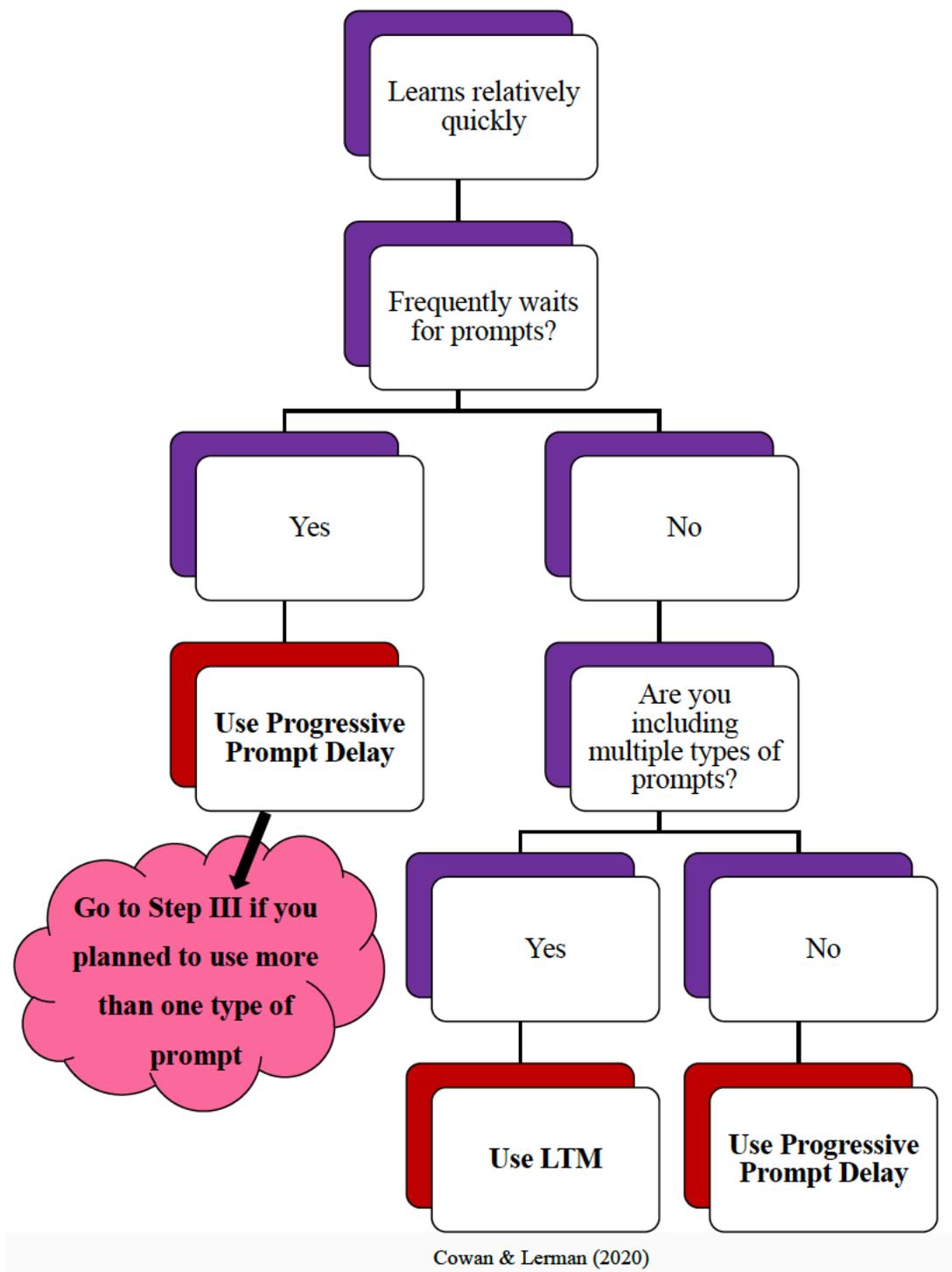
Cowan & Lerman (2020)

## Selecting the Prompt-Fading Strategy



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## Selecting the Prompt-Fading Strategy



## What to Do If You Marked “Unsure”

Refer to the below considerations for each item on the SWEEPS that you marked as “Unsure.” As an initial step, consult the student's previous IEPs, teachers, parents, therapists, and others who know the student whenever possible to gain more information. For items which call for the evaluation of the specific skill (e.g., motor imitation), conduct the test using least-to-most (LTM) prompting. Keep in mind that it may take several attempts to get a definite answer. It is important to evaluate a wide variety of responses and instructions during these assessments. It is possible that the student simply hasn’t learned the specific responses (e.g., touching the correct color, animal, etc.) or instruction (e.g., “Touch blue,” “Find blue,” “Show me blue,” etc.) you initially test but may know others. For each tested item below, deliver at least 5 instructional trials. **MAKE SURE YOU IDENTIFY A REINFORCER FOR THE STUDENT TO KEEP THEM MOTIVATED!**

### Table of Contents

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## **Imitating Vocalizations**

### **Procedures**

- Give the student an instruction to say a word or sound (e.g., “Say \_\_\_\_\_”).
  - Examples: "Boy," "wow," "pop," "window," "bow-wow," "monkey," "hot dog," "in a boat," "peek a boo," "doggy bone," etc.
- Be sure to consider the student’s current level of vocalization (e.g., if they only emit single syllables, refrain from testing multi-syllable words).
- Create opportunities for the student to imitate a vocalization to gain access to a preferred item (e.g., have the student say “cookie” to get a cookie).
- If the student correctly imitates you, immediately deliver praise and a tangible reinforcer (e.g., 30 s access to a leisure item or a few bites of snack item).

### **Data Collection**

- **Sound/Word Provided:** Write down the sound or word that you provided to the student word-for-word (e.g., “Wow,” “pop,” “cookie,” “bow-wow”, “hot dog,” etc.).
- **Context:** Write down the context that you tested whether the student would imitate you (e.g., table work, requesting an item they wanted, etc.)
- **Student Response:**
  - **Correct (+):** Circle “+” if the student imitates the sound/word that you said (e.g., if you said “dog,” the student responds by saying “dog” rather than “cat”).
  - **Incorrect (-):** Circle “-“ if the student does not imitate the sound/word that you said, OR if you could not understand what they said (e.g., if you said “dog,” the student responds by saying “cat”).
  - **No Response (NR):** Circle “NR” if the student does not respond at all after you say the sound/word (e.g., if you said “dog” and the student does not say anything at all).

## Imitating Vocalizations

Date: \_\_\_\_\_ Instructor: \_\_\_\_\_

Trials	Sound/Word Provided	Context	Student Response
1			+   -   NR
2			+   -   NR
3			+   -   NR
4			+   -   NR
5			+   -   NR

Number of correct responses: \_\_\_\_\_

**Legend:**  
 Correct: +  
 Incorrect: -  
 No Response: NR

- If the student correctly imitates you in three or more trials, mark “**yes**” on your worksheet.
- If the student does not correctly imitate you in at least three trials (“-“ or “NR”), mark “**no**” on your worksheet.
-

## **Resists, Avoids, or Overly Enjoys Physical Prompts**

### **Procedures**

- Conduct a teaching session in which you provide physical prompts to the student.
  - In this session, select some sort of task that you are confident that the student does not know how to do.
- If the student's resistance prevents you from following through on the prompt, immediately end the teaching trial.
- **DO NOT** begin a "strength competition" with the student!
- Collect data on instances in which they:
  - Pull back their arms when you initiate physical contact.
  - Attempt to bury their hands under their legs or in their lap.
  - Engage in challenging behavior (e.g., aggression, tantrum, screaming, etc.).
  - Begin smiling/laughing when the prompt is delivered.
  - Offer their arms/hands to you prior to you initiating the prompt.

### **Data Collection**

- **Student's Response to Physical Prompt:**
  - **Resists/Avoids (R/A):** Circle "R/A" if the student resists the physical prompt at any point, if the student attempts to avoid the physical prompt (e.g., hides their hands, runs away, etc.), or if the student engages in challenging behavior when you physically prompt them (e.g., aggression, tantrum, screaming, etc.)
  - **Enjoys (E):** Circle "E" if the student appears to overly enjoy the physical prompt at any point (e.g., smiling/laughing) or if the student attempts to give you their hands/arms before you begin to prompt them
  - **Tolerate Prompt (TP):** Circle "TP" if the student does not appear to resist, avoid, or overly enjoy the physical prompt at any point.

### Resists, Avoids, or Overly Enjoys Physical Prompts

Date: \_\_\_\_\_ Task: \_\_\_\_\_ Instructor: \_\_\_\_\_

Trials	Student's Response to Physical Prompt
1	R/A    E    TP
2	R/A    E    TP
3	R/A    E    TP
4	R/A    E    TP
5	R/A    E    TP

Number of times student resisted/avoided/overly enjoyed prompt: \_\_\_\_\_

**Legend:**  
 Resist/Avoid: R/A  
 Enjoys: E  
 Tolerates Prompt: TP

- If the student resists, avoids, or overly enjoys the physical prompt in three or more trials, mark “**yes**” on your worksheet on the corresponding line.
- If the student tolerates the physical prompts in three or more trials, mark “**no**” on your worksheet on your worksheet for both questions.

## **Imitating Motor Movements**

### **Procedures**

- Give the student an instruction to copy your movement (e.g., “Do this,” “Copy me,” “Do what I am doing,” etc.).
- Consider what types of motor movements the target skill involves.
- If the target skill involves manipulating an object, conduct your assessment with models involving objects.
  - Examples: Push a car, kick/roll a ball, stack blocks, hit a drum, ring a bell, roll Playdoh. etc.
- If the target skill involves motor movements that do not involve objects, conduct your assessment with models of gross and fine motor movements
  - Examples: Clap hands, raise arms above head, stomp feet, shake head, rub stomach, jump, pincer fingers, etc.
- Be sure to take into account the student's physical limitations.
- If the student correctly imitates your model, immediately deliver praise and a tangible reinforcer (e.g., 30 s access to a leisure item or a few bites of snack item).
- If the student does not imitate the movement, move on to another instruction.
- Be sure to document which motor movements they successfully imitate.

### **Data Collection**

- **Motor Movement:** Write down the motor movement that you instructed the student to complete (e.g., clapping hands, pushing a car, stacking blocks, etc.).
- **Student Response:**
  - **Correct (+):** Circle “+” if the student imitates the motor movement exactly as you performed it (e.g., you instructed the student to clap their hands and then they clap their hands).
  - **Incorrect (-):** Circle “-“ if the student does not imitate the motor movement exactly as you performed it (e.g., you instructed the student to clap their hands and they knock on the table).

- **No Response (NR):** Circle “NR” if the student does not respond at all after you instruct them to copy your motor movement (e.g., if you instructed the student to clap their hands and then they do not move at all).

### Imitating Motor Movements

Date: \_\_\_\_\_ Instructor: \_\_\_\_\_

Trials	Motor Movement	Student Response
1		+   -   NR
2		+   -   NR
3		+   -   NR
4		+   -   NR
5		+   -   NR

Number of correct responses: \_\_\_\_\_

**Legend:**  
 Correct: +  
 Incorrect: -  
 No Response: NR

- If the student correctly imitates you in three or more trials, mark “**yes**” on your worksheet.
- If the student does not correctly imitate you in at least three trials (“-“ or “NR”), mark “**no**” on your worksheet.

## **Difficult Motor Skill**

### **Procedures**

- Consider whether you have observed the student engage in similar types of motor responses without help previously.
- Test the student's motor abilities by using physical or model prompts to evaluate the ease with which the student can complete the response or similar responses.
  - Example skills: Tying shoes, threading bead on a string, folding a shirt, etc.

### **Data Collection**

- **Motor Movement:** Write down the motor task that you instructed the student to complete (e.g., tying shoes, threading bead on string, folding a shirt, etc.).
- **Student Response:**
  - **Difficult Motor Skill (D):** Circle "D" if the student requires extensive, hand-over-hand prompting in order to complete the task or did not appear to have the fine motor skills necessary to perform the task.
  - **Adequate Motor Skills (A):** Circle "A" if the student completes the task with relatively little assistance or appeared to have the fine motor skills necessary to perform the task.
  - **No Response (NR):** Circle "NR" if the student did not complete the task because they would not allow you to physically prompt them through it.

## Difficult Motor Skill

Date: \_\_\_\_\_ Instructor: \_\_\_\_\_

<b>Trials</b>	<b>Motor Movement</b>	<b>Student Response</b>
1		D    A    NR
2		D    A    NR
3		D    A    NR
4		D    A    NR
5		D    A    NR

Number of correct responses: \_\_\_\_\_

**Legend:**  
Difficult MS: D  
Adequate MS: A  
No Response: NR

- If the motor movement was difficult for the student in three or more trials, mark “**yes**” on your worksheet.
- If the student had adequate motor skills in three or more trials, mark “**no**” on your worksheet.
- If the student did not respond in two or more trials, consider conducting an assessment to evaluate whether they resist or avoid physical prompts using the data sheet, “Resists, Avoids, or Overly Enjoys Physical Prompts.”

## **Gets Upset, Engages in Challenging Behavior, or Works More Slowly Following Errors or When Required to Wait for a Prompt**

### **Procedures**

- When the student errors, they exhibit observable signs of frustration (e.g., furrowed eyebrow, whines/moans, frown, sighs, heavy breathing, etc.) or challenging behavior (e.g., aggression, self-injury, property destruction, etc.)
- If the teaching session is prolonged due to errors, the student begins to work much slower, and it becomes more difficult to get through the teaching session
- Conduct a teaching session using LTM with tasks that you are confident the student does not know how to do.
  - Examples: complex motor tasks, double-digit math problems, etc.
- Make a note of how the student responds when they do something incorrectly.
- **Important!** If challenging behavior typically occurs in situations other than after errors or when they must wait for a prompt (e.g., when the teaching session begins), a specific behavior intervention plan may be needed.

### **Data Collection**

- **Student's Response Following an Error:**
  - **Upset (U):** Circle "U" if the student exhibited observable signs of frustration following an error or when they are required to wait for a prompt (e.g., furrowed eyebrow, whines/moans, frown, sighs, heavy breathing, etc.).
  - **Challenging Behavior (CB):** Circle "CB" if the student engaged in challenging behavior following an error or when they are required to wait for a prompt (e.g., aggression, self-injury, property destruction, etc.).
  - **Works More Slowly (S):** Circle "S" if the student appears to work more slowly following an error or when they are required to wait for a prompt (e.g., the student begins to respond or complete their work at a slower pace following one or more errors).

- **Not Applicable (N/A):** Circle “N/A” if the student does not appear to engage in any of the responses listed above in each trial.

**Gets Upset, Engages in Challenging Behavior, or Works More Slowly Following Errors or When Required to Wait for a Prompt**

**Date:** \_\_\_\_\_ **Task:** \_\_\_\_\_ **Instructor:** \_\_\_\_\_

<b>Trials</b>	<b>Student’s Response Following an Error/ Wait for a Prompt</b>	<b>Trials</b>	<b>Student’s Response Following an Error/ Wait for a Prompt</b>
1	U CB S N/A	6	U CB S N/A
2	U CB S N/A	7	U CB S N/A
3	U CB S N/A	8	U CB S N/A
4	U CB S N/A	9	U CB S N/A
5	U CB S N/A	10	U CB S N/A

**Number of times you scored “U,” “CB,” and “S”:** \_\_\_\_\_

**Legend:**  
 Upset: U  
 Challenging Behv.: CB  
 Work Slowly: S  
 Not Applicable: N/A

- If the student gets upset, engages in challenging behavior, or begins to work more slowly in three or more trials, mark “**yes**” on your worksheet.
- If the student does not engage in any of the responses listed above in three or more trials, mark “**no**” on your worksheet.

## **Waiting for Prompts Before Responding Procedures**

- The student rarely (if ever) responds before a prompt is provided but does typically respond correctly once a prompt is delivered.
- The student may:
  - Stare at the learning materials without moving
  - Look expectantly at you
- Deliver a variety of instructions to the student that they know how to complete and note whether or not they attempt to complete the instruction or whether they stare at the learning materials or you.
  - Use your best judgment of what skills the student is likely to know how to do.
  - These instructions can include things such as motor movements (e.g., clapping, knocking on the table, etc.) and questions (e.g., “What’s your name?”, “What does a dog say?”, “What color is the sky?”).

### **Data Collection**

- **Student’s First Response:** Circle the student’s response when you first present an instruction without any prompts.
- **Student’s Response After Prompt:** Circle the student’s response after you provide them a prompt.
- **Responses:**
  - **Correct (+):** Circle “+” if the student engages in a correct response (e.g., you instructed the student to clap their hands and then they clap their hands).
  - **Incorrect (-):** Circle “-“ if the student engages in an incorrect response (e.g., you instructed the student to clap their hands and they knock on the table).

- **NR:** Circle “NR” if the student does not respond at all after you present the instruction and/or the prompt (e.g., if you instructed the student to clap their hands and then they do not move at all).

**Waiting for Prompts Before Responding**

**Date:** \_\_\_\_\_ **Task:** \_\_\_\_\_ **Instructor:** \_\_\_\_\_

Trials	Student’s First Response	Student’s Response After Prompt
1	+   -   NR	+   -   NR
2	+   -   NR	+   -   NR
3	+   -   NR	+   -   NR
4	+   -   NR	+   -   NR
5	+   -   NR	+   -   NR

**Total number of responses:**

\_\_\_\_\_

\_\_\_\_\_

**Legend:**  
 Correct: +  
 Incorrect: -  
 No Response: NR

- If the student did not respond before a prompt but responded correctly after a prompt in three or more trials, mark “**yes**” on your worksheet.
- If the student responded before a prompt (correctly or incorrectly) in three or more trials, mark “**no**” on your worksheet.
- If the student responds incorrectly before a prompt is provided in each trial, consider conducting an additional evaluation to determine whether they tend to respond incorrectly before a prompt is provided using the data sheet, “Responding Incorrectly Before Prompts.”

## Responding Incorrectly Before Prompts

### Procedures

- The student appears to respond without attending to the instruction or learning materials
  - Examples of attending behaviors: body oriented towards teacher/learning materials, eye contact with the teacher or with learning materials, pointing to learning materials.
- Deliver a variety of instructions to the student that they know how to complete and note whether or not they appear to attend or listen to your instructions and the learning materials. If the student makes an incorrect response but seems to be listening to you and attending towards the materials, you can mark this as a "No" on the SWEEPS.
  - Use your best judgment of what skills the student is likely to know how to do.
  - These instructions can include things such as motor movements (e.g., clapping, knocking on the table, etc.) and questions (e.g., “What’s your name?”, “What does a dog say?”, “What color is the sky?”).

### Data Collection

- **Student’s First Response:** Circle the student’s response when you first present the instruction without any prompts.
- **Student’s Response After Prompt:** Circle the student’s response after you provide them a prompt.
- **Responses:**
  - **Correct (+):** Circle “+” if the student engages in a correct response (e.g., you instructed the student to clap their hands and then they clap their hands).

- **Incorrect (-):** Circle “-“ if the student engages in an incorrect response (e.g., you instructed the student to clap their hands and they knock on the table).
- **No Response:** Circle “NR” if the student does not respond at all after you present the instruction and/or the prompt (e.g., if you instructed the student to clap their hands and then they do not move at all).
- **Student Attended/Listened to Your Instructions/Learning Materials:** Circle “+” for “yes” and “-“ for “no” to indicate whether the student appeared to be attending to your instructions or the learning materials when you first presented the instruction.

### Responding Incorrectly Before Prompts

Date: \_\_\_\_\_ Task: \_\_\_\_\_ Instructor: \_\_\_\_\_

Trials	Student's First Response	Student's Response After Prompt	Student Attended/Listened to Your Instructions/Learning Materials?
1	+ - NR	+ - NR	+ -
2	+ - NR	+ - NR	+ -
3	+ - NR	+ - NR	+ -
4	+ - NR	+ - NR	+ -
5	+ - NR	+ - NR	+ -

**Total number of responses:**      \_\_\_\_\_

**Legend:**  
 Correct: +  
 Incorrect: -  
 No Response: NR

- If the student responded incorrectly before the prompt and was not attending/listening to your instructions/learning materials in three or more trials, mark “**yes**” on your worksheet.
- If the student was attending/listening to your instructions/learning materials in three or more trials (regardless of whether their response before the prompt was correct/incorrect), mark “**no**” on your worksheet.

- If the student does not respond before a prompt but responds correctly following a prompt in three or more trials, refer to the data sheet, “Waiting for Prompts Before Responding.”

### **Previous Experience with the Skill or Other Similar Skills**

- Look at previous IEPs and ask parents, teachers, therapists, and others who know the student.

### **Student Typically Learns New Skills Relatively Quickly, Slowly, or at a Moderate Pace**

- Relatively quick learner: the student typically begins independently engaging in the skill soon after you begin teaching it. The student typically learns (and masters) new skills in under 100 teaching trials.
- Relatively slow learner: the student typically does not begin independently engaging in the skill right away after you begin teaching it. The student typically learns (and masters) new skills with 200- or more teaching trials.
- Student learns at a moderate pace: the student typically learns (and masters) new skills within 100-200 teaching trials.
- Look at previous IEPs and ask parents, teachers, therapists, and others who know the student.
- Consider how long the student has been learning this skill (or similar skills) in the past. If the student has been working on this skill for an extended period (e.g., six months), the student is likely a relatively slower learner.
- Consider whether the student has critical learning skills already, such as motor imitation, vocal imitation, ability to scan and look at an array of materials. If the student has all or most of these skills, they are likely a relatively quick/moderate-paced learner. If the student does not have these skills, they are probably a relatively slower learner.

APPENDIX B:  
SAMPLE LEARNER PROFILE

Student Name: Dominic

Target Skill: Fold towels

Type of Response: Motor response

Set-Up: Unfolded towel on table in-front of Dominic

Instruction: "Fold the towel"

Correct Response: Dominic folds the towel three times into a rectangle

**Learner Profile**

- You are not sure if Dominic resists, avoids, or overly enjoys physical prompts
- Dominic cannot imitate motor movements
- Dominic has never worked on this skill or other similar skills
- You have never seen him fold towels independently
- This is a difficult motor response for Dominic
- Dominic does not get upset, engage in challenging behavior, or work more slowly when he responds incorrectly or must wait for a prompt
- Dominic learns new skills relatively slowly
- Dominic does not tend to wait for prompts before responding
- Dominic does not tend to respond incorrectly before a prompt is provided or without attending to the learning materials or your instructions

**Using this information, take some time to determine which type(s) of prompt(s) and which prompt-fading procedure you will use to teach this skill to Dominic. Be sure to record your selections on the data sheet. Please let me know when you are finished.**

APPENDIX C:  
IMPLEMENTATION SCORING RULES

**Least-to-Most (LTM)**

- Initial instruction is delivered without a prompt
- If child does not respond correctly after the initial instruction, the instructor delivers the least-intrusive prompt possible for the given learner profile
- If child does not respond correctly after the first prompt, the instructor delivers subsequently more intrusive prompts until the child responds correctly

**Most-to-Least (MTL)**

- Initial Trial
  - Initial instruction is delivered with a prompt which consistently results in the child responding correctly
- Subsequent Trials
  - If the child responds correctly to the initial prompt for two consecutive trials, the instructor fades the prompt to a less intrusive prompt (e.g., full-physical → partial physical prompt)
    - **OR** if the child responds correctly to the initial prompt in the previous trial, the instructor fades the prompt to a less intrusive prompt
  - If the child responds correctly to the initial prompt for three consecutive trials and the instructor does not fade the prompt to a less intrusive prompt

in the next trial (i.e., remains at the same prompt level or increases the intrusiveness of the prompt), score as incorrect

- If the child responds incorrectly to the initial prompt for two consecutive trials, the instructor fades the prompt to a more intrusive prompt (e.g., partial-physical → full-physical prompt)
  - **OR** if the child responds incorrectly to the initial prompt in the previous trial, the instructor fades the prompt to a more intrusive prompt
- If the child responds incorrectly to the initial prompt for three consecutive trials and the instructor does not fade the prompt to a more intrusive prompt in the next trial (i.e., remains at the same prompt level or reduces the intrusiveness of the prompt) score as incorrect
- If child does not respond correctly after the first prompt, the instructor delivers subsequently more intrusive prompts (if possible) until the child responds correctly

### **Prompt Delay (PD)**

- All Trials
  - The instructor repeats the (same) prompt up to 3 times if the child does not emit a correct response. The instructor terminates the trial following the consecutive incorrect responses to the prompt
- Initial Trial

- Initial instruction is delivered with a prompt which consistently results in the child responding correctly at a 0-s delay
- Subsequent Trials
  - If the child responds correctly at the current delay for two consecutive trials, the instructor fades the delay by 2s (e.g., 0-s → 2-s delay)
    - **OR** if the child responds correctly to current delay in the previous trial, the instructor fades the delay by 2s
  - If the child responds correctly at the current delay for three consecutive trials and the instructor does not fade the delay in the next trial (i.e., remains at the same delay or decreases the delay), score as incorrect

### **Most-to-Least with a Prompt Delay (MTLD)**

- All Trials
  - The initial instruction is delivered without a prompt
  - If child does not respond correctly after the first prompt, the instructor delivers subsequently more intrusive prompts (if possible) until the child responds correctly
- Initial Trial
  - If child does not respond correctly after the initial instruction, the instructor delivers the prompt which consistently results in the child responding correctly

- The prompt delay for each initial instruction in the trial is 2s, however, this is correct as long as the instructor delivers the first prompt within 2-5s
- Subsequent Trials
  - If the child responds correctly to the initial prompt for two consecutive trials, the instructor fades the prompt to a less intrusive prompt (e.g., full-physical → partial physical prompt)
    - **OR** if the child responds correctly to the initial prompt in the previous trial, the instructor fades the prompt to a less intrusive prompt
  - If the child responds correctly to the initial prompt for three consecutive trials and the instructor does not fade the prompt to a less intrusive prompt in the next trial (i.e., remains at the same prompt level or increases the intrusiveness of the prompt), score as incorrect
  - If the child responds incorrectly to the initial prompt for two consecutive trials, the instructor fades the prompt to a more intrusive prompt (e.g., partial-physical → full-physical prompt)
    - **OR** if the child responds incorrectly to the initial prompt in the previous trial, the instructor fades the prompt to a more intrusive prompt
  - If the child responds incorrectly to the initial prompt for three consecutive trials and the instructor does not fade the prompt to a more intrusive

prompt in the next trial (i.e., remains as the same prompt level or reduces the intrusiveness of the prompt, score as incorrect

### **Graduated Guidance (GG)**

- All Trials
  - The instructor provides ONLY types of physical prompts (e.g., hand-over-hand, forearm, elbow, shoulder, etc.)
  - If child does not respond correctly after the first prompt, the instructor delivers subsequently more intrusive prompts until the child responds correctly
- Initial Trial
  - Initial instruction is delivered with a prompt which consistently results in the child responding correctly
- Subsequent Trials
  - If the child responds correctly to the initial prompt for two consecutive trials, the instructor fades the prompt to a less intrusive prompt (e.g., hand-over-hand → forearm)
    - **OR** if the child responds correctly to the initial prompt in the previous trial, the instructor fades the prompt to a less intrusive prompt
  - If the child responds correctly to the initial prompt for three consecutive trials and the instructor does not fade the prompt to a less intrusive prompt

in the next trial (i.e., remains at the same prompt level or increases the intrusiveness of the prompt), score as incorrect

- If the child responds incorrectly to the initial prompt for two consecutive trials, the instructor fades the prompt to a more intrusive prompt (e.g., forearm→ hand-over-hand)
  - **OR** if the child responds incorrectly to the initial prompt in the previous trial, the instructor fades the prompt to a more intrusive prompt
- If the child responds incorrectly to the initial prompt for three consecutive trials and the instructor does not fade the prompt to a more intrusive prompt in the next trial (i.e., remains as the same prompt level or reduces the intrusiveness of the prompt), score as incorrect

APPENDIX D:  
PRE-TRAINING “OUTCOME” SHEET

**Systematic Worksheet for the Evaluation of Effective Prompt Strategies (SWEEPS)**

**Outcome Sheet**

**Developed by Landon Cowan and Dr. Dorothea Lerman**

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor Name: \_\_\_\_\_ Target Skill: \_\_\_\_\_

**Step I. Selecting Types of Prompts**

Circle the type(s) of prompt(s) you will use to teach this skill to the student.

- **Gestural**
- **Motor Model**
- **Partial-Vocal Model**
- **Partial Physical**
- **Full-Vocal Model**
- **Full Physical**

**Step II. Selecting the Prompt-Fading Strategy**

Circle the prompt-fading strategy that you will use to teach this skill to the student.

- **Least-to-Most (LTM)**
- **Most-to-Least with a Delay (MTLD)**
- **Most-to-Least (MTL)**
- **Progressive Prompt Delay (PD)**
- **Graduated Guidance**

**Step III. Determine Initial Prompting Level (If Applicable)**

Write the initial prompting level (if applicable) that you will use to teach this skill to the student.

APPENDIX E:

INTERVENTION RATING PROFILE (IRP)

*Intervention Rating Profile – (Modified IRP-15)*

Please rate the **Systematic Worksheet for the Evaluation of Effective Prompting Strategies (SWEEPS)** along the following dimensions. Please circle the number which best describes your agreement or disagreement with each statement.

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Disagree Slightly</i>	<i>Slightly Agree</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. This would be an acceptable assessment tool to use with my clients.	1	2	3	4	5	6
2. Most BCBAs/BCBA trainees would find this assessment tool appropriate.	1	2	3	4	5	6
3. This assessment tool should prove helpful in identifying effective prompting strategies for my clients.	1	2	3	4	5	6
4. I would suggest this assessment tool to other BCBAs/BCBA trainees.	1	2	3	4	5	6
5. I would be willing to use this assessment tool in the clinical setting.	1	2	3	4	5	6
6. This assessment tool would <i>not</i> result in negative side-effects for the client.	1	2	3	4	5	6
7. This assessment tool would be appropriate for a variety of clients.	1	2	3	4	5	6
8. This assessment tool is consistent with those I have used in clinical settings.	1	2	3	4	5	6
9. I like this assessment tool.	1	2	3	4	5	6
10. Overall, this assessment tool would be beneficial for a client.	1	2	3	4	5	6