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EMPIRICAL REPORT

Comparison of Prompting Strategies on Two Types of Tasks With Children Diagnosed With Autism Spectrum Disorders

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Introduction

Prompt dependency is a common problem for children with intellectual and developmental disabilities and especially for children with autism spectrum disorder (ASD). Clark and Green (2004) defined prompt dependency as an individual's correct responding being dependent on the controlling prompt of the therapist with little progress made in fading the prompt. This may occur as a result of the continual prompting that many children with ASD receive during one-on-one academic instruction, or may be related to processing deficits (Hume et al. 2009). Many children with ASD are taught specific skills using least-to-most (LTM) prompting (Horner & Keilitz, 1975). In LTM prompting, also known as a prompting hierarchy, learners are given a verbal instruction, followed by successively more intrusive prompts if they fail to respond accurately. The verbal prompt is followed by a model prompt in which learners are shown the correct answer and if they do not respond or respond incorrectly, they are physically guided to answer correctly. With this model, learners are not typically given the opportunity to respond independently to determine if they can do the task on their own. Thus, this approach encourages prompt dependency, particularly to the model prompt (Vladescu & Kodak, 2010).

Prompt dependency can be problematic for children in classroom settings as it leads to additional prompts which may be distracting to other students' learning (Anson et al. 2008), requires constant supervision for task completion, and encourages passive or slower learning, particularly when less powerful reinforcers such as praise are used. In many cases, the goal for instruction is to increase independent responding, which would also lead to increased opportunities for inclusion (Vladescu & Kodak, 2010).

Studies have attempted to address the problem of overreliance on prompting, either by increasing responding to a verbal prompt or increasing independence. Hume et al. (2009) conducted a review of three studies that attempted to increase independent responding in children with ASD. The authors found that individuals with ASD have more difficulty with independent functioning, such as difficulty in initiating activities, trouble with generalization of skills, and prompt dependency. They discussed specific approaches that have proven successful at increasing independence within this population, including video modeling, self-monitoring, and individual work systems. Dunlap and Johnson (1985) attempted to increase independence for children with ASD by creating an unpredictable schedule of supervision. Because the children were uncertain when adults would be providing prompts and reinforcement, this increased time on task when the child was alone. Karsten and Carr (2009) increased independent responding by providing highly preferred reinforcers contingent on unprompted responses. All other responses resulted in less preferred items. They noted better performance when a higher percentage of unprompted responses were reinforced as compared to all responses being reinforced.

To increase attention to prompts and facilitate correct responding, differential observing responses (DORs) have been used. This procedure was first used by Wyckoff (1952) to train pigeons to emit an observing response, which then produced a discriminative stimulus signaling whether or not key pecks would result in reinforcement. Applied studies have utilized a DOR to facilitate correct responding by having a

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learner name the word on the first card presented (the sample stimulus) as the observing response, prior to showing them the rest of the cards which were the matching stimuli (Broomfield et al. 2008; Constantine & Sidman, 1975; Geren et al. 1997). This ensures that the learner is attending to the relevant stimuli prior to making a choice.

Fisher et al. (2007) used a slightly different DOR procedure in which they used a DOR instead of a gestural prompt to facilitate correct responding to a verbal prompt in a spoken-word match-to-sample task. They compared the use of a LTM prompting procedure (verbal, gestural, full physical) to an identity-matching procedure (LTM+DOR), which was essentially the same except for a DOR replacing the gestural prompt in producing response acquisition on the verbal prompt. A control procedure was also used and the three types of procedures were compared using a multielement design. Their findings suggest that the use of a DOR in place of the gestural prompt increased both participants' correct responding to the verbal prompt quicker than the other two procedures (LTM and the control). The DOR also decreased impulsive or passive responding, in that the learners had to attend to their own cards to make a correct response and receive reinforcement.

There were a few limitations to the Fisher et al. study. First, they did not conduct a pretest of prompt dependency and are therefore unable to say if participants in their study were prompt dependent or not. A possible reason for the success of the Fisher et al. DOR procedure could in fact be that their participants were not prompt dependent. Second, Fisher et al. had two participants in the study and used two different study designs with the test stimuli for each participant. Because there was only one participant per procedure, it is difficult to draw conclusions about either procedure or its effects on compliance.

The purpose of this study is to extend the study by Fisher et al. (2007) by evaluating the role of an identity-matching procedure with a DOR on (a) acquisition rates and (b) ability to reduce prompt dependency with two types of academic tasks (i.e., match-to-sample and receptive ID) for children with ASD with and without a history of prompt dependency.

Method

Participants and Setting

All participants were previously diagnosed with ASD and were admitted to an inpatient hospital for the treatment of severe problem behavior. Participants were only included in the study, however, if they exhibited low to zero rates of problem behavior during academic activities (i.e., less than one per minute). Victoria is a 14-year-old female diagnosed with mild intellectual disability, admitted for the treatment of

aggressive behavior, property destruction, and severe non-compliance. Vineland scores indicate that she is significantly below average and in the "low" range of functioning. Communication, daily living skills, and socialization skills put Victoria in the <1st percentile compared to children her age. She can request items using one or two words and can follow simple directions. Nolan is a 13-year-old male diagnosed with moderate intellectual disability, admitted for the treatment of aggression and property destruction. His Vineland scores in communication, daily living skills, and socialization skills put him in the low range of functioning and in the <1st percentile. Nolan is nonverbal and requests items only with gestures and pointing. He can follow two-step directions. Emily is a 17-year-old female diagnosed with severe intellectual disability admitted for the treatment of aggression and self-injurious behavior. IQ and/or Vineland information are not available for her. She is nonverbal and when prompted, requests items by pointing. Emily can follow simple, one-step directions.

All sessions were conducted in a quiet room of an inpatient unit in a children's hospital. Two tables and multiple chairs were present in the room. The participant was seated at the table and the therapist stood across the table from the participant to present the task materials.

Data Collection, Interobserver Agreement, and Treatment Integrity

During the prompt dependency screening and pretest, data were collected using paper and pencil. Data were collected using the DataPro computer program on laptop computers for all other sessions of the experiment. Data collectors were seated across from the participant, but away from the table (to minimize distractions). Data on the following dependent variables were collected during all behavioral analog sessions: the prompt level at which the participant attempted a response and correct, incorrect, and no response to prompts. A correct response was scored if the participant moved the sample stimulus to its correct match or touched the correct stimulus within 5 s. An incorrect response was scored if the participant attempted a response but it was wrong, and finally, no response was scored if the participant did nothing for 5 s. Data on the following procedures were collected during all sessions to ensure treatment integrity: frequency and type of prompt the therapist delivered (independent, verbal, gestural, or full physical) to ensure they were spaced 5 s apart and the delivery and consumption of edible items to ensure it occurred only after following correct responses and within 5 s of a correct response.

A second independent observer collected data for at least 28 % of each participant's sessions. Interobserver agreement (IOA) was assessed using the partial interval agreement method (Mudford et al. 2009). An agreement was scored if both

observers agreed that a correct response, incorrect response, or no response occurred. Sessions were divided into 10-s intervals, and agreement was calculated for each interval by dividing the total number of agreements by the total number of agreements plus disagreements, and then converting the quotient to a percentage. This number was then averaged across intervals and sessions. Average IOA across all participants was 92.46 % (range 62.61–100). Individual participant's IOA results are depicted in Table 1. Some of the IOA scores are lower due to difficulties associated with scoring from video when a second in vivo independent data collector was not available.

Participant Characterization

Prior to beginning the study, two participants were identified as being prompt dependent with receptive ID tasks but not with match-to-sample tasks (Nolan and Emily). A variety of tasks were presented using LTM prompting, and a response was defined as prompt dependent when a participant either (1) responded incorrectly to the verbal prompt or (2) made no response to the verbal prompt, and then responded correctly after the model prompt was delivered, on 75 % or more of trials. These criteria were selected to demonstrate that children were not responding by chance to the model prompt. We then identified an additional participant (Victoria) who was not prompt dependent to be included as a comparison.

Pretest

Pretest procedures were identical to Fisher et al. (2007) to ensure that participants did not already know the stimuli to be used in the tasks. Twenty-four stimuli were tested per participant, and more were added as those stimuli were mastered, such that there were 24 unmastered stimuli to use for the main experiment. Stimuli differed across participants, based on their current academic goals (e.g., picture-to-picture matching, word-to-picture matching). The stimuli that were not already known were then sorted randomly into two groups, one set of stimuli was used as test stimuli, and the other set of stimuli was used as distractor stimuli. On each trial of the match-to-sample task, the participant was given a card and three (Emily) or four (Victoria and Nolan) sample cards to match it with, and

told "Match." For each trial of the receptive ID task, the participant was given pictures and told, "Hand me ___." This sequence was conducted four times for each stimulus, and test stimuli were randomly chosen on each trial. No feedback was given for correct or incorrect responses. Items were included in the session if they were identified correctly less than 50 % of the time during pretest trials. For the match-to-sample task, Victoria's task was to match word to picture with animals, Nolan's task was function matching (e.g., horse and saddle), and Emily's task was matching lowercase and uppercase letters. For the receptive ID task, stimuli were household items, animals, and famous people, respectively.

Preference Assessment

Food items were used as reinforcers for compliance during this study because they are easily delivered and consumed. A paired-choice preference assessment was conducted with all participants (Fisher et al. 1992). Ten food items were assessed in a paired-choice format in which each item was paired against every other item. The three most preferred items were used for the study. Prior to each session block, the participants were given a choice of the three preferred items to serve as reinforcers for that day. Upon each correct response, the therapist delivered a small piece of a reinforcer within 5 s.

Procedure

Each session consisted of 16 trials. Trials began with the participant being seated at a table and the therapist standing in front of him or her. For the match-to-sample (MTS) sessions, the therapist presented a sample stimulus card, the correct stimulus, and three or four distractor cards. Initially, no spoken instruction was given. Every trial allowed 5 s for independent responding, before proceeding to the verbal prompt, Match, and presented the antecedent stimulus. The therapist waited 5 s between each level of prompting. Correct independent responding always resulted in reinforcement delivery. For the receptive ID task sessions, the therapist presented three or four pictures on the table and immediately delivered the discriminative stimulus (S^d), Hand me ___. For these sessions, there was no opportunity for independent responding.

Table 1 Interobserver Agreement

	w/IOA (%)	Mean IOA	Lower range	Upper range
Victoria, receptive ID	82.76	95.84	70.60	100
Victoria, MTS	55.33	96.18	84.11	100
Nolan, receptive ID	44.44	92.95	78.62	100
Nolan, MTS	53.70	90.75	71.58	100
Emily, receptive ID	28.13	90.42	90.42	100
Emily, MTS	40.74	88.63	62.61	100

The two conditions were least to most (LTM) and identity matching (IDM), and they were compared to a control condition (see "Procedure" below). Each condition within the two types of tasks had their own set of four test stimuli, which remained the same throughout all phases of the study. A separate set of comparison stimuli served as distractors or "incorrect stimuli," and were not used as test stimuli for any other condition. Comparison stimuli were the same for all conditions, but differed depending on task type. The tasks were considered "mastered" when three of the last four sessions was at or above 80 % for verbal and/or independent responding (see below). The three conditions were run in a multielement design (i.e., the order within each set of conditions was randomized).

Match-to-Sample Task

Reinforce Verbal and Independent Responding All participants, regardless of results on the dependency test, began in this initial phase. This phase is a replication of Fisher et al. (2007). It was used to shift responding from the gestural prompt, using an observing response (DOR) to the verbal prompt in the match-to-sample task. Three conditions were assessed: LTM prompting, IDM with the DOR, and control.

LTM Prompting During the LTM prompting procedure of the first phase, the learner received food reinforcers for correct responding on the independent or verbal prompt. This condition included four steps, which progressed from independent (i.e., stimuli placed on table) to verbal, gestural, and finally a full physical prompt.

IDM With DOR The IDM condition is the same as the LTM condition described above, in that there were four prompts and only correct responses on the independent or verbal prompt were reinforced. However, in this condition, the gestural prompt was replaced with a differential observing response (DOR). Instead of the therapist pointing to the card in front of the learner to model the correct answer, the therapist held up a separate picture that is the correct answer and pointed to that one, hence showing the correct answer. No reinforcer was delivered if the learner emitted the correct response following the DOR.

Control No reinforcement was provided in the control condition. This condition was identical to the pretesting procedure. The therapist would place stimuli on the table and allow 5 s for an independent response. If the learner made a correct response on the independent prompt, the therapist proceeded to the next trial. If the learner made an incorrect response or no response at all to the stimuli being placed on the table, the therapist delivered the verbal prompt, Match. At this point, if

the learner made a correct, incorrect, or no response, the therapist proceeded to the next trial.

Reinforcement of Independent Responding The conditions for this phase were the same as the first phase: LTM prompting, IDM, and control. However, only correct, independent responses were reinforced.

Modified Distractors The conditions for this phase were identical to the other phases, and reinforcement contingencies remained the same (i.e., whatever responses were reinforced in the previous phase continued to be reinforced). The only change in this phase was that all current distractors were removed and replaced with test stimuli from other conditions. For example, if the condition was LTM, then the test stimuli for these sessions would be from the LTM set of stimuli and the distractor stimuli for these sessions would include all IDM and control condition test stimuli. This phase was conducted to determine if participants learned the relationship between the stimuli or just memorized which test stimuli resulted in reinforcement. Therefore, if all stimuli in the array to choose from had a history of reinforcement, the task would be more difficult, and thus, we would be able to evaluate if the participant learned the relationship between the prompts and the correct stimuli.

Generalization Probe Once mastery criteria were met, a probe using a worksheet was conducted to test for generalization. The worksheet was a matching task with test stimuli on the left side of the page and their subsequent matches on the right side. Participants had to draw a line across the page and correctly match each item. Prior to session, participants were trained how to do the matching task with a different worksheet that contained similar types of stimuli, but none that appeared on the probe worksheet. The therapist demonstrated the task, used hand-over-hand guidance, and verbally prompted the participant. This was done with three practice worksheets, and then the session would begin and the participant was given the probe worksheet and a marker with no instructions (i.e., allowing for independent responding). After 5 s, if the participant did nothing or was doing something other than matching, the therapist delivered a verbal prompt Match. No reinforcers were delivered following worksheet probes.

Receptive Identification Task

Reinforce Verbal Responding All conditions (i.e., LTM, IDM, control) were identical for the receptive ID task; however, in this phase, there was no opportunity for an independent response (i.e., a verbal instruction was required). Therefore, reinforcement was provided only for correct responses after

the spoken S^d, or verbal prompt, was delivered. This arrangement more closely replicated the procedure conducted by Fisher et al. (2007). The LTM and IDM conditions had a possibility of three steps (i.e., verbal, gestural or IDM with DOR, and full physical), and the control condition would only ever have one step (i.e., just the S^d).

Modified Distractors This condition was identical to the previous condition, except that all distractor stimuli were removed and instead, the stimuli from the other conditions were used as distractors. This was analogous to the "Modified Distractors" phase using the match-to-sample task.

Results

Victoria Based on our prompt-dependency screening, Victoria was not prompt dependent with either MTS or receptive ID tasks. During the MTS task (top panel, Fig. 1), mastery criteria were met for both the LTM and IDM conditions (averaging 96 and 98 % correct independent responding for the last three sessions, respectively). When the first worksheet probe was conducted, Victoria responded correctly only 8 % of the time. Therefore, she moved on to the next phase in which all distractor cards were removed. Once again, she quickly met mastery criteria for both conditions, with correct responding averaging 85 % for LTM task and 94 % for IDM task across the last three sessions. On her final worksheet probe, she scored 83 % independent responding.

For the initial phase of the receptive ID task (bottom panel, Fig. 1), mastery criteria were once again quickly met for both conditions (averaging 85 % correct in IDM and 90 % for LTM for the last three sessions). Upon moving to the second phase, in which distractor cards were removed, Victoria quickly reached mastery criteria, in all three phases. This was despite never receiving reinforcement or feedback for any of the stimuli associated with the control condition. A quick reversal was conducted to try and determine the factors associated with acquisition in the control condition, and again, she reached 100 % correct in all three conditions. For both tasks of the experiment, she met mastery criteria for the LTM and IDM conditions at the same rate within just a few sessions. Her results indicate that both prompting procedures were equally effective.

Nolan Results for Nolan indicated that he was prompt dependent with receptive ID tasks but was not with match-to-sample tasks. In the first phase with the match-to-sample task (top panel, Fig. 2), he reached mastery criteria within five sessions for both the LTM and IDM conditions, averaging 83 and 80 % correct independent responding across the last three sessions, respectively. The first worksheet probe was conducted and Nolan scored 0 % correct for independent and the verbal

prompt. He simply scribbled on the worksheet. In the next phase when distracters were removed, Nolan reached mastery criteria for LTM and IDM tasks within three sessions each, averaging 100 and 85 % correct independent responding, respectively, across the last three sessions. Responding during the LTM condition was higher and stabilized at 100 % during this phase. Performance on the next worksheet probe was identical to the first, so Nolan moved to the final phase for more training. In this phase, only independent responding received reinforcement, and independent responding averaged 98 and 83 % for the LTM and IDM conditions, respectively. The final worksheet probe conducted in this phase was identical to the previous two (i.e., 0 % correct responding). Thus, Nolan mastered the match-to-sample task with both prompting styles, but his skills did not generalize to the worksheet.

For the receptive ID task (bottom panel, Fig. 2), Nolan quickly reached mastery criterion in the IDM condition; his correct responding averaged 87.5 % across the last three sessions. However, we hypothesized that he had not actually learned the stimuli (i.e., which pictures goes with which names) and had simply memorized which stimuli resulted in reinforcement. Therefore, we moved to a next phase in which all distractor cards were replaced with test stimuli from the other conditions. Correct responding dramatically decreased for all conditions, but eventually increased and mastery criterion was met once again for the IDM condition, averaging 87.5 % correct responding for the last three sessions. Responding in the LTM condition averaged 29 % correct verbal responding, and responding in the control condition dropped to almost 0 %, averaging 5 % correct verbal responding. Because we still hypothesized that Nolan had only memorized the correct match for the stimuli from the IDM condition rather than which picture went with the instruction, this resulted in the decreased accuracy across the LTM and control conditions.

Emily Emily's results for the prompt dependency screening were the same as Nolan's. She did not show prompt dependency on match-to-sample tasks but did for receptive ID tasks. Her results for the match-to-sample task are depicted in the top panel of Fig. 3. For the initial phase, Emily reached mastery criteria of verbal responding in the LTM condition, averaging 85 % correct for the last three sessions. A worksheet probe was conducted at the end of the phase, and Emily scored 0 % correct for independent and verbal responding. In her next phase, only independent responding was reinforced. Although Emily never met mastery criteria, she did achieve two out of three sessions above 80 % in the LTM condition. The IDM condition, although there were slight improvements, remained at chance responding.

For the first phase of the receptive ID task (bottom panel, Fig. 3), Emily reached mastery criterion quickest and only in the IDM condition, her average percentage correct for the last
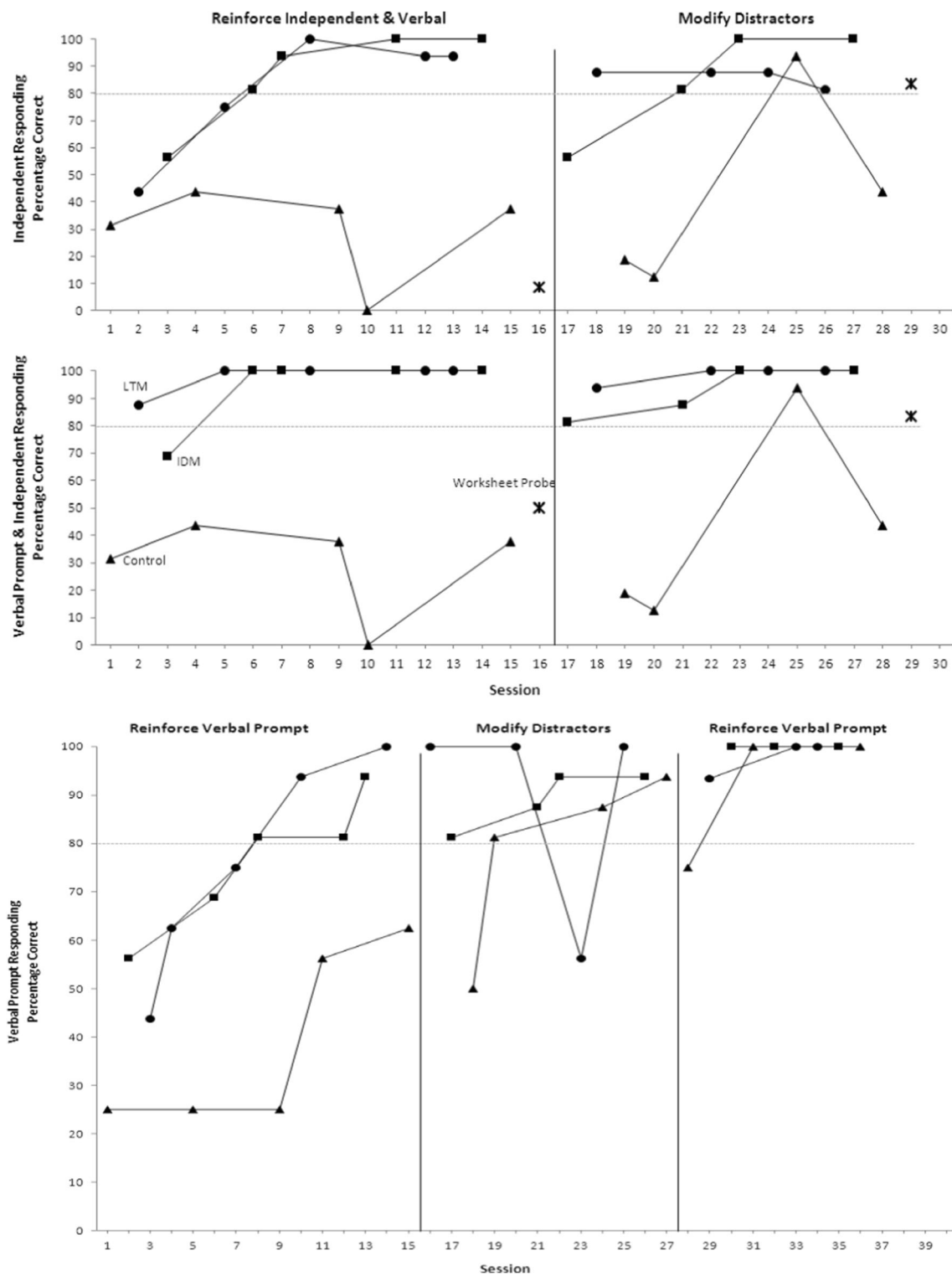
Fig. 1 Victoria's results. The match-to-sample task is depicted in the *top panel*, and the receptive ID is depicted in the *bottom panel*. Least-to-most prompting conditions are denoted by the *circles*, identity matching with a DOR by the *squares*, control conditions by the *triangles*, and worksheet probes by the *stars*

three sessions was 93 %. She then moved to the next phase in which all distractor cards were removed and quickly reached mastery criterion for this phase in the IDM condition again (87.5 % correct for the last three sessions), while responding in the LTM and control conditions remained very low, 29 and 20 %, respectively. Therefore, it appeared that for Emily and Nolan, the DOR did help to acquire the skill faster and eliminated any possibility of prompt dependency.
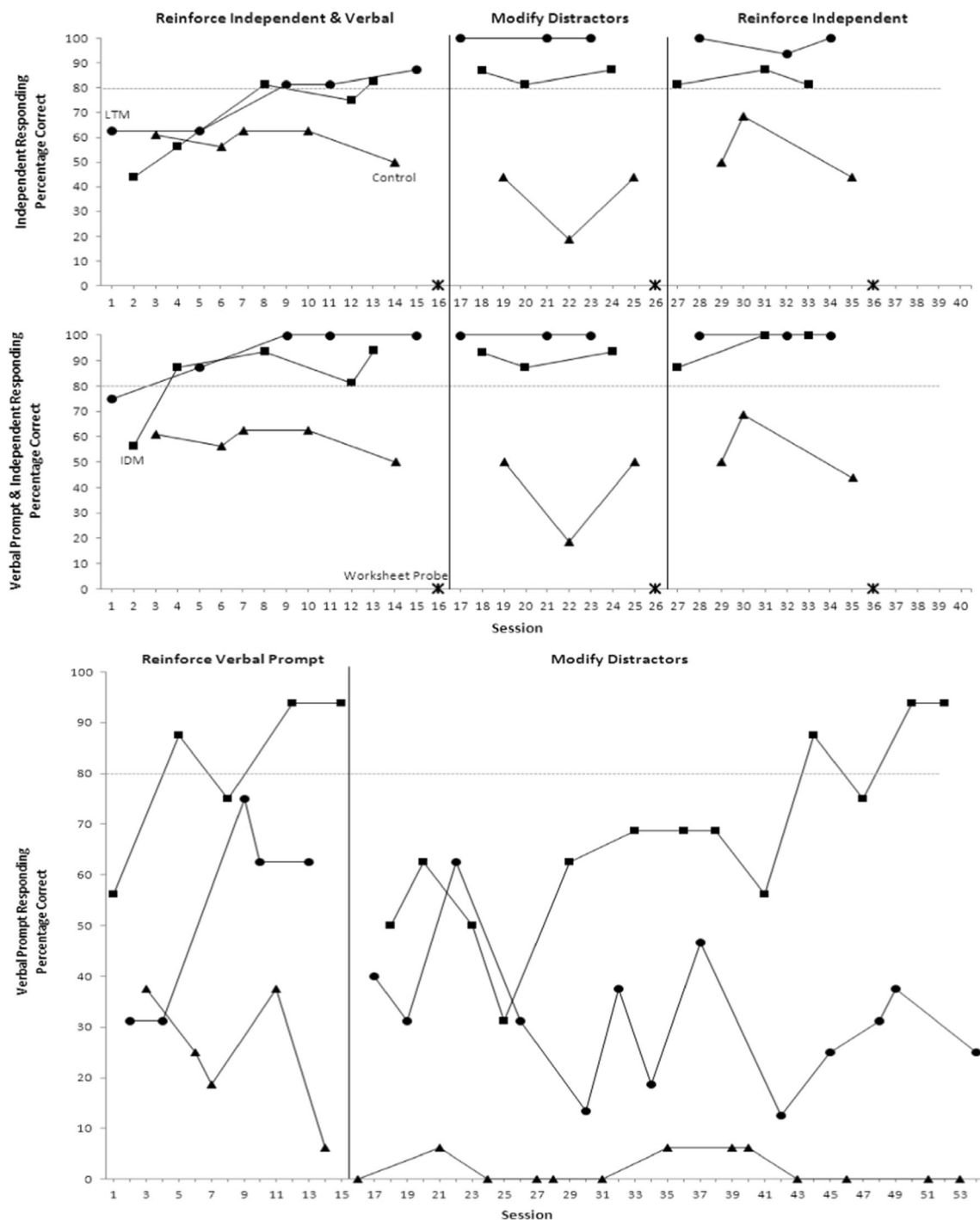
Fig. 2 Nolan's results. The match-to-sample task is depicted in the *top panel*, and the receptive ID is depicted in the *bottom panel*. Least-to-most prompting conditions are denoted by the *circles*, identity matching with a DOR by the *squares*, control conditions by the *triangles*, and worksheet probes by the *stars*

Discussion

Based on the results of this study, we concluded that if an individual is prompt dependent on spoken-word-to-picture tasks (i.e., receptive ID tasks), then IDM with a DOR is the best prompting strategy. This was replicated with two participants. If an individual is not prompt dependent with match-to-sample tasks, then it appears that the type of prompting procedure does not make a difference. For two of the participants in this category, LTM and IDM worked equally well and for the third participant, LTM resulted in the most rapid acquisition. Therefore, when conducting academic receptive ID tasks with individuals with ASD and intellectual disabilities, using IDM with a DOR may be the best prompting
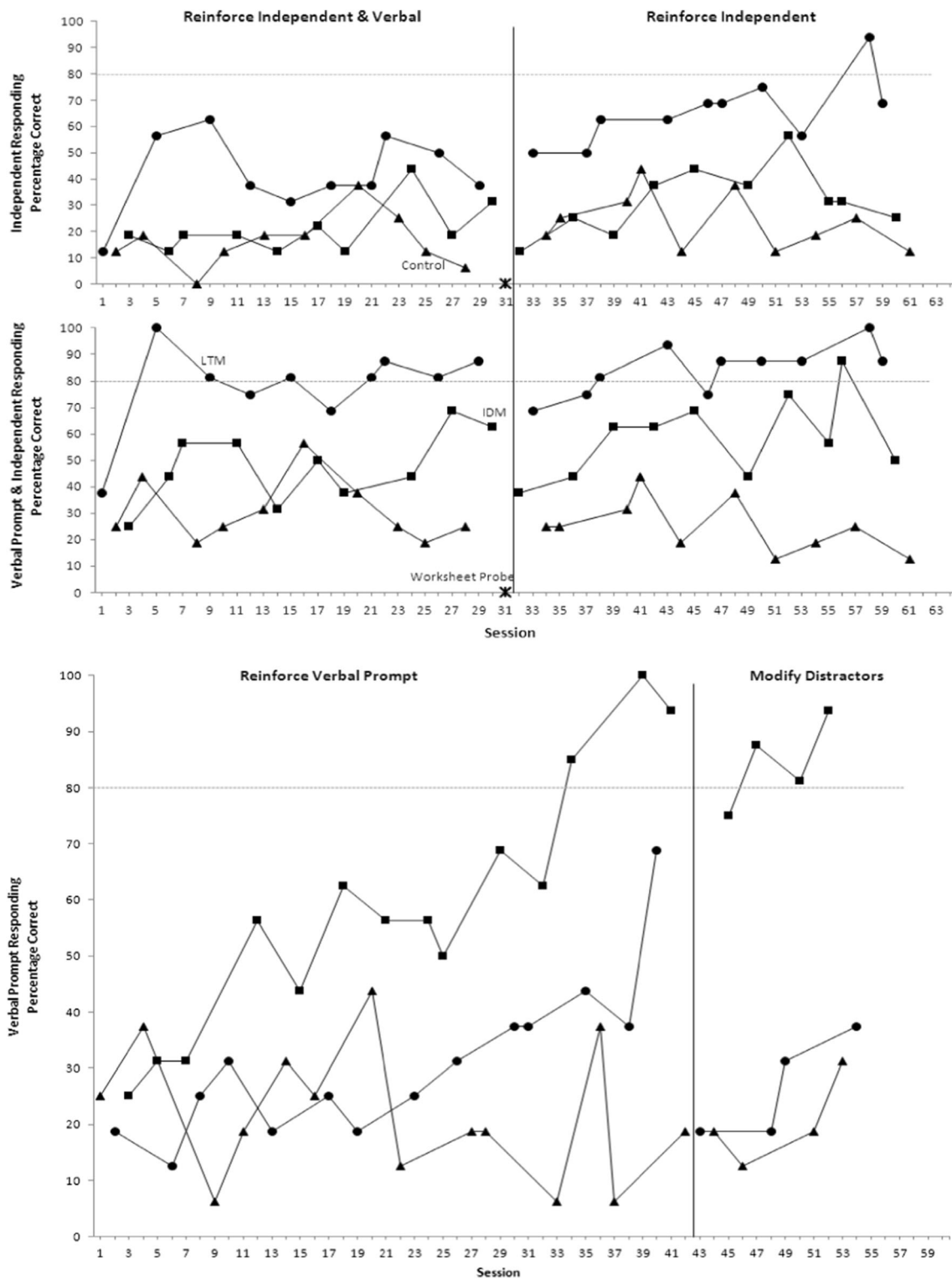
Fig. 3 Emily's results. The match-to-sample task is depicted in the *top panel*, and the receptive ID is depicted in the *bottom panel*. Least-to-most prompting conditions are denoted by the *circles*, identity matching with a DOR by the *squares*, control conditions by the *triangles*, and worksheet probes by the *stars*

strategy to use. Standard LTM prompting may be the best procedure to use when teaching match-to-sample tasks. Although a big difference was not observed overall between LTM and IDM for the match-to-sample task, performance was initially better using LTM. It is important to note that on more than one occasion, participants tried matching to the card that

the therapist was holding instead of to their own array of stimuli. Also, LTM prompting is easier than IDM because the therapist is not required to have an extra set of stimuli, which leads us to recommend using LTM when both prompting strategies are equally effective.

This study extended Fisher et al. (2007) by including a prompt-dependency pre-assessment in which we evaluated whether each participant was prompt dependent with a number of various academic tasks. We concluded that different strategies work better depending on whether an individual is prompt dependent or not. This study also extended Fisher et al. by using the same design for all participants in the study (i.e., they began with one set of stimuli serving as test stimuli and another set of stimuli serving as distractor stimuli). However, to assess the differences that distractor stimuli would make, all participants in both tasks moved to a phase in which the distractor stimuli came from a "pool" of stimuli, similar to the second participant in the Fisher et al. study. Thus, we evaluated both types of distractors systematically in the current study.

One practical application of this study is that it provides educators with a choice in methods to reduce prompt dependency. Spoken-word-to-picture-matching tasks should be prompted using the DOR if the individual is prompt dependent, but is not necessary for an individual without a history of prompt dependency. For other types of tasks, the prompting procedure may not matter. In many settings, LTM prompting (i.e., with a gestural prompt) is used, but this may not necessarily be the best case scenario for all types of tasks; thus, prompting procedures should be tailored based on the task and individual learner's needs.

Despite these positive findings, there are some noteworthy limitations to this study. First, with only three participants, we did not have a prompt-dependent participant for the MTS task in the study. None of the participants were prompt dependent when tested with match-to-sample tasks, and two participants (Nolan and Emily) were prompt dependent only with receptive ID tasks. To strengthen our conclusions, including a participant with a history of prompt dependency on MTS tasks would have allowed us to test the IDM with DOR procedure and see if it could actually function as a treatment for prompt dependency.

Besides the pretest, which assessed whether the participant already knew the task material, there was no formal assessment for the type of tasks to be used in the experiment. Task types were estimated based on the participant's current academic goals, and although the pretest would indicate if they were too easy, there was no way of knowing if they were also too difficult.

There is also a potential limitation in categorizing individuals as prompt dependent based on the prompt-dependency assessment we utilized. With the two criteria used (i.e., responds incorrectly to the verbal prompt or makes no response

to the verbal prompt), we identified two different ways of making errors or being incorrect. For the first, the participant is actually trying to respond on the verbal prompt, which may suggest a skill deficit. For the second, the participant is not responding to the verbal prompt at all which may suggest a motivational deficit. For example, Emily and Nolan would always make a response to the verbal prompt during the receptive ID prompt-dependency assessment; however, they did not seem to be attending to the cards at all and were just selecting one at random. Their pattern of responding suggests a skill deficit that may require more exposure to or modification of the task.

For future studies, using a more stringent criterion for prompt dependency (i.e., the child only responds after the gestural prompt) would allow us to determine more clearly the effectiveness of each type of prompting strategy. In addition, using these procedures with different higher-order academic tasks like worksheets or nonacademic tasks, such as activities of daily living, would provide additional information on the most effective prompting strategy. Another area for future research is to evaluate different tests of generalization. We chose to test generalization with worksheets that were similar to the task, but other types of tasks may more clearly evaluate generalization. Also, although it was not assessed in the current study, in future studies, it would be important to probe for generalization with the receptive ID task in addition to the match-to-sample task. In the current study, a high rate of reinforcement for correct responses was used but future studies should evaluate the effectiveness of the strategies while thinning the schedule of reinforcement as well as using alternative forms of reinforcement to address motivational issues.

Further exploration is necessary to determine how to reduce rote memorization of correct test stimuli during receptive ID tasks (i.e., tasks requiring a vocal prompt), so that the spoken word serves as the discriminative stimulus for correct responding rather than the presence of certain pictures. A probe was conducted with one participant in which all other stimuli (distractor and test) were removed from the array and only the target stimuli associated with reinforcement within that condition were included for each trial. When this occurred, correct independent responding dropped to chance levels for all three conditions. Therefore, further procedures are needed to train using a verbal S^d for matching, to avoid rote memorization of the correct answer so that they can learn the correct contingency between S^d and response. It could be that future researchers need to explore prompting procedures for these individuals who are responding without actually using the verbal prompt as an S^d.

To conclude, it appears that different children may require different prompting strategies based on their history of prompt dependency. Depending on the child's history as well as the type of task they are working on, professionals working with the child should consider a variety of prompting strategies

because as shown in this study, one prompting strategy, the IDM with a DOR, worked better for some individuals and some tasks than the standard LTM prompting procedure. In addition, these strategies may differ based on the reason the person is prompt dependent and if it is directly related to the diagnosis of ASD or to having an intellectual disability in general.

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