

*THE EFFECTS OF THE QUESTION “WHAT IS THIS?” ON  
TACT-TRAINING OUTCOMES OF CHILDREN WITH AUTISM*

NANCY V. MARCHESE

KINARK CHILD AND FAMILY SERVICES

JAMES E. CARR AND LINDA A. LEBLANC

AUBURN UNIVERSITY

AND

TIFFANY C. ROSATI AND SAMANTHA A. CONROY

KINARK CHILD AND FAMILY SERVICES

Tact training is a common element of many habilitative programs for individuals with developmental disabilities. A commonly recommended practice is to include a supplemental question (e.g., “What is this?”) during training trials for tacts of objects. However, the supplemental question is not a defining feature of the tact relation, and prior research suggests that its inclusion might sometimes impede tact acquisition. The present study compared tact training with and without the supplemental question in terms of acquisition and maintenance. Two of 4 children with autism acquired tacts more efficiently in the object-only condition; the remaining 2 children acquired tacts more efficiently in the object + question condition. During maintenance tests in the absence of the supplemental question, all participants emitted tacts at end-of-training levels across conditions with no differential effect observed between training conditions.

*Key words:* autism, language training, stimulus control, tacts, verbal behavior

Skinner (1957) defined the *tact* as a response “evoked by a particular object or event or property of an object or event” (p. 82) and considered it to be one of the most important verbal operants. Tacts are maintained by generalized social reinforcement and, thus, they are central to many social interactions. For example, the tact “That cloud looks like a horse” (under the control of a visual stimulus) could evoke a short verbal interaction about the sky or horses. The tact “My tummy hurts” (under the control of an interoceptive stimulus) could evoke soothing statements from a parent. A child who

tacts “doggie” in the presence of a cat likely would evoke a correction statement from an adult, further refining two stimulus classes (i.e., dog and cat). These examples illustrate that, despite their topographical differences, the tact relations share antecedent control by a nonverbal discriminative stimulus ( $S^D$ ) and are maintained by generalized social reinforcement.

In habilitative programs for individuals with language impairments, autism, and intellectual disabilities, tacts often are taught for objects (e.g., ball), object features (e.g., color, size, shape), activities (e.g., jumping), prepositions (e.g., between), and emotions (e.g., sad) among others. Although conceptualized differently among therapeutic approaches, the tact relation occupies a central position in many early-intervention curricula. For example, Lovaas (2003) and Leaf and McEachin (1999) describe these relations as expressive labels and recommend that they be taught early in language training using three-dimensional objects accompanied by the supplemental questions

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Address correspondence to Linda A. LeBlanc, who is now at Trumpet Behavioral Health, 390 Union Blvd., Suite 300, Lakewood, Colorado 80228 (e-mail: leblanc@tbh.com).

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“What is it?” or “What’s this?” Alternatively, Sundberg and Partington (1998) explicitly refer to the relation as a tact and recommend beginning instruction by including the question “What is it?” before eventually fading the question. In addition to these clinical manuals, the use of supplemental questions during tact training has appeared in some empirical studies on tact or expressive-label training (e.g., Braam & Sundberg, 1991; Coleman & Stedman, 1974), but not others (e.g., Williams & Greer, 1993). Regardless of whether tact training initially includes supplemental questions prior to response opportunities, tacts ultimately should be emitted readily under the sole control of the nonverbal S<sup>D</sup> as well as when it happens to be accompanied by a question.

Conceptually, at least four potential problems could arise from introducing supplemental questions early and consistently in tact training. First, the acquired responses might not be emitted unless the question is posed (i.e., prompt dependence). This problem would lead to few spontaneous tacts occurring outside the explicit stimulus control of the training environment. Williams and Greer (1993) compared comprehensive language training conducted under the stimulus control specified in Skinner’s (1957) taxonomy of verbal behavior to a more traditional psycholinguistic perspective with supplemental questions and instructions embedded within trials. For all three adolescents with developmental disabilities, the targets taught from the verbal behavior perspective were maintained better in natural contexts than those taught from the psycholinguistic perspective. However, because data were not reported for each individual verbal operant, it is unclear what specific impact their tact-training procedures had on the outcomes.

The second potential problem is that the supplemental question might acquire intraverbal control over early responses and interfere with the acquisition of subsequent tact targets. For example, Partington, Sundberg, Newhouse, and Spengler (1994) showed that the tact

repertoire of a child with autism had been hindered by prior instruction during which she was asked “What is this?” while being shown an object. The supplemental question subsequently evoked previously acquired responses and blocked the ability of new nonverbal S<sup>D</sup>s (i.e., objects) to evoke new responses. Partington *et al.* then showed that new tacts were acquired by eliminating the supplemental question from instructional trials.

The third potential problem is that learners might imitate part of or the entire supplemental question prior to emitting the target response (e.g., “What is it” → “What is it . . . ball.”). For example, Coleman and Stedman (1974) demonstrated that a 10-year-old girl with autism imitated the question “What is this?” while being taught to label stimuli depicted in color photographs. Such an outcome results in a socially awkward tact repertoire and requires additional intervention to remedy the problem.

Finally, including supplemental questions during tact training might impede skill acquisition, perhaps via a combination of the problems described earlier. Sundberg, Endicott, and Eigenheer (2000) taught sign tacts to two young children with autism who had prior difficulty acquiring tacts. In one condition, the experimenter held up an object and asked, “What is that?” In the comparison condition, the experimenter intraverbally prompted the participant to “sign [object name]” in the presence of the object. Sundberg *et al.* demonstrated substantially more efficient tact acquisition under the sign-prompt condition than when the question “What is that?” was included in trials; the latter condition sometimes failed to produce mastery-level responding.

Teaching an entire tact repertoire while including supplemental questions (e.g., “What is it?”) during training trials could produce a learner who is able to talk about his or her environment only when asked to do so with similar questions. To the extent that this is not a therapist’s clinical goal, teaching the tact under its proper controlling variables may

eliminate such problems. Of course, inclusion of supplemental questions during the early phases of language training could be faded over time such that the target tact relation is left intact prior to the end of training (Sundberg & Partington, 1998). However, the aforementioned studies have documented problems with using supplemental questions during tact training. Given the ubiquity of tact training in habilitation programs, the numerous problems that may arise when supplemental questions are included in training trials, and the limited research on the topic, further investigation is warranted. Thus, the purpose of the present study was to compare directly the rate of acquisition and subsequent maintenance of tacts taught using only a nonverbal  $S^D$  (i.e., object only) with tacts taught using a question ("What is this?") in conjunction with the nonverbal  $S^D$  (i.e., object + question). The present study extends earlier research by examining both acquisition and maintenance and by including individuals with no prior history of formal tact training.

## METHOD

### *Participants, Settings, and Materials*

Participants were three boys and one girl who had been diagnosed with autism by providers (e.g., pediatricians, psychologists) who were not affiliated with the study. None of the participants had received prior tact training during their behavioral intervention program. Tim was 6 years 8 months old and, according to the Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP<sup>1</sup>; Sundberg,

2008), did not emit any tacts (0 of 15 on the tact section). Evan was 8 years 3 months old and was able to tact four items according to the VB-MAPP (2 of 15 on the tact section). Grace was 8 years 4 months old and was able to tact 50 items according to the VB-MAPP (5 of 15 on the tact section). Michael was 6 years 5 months old and was able to tact a combination of 200 nouns and verbs according to the VB-MAPP (9 of 15 on the tact section) despite never being formally taught tacts during his behavioral intervention program. At the time of the study, Tim, Evan, and Grace received an average of 20 hr of intensive behavioral intervention per week, and Michael received an average of 15 hr per week.

All sessions were conducted in a center-based setting for Tim, Evan, and Grace and at home for Michael. The center-based program for Tim and Evan was housed in the upper level of a private school. All instruction took place in a large classroom that contained individual desks separated by dividers, an area with multiple desks for group instruction, and a play area. Grace's center-based program was housed in the lower level of a community college. All instruction took place in a large classroom that contained individual desks (without dividers), a large table for group instruction, and a play area. All of Michael's sessions were conducted in his home in a work area in his bedroom dedicated to behavioral intervention sessions. The work area contained a desk and a play area.

All sessions were conducted with at least one experimenter present. The experimenter and one observer were present for a subset of sessions to collect data for interobserver agreement and procedural fidelity calculations. The experimenter and participant were seated facing each other at a desk.

Participants were taught to say the name of the target stimulus materials. These materials included various child-appropriate three-dimensional objects comparable in size and novelty (e.g., toys, books, hat) that were paired based on the same number of phonemes (see Table 1). The objects in each pair then were

<sup>1</sup> The VB-MAPP is a criterion-referenced assessment for developing language and preacademic curricula for children with autism. Several verbal operants are evaluated by scoring the number and independence of responses based on either direct observation or indirect assessment of the child's performance under the relevant environmental conditions. The scoring for the tact subsection is divided into 15 milestones, with scores of 5 commensurate with performances of typically developing 18-month-olds, 10 commensurate with 30-month-olds, and 15 commensurate with 48-month-olds.

Table 1  
Objects and Their Corresponding Target Responses for Each Participant

Participant	Condition	Object	Target response
Tim	Object only	Book	“Book”
		Small toy car	“Car”
		Baseball hat	“Hat”
	Object + question	Child’s shoe	“Shoe”
		Stuffed toy dog	“Dog”
Evan	Object only	Ball	“Ball”
		Small toy car	“Caa” or “Car”
		Book	“Ook” or “Book”
	Object + question	Child’s shoe	“Shoe”
		Ball	“Ball”
Grace	Object only	Baseball hat	“Hat”
		Stuffed toy dog	“Dog”
		Hippo toy figurine	“Hippo”
	Object + question	Pig toy figurine	“Pig”
		Moose toy figurine	“Moose”
Michael	Object only	Rhino toy figurine	“Rhino”
		Shark toy figurine	“Shark”
		Bear toy figurine	“Bear”
	Object + question	Whistle	“Whistle”
		Slinky	“Slinky”
		Toy octopus	“Octopus”
		Recorder	“Recorder”
		Toy submarine	“Submarine”
		Maraca	“Maraca”

assigned randomly to one of two three-object stimulus sets, with one set assigned to each training condition.

*Data Collection and Measurement*

The dependent measure was the frequency of correct tacts in nine trials. During baseline, training, and maintenance-evaluation sessions (conducted once daily, 3 to 5 days per week), the participant’s response was scored during each trial. Each response was scored as correct (i.e., the full name of the object was independently emitted within 3 s of the object’s presentation) or incorrect (i.e., no response or any word or sound besides the full object name). The 3-s interval for an independent response was consistent with ongoing instructional procedures in the participants’ therapeutic environment. The target response topographies are listed in Table 1. Two of Evan’s target responses included vocal approximations as

acceptable tacts (i.e., “ook” was accepted for “book,” “caa” was accepted for “car”).

*Interobserver agreement.* Point-by-point interobserver agreement was calculated for the baseline, training, and maintenance-evaluation sessions by dividing the number of agreements by the total number of trials and converting the ratio to a percentage. An agreement was defined as both observers recording a response as correct or incorrect. Agreement was assessed for at least 32% of sessions for each participant, distributed across phases. Mean agreement was 100% for Tim, Evan, and Michael and 99.7% (range, 89% to 100%) for Grace.

*Procedure*

*Stimulus preference assessment.* Prior to training, a multiple-stimulus without replacement preference assessment (MSWO; DeLeon & Iwata, 1996) was conducted to identify preferred items that would be delivered as programmed consequences during subsequent training sessions. The MSWO assessment included three arrays of five to seven edible items for Tim, Evan, and Grace and three arrays of six toys for Michael.

*Design.* An adapted alternating treatments design embedded in a nonconcurrent multiple baseline design across participants was employed to evaluate the effects of tact training. The sequence of experimental phases in the study was as follows: baseline, tact training, and maintenance evaluation.

*Baseline.* The experimenter randomly alternated between baseline sessions of the object + question condition and the object-only condition (described below). During each session, the experimenter sat across the table from the participant and presented nine trials (i.e., three trials per stimulus, interspersed) with one stimulus set. At the beginning of each trial, the experimenter held the object in front of the participant and waited 3 s for a response. No instructions or prompts were provided. If the participant correctly tacted the object, the experimenter delivered enthusiastic praise. Oth-

erwise, the object was removed from sight and a new trial began.

*Tact training.* Participants were exposed to two tact-training conditions using random alternation. In the object + question condition, each session consisted of nine trials for a specific stimulus set, as described in baseline above. At the beginning of the session, the experimenter presented three of the participant's most preferred items (i.e., the two most preferred from the MSWO assessment and an item with a preference rank of 3 to 5) and instructed him or her to select one. The experimenter then placed the selected item out of the participant's reach and used it as the putative reinforcer throughout the session. At the beginning of each trial, the experimenter held up one of the target objects, said "What is this?," and waited 3 s for a response. The experimenter delivered enthusiastic praise (on a fixed-ratio 1 schedule) and the unrelated preferred item (on a variable-ratio 3 schedule) for correct responses. If the preferred item was a toy, it was delivered for 15 s; if the item was edible, a small piece was delivered. If the participant responded incorrectly or failed to respond within 3 s, the experimenter provided a full echoic prompt (e.g., "say 'bear'") and waited up to 3 s. If the participant then correctly tacted the object, the experimenter acknowledged the response in a neutral manner (e.g., "That's right, it is a bear"). The trial ended when a participant emitted a correct tact (independently or prompted) or failed to respond after the single echoic prompt. Tact training ended (a) when the participant correctly emitted all nine tacts in two consecutive sessions or (b) when the stimulus set in the object-only condition was acquired and responding in the object + question condition remained stable with no evidence of improvement for 10 additional consecutive sessions. The object-only condition was conducted in an identical manner to the object + question condition, except that the experimenter did not ask the participant "What is this?" Tact training ended (a) when the

participant correctly emitted all nine tacts in two consecutive sessions or (b) when the stimulus set in the object + question condition was acquired and responding in the object-only condition remained stable with no evidence of improvement for 10 consecutive sessions.

*Maintenance evaluation.* Maintenance evaluations were conducted following training in a manner identical to baseline.

#### *Procedural Fidelity*

Procedural fidelity was assessed during baseline, training, and maintenance-evaluation sessions by scoring a checklist, on a trial-by-trial basis, that indicated whether the experimenter correctly delivered materials, instructions, prompts, and consequences appropriate to the condition in effect. The resulting data were summarized as a percentage correct score for each session. Procedural fidelity was assessed for at least 50% of baseline sessions and was 100% for each participant. Procedural fidelity was assessed for at least 27% of training sessions and averaged at least 96% for each participant. Procedural fidelity was assessed for at least 33% of maintenance-evaluation sessions and averaged at least 98% for each participant.

## RESULTS

As depicted in Figures 1 and 2 (left panels), Tim, Grace, and Michael failed to emit any target responses during baseline. Evan emitted only two different target responses during 3 of 12 baseline sessions (i.e., he said "book" twice and "ball" once).

Tact-training data are depicted in Figures 1 and 2 (right panels). Tim required 17 sessions to meet the acquisition criterion in the object + question condition but failed to meet the acquisition criterion across 27 sessions in the object-only condition. No consistent error pattern was evident. Evan failed to meet the acquisition criterion across 19 sessions of the object + question condition primarily because he frequently repeated all or part of the experimenter's question in conjunction with the answer (e.g., the experimenter held up a hat

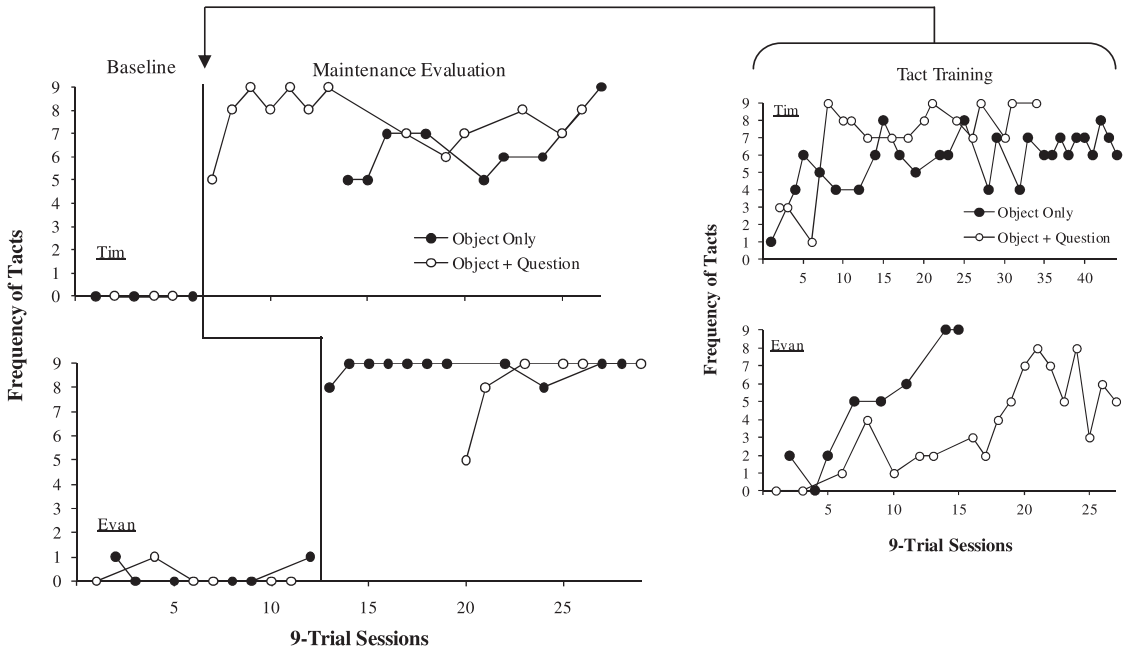


Figure 1. Number of tacts in nine-trial baseline and maintenance-evaluation (posttraining) sessions for Tim and Evan (left). Number of tacts during nine-trial training sessions for Tim and Evan (right).

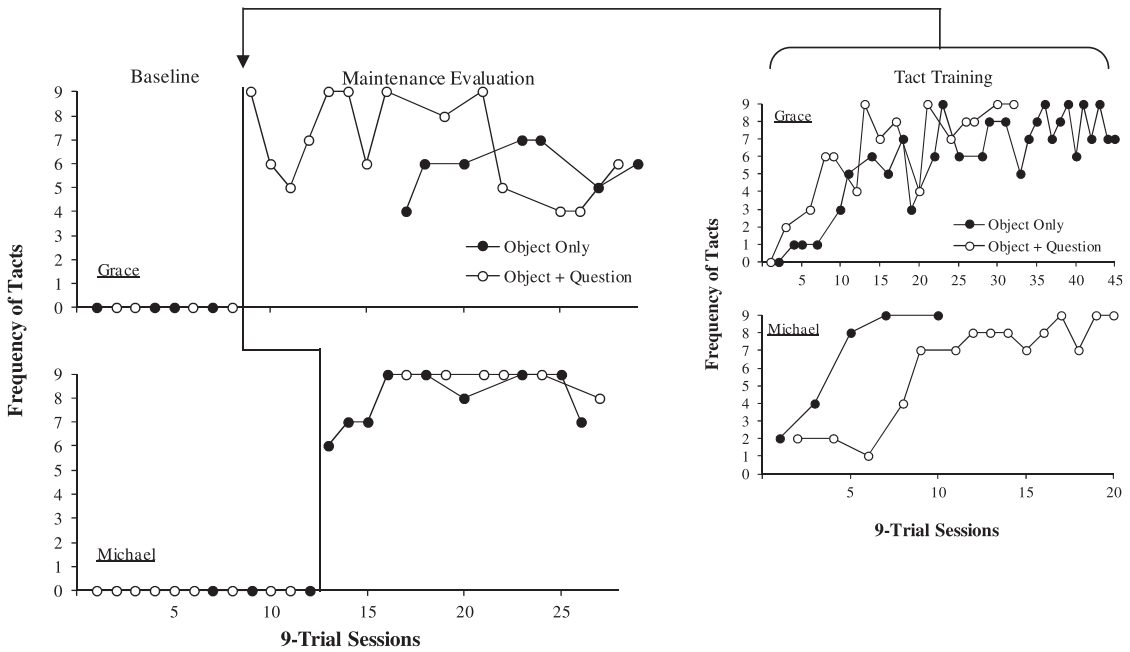


Figure 2. Number of tacts in nine-trial baseline and maintenance-evaluation (posttraining) sessions for Grace and Michael (left). Number of tacts during nine-trial training sessions for Grace and Michael (right).

and said "What is this?" and Evan responded "What is this? Hat."). Although Evan did not have a history of echolalia in settings other than the experimental one, this response pattern occurred in nearly half of all trials with incorrect responses (i.e., 44 of 99). Evan met the acquisition criterion in the object-only condition in eight sessions. Grace met the acquisition criterion in the object + question condition in 16 sessions but failed to meet the acquisition criterion in 29 sessions of the object-only condition. No consistent error pattern was evident. Michael met the acquisition criterion in the object + question in 15 sessions and met the acquisition criterion in the object-only condition in five sessions. No consistent error pattern was evident.

During the maintenance evaluation (Figures 1 and 2, left panels), the tacts Tim acquired in the object + question condition were maintained during the first seven sessions, with a slight decrease in responding during the last six sessions. Tim's responding during the object-only condition was comparable to his responding during training but substantially increased in the final session. The tacts Evan acquired in the object-only condition were maintained at a comparable level. The tacts Evan acquired in the object + question condition were maintained at a comparable level in the first session but eventually increased such that he emitted all of the target responses correctly in the final session. Grace maintained the tacts she acquired in the object + question condition across the first 10 sessions with a decrease in responding during the last four sessions. The tacts Grace acquired in the object-only condition were maintained at a comparable level. Michael continued to emit high levels of responding throughout the evaluation in both conditions.

## DISCUSSION

Prior research has documented that including a supplemental question during tact training can sometimes hinder acquisition of

current and future tact targets (Partington et al., 1994; Sundberg et al., 2000). The present study was designed to extend this research by directly comparing the rate of acquisition and subsequent maintenance of tacts taught using only a nonverbal  $S^D$  (i.e., object only) with tacts taught using a supplemental question ("What is this?") in conjunction with the nonverbal  $S^D$  (i.e., object + question). The object + question condition produced more efficient acquisition with two (Tim and Grace) of the four participants, perhaps because the supplemental question enhanced attending to the object as a result of prior instructional programs that included verbal  $S^D$ s. In other words, a history of reinforcement during instructional trials beginning with verbal directives from therapists (e.g., "what," "find," "point," "match") might evoke attending to task materials or produce shorter latencies to responding. For the other two participants (Evan and Michael), the supplemental questions did hinder acquisition as was observed by Sundberg et al. (2000) and Coleman and Stedman (1974), perhaps because they either evoked faulty responding (e.g., echoing the question) or because their inclusion increased the similarity of the antecedent stimuli across all trials regardless of the target object.

We attempted to evaluate the impact of the different training conditions on the development of pure tact repertoires (i.e., nonverbal  $S^D$  control). Thus, it is important to reiterate that all trials in the baseline and maintenance-evaluation conditions were conducted with only the object present and no supplemental question (i.e., the desired terminal stimulus conditions for the tact) with social praise as the only consequence (i.e., generalized conditioned reinforcement). We found that tacts were maintained at end-of-training levels in both conditions, suggesting that, although supplemental questions did appear to affect acquisition idiosyncratically, the absence of supplemental questions did not hinder maintenance consistently. This finding suggests that

including supplemental questions during tact training may not always interfere with the development of the tact repertoire, at least with respect to maintenance. However, it is possible that our maintenance findings were influenced by the alternating treatments design used in the acquisition evaluation. The training conditions were conducted in rapid alternation such that some trials (i.e., nine consecutive trials) included a question and others (i.e., the next nine consecutive trials) did not. Thus, the stimulus control of responding to an item in the absence of a question was established for all participants, just not for all particular items. This potential multiple-treatment interference is a limitation inherent in the alternating treatments design and probably does not represent common clinical practice. That is, in a given service-delivery program, tact training likely is conducted using one or the other procedure for all trials and all targets. This potential threat to external validity could be mitigated in future investigations by using an alternative experimental design in which each participant is exposed to only one training condition, which more closely resembles common clinical practice.

It is worth noting that our participants exhibited idiosyncratic responses to our tact-training conditions. For example, Evan acquired tacts more quickly in the object-only condition, Tim acquired tacts more quickly in the object + question condition, and Michael was the only participant to meet the acquisition criterion in both conditions. Such idiosyncratic response patterns are quite common in the skill-acquisition literature (e.g., Koehler, Iwata, Roscoe, Rolider, & O'Steen, 2005; Volkert, Lerman, Trosclair, Addison, & Kodak, 2008) and likely reflect the large number of instructional stimuli that can affect instruction (e.g., instructions, prompts, error correction, reinforcers, intertrial intervals). That said, the idiosyncratic patterns demonstrated in the present investigation have at least one clinical implication. Although practitioners should base

their tact-training programs on the existing literature, they also should evaluate each learner's response patterns carefully (e.g., acquisition rate, evidence of erroneous stimulus control) and modify the program to maximize positive training outcomes at the individual level. For example, learners who consistently exhibit echolalia might benefit from only sporadic use of the question "What is it?" during instruction.

As Skinner (1957) indicated, most naturally occurring tacts are under some degree of supplementary stimulus control; otherwise, we would spend an inordinate amount of time tacting mundane stimuli in our environment. Thus, it may be that the relevant issue for practitioners is not whether to use supplemental questions during tact training, but rather the conditions under which they are valuable and the specific procedures necessary for teaching learners who are prone to stimulus control errors. Of course, supplemental questions are necessary for some programs, such as tacting the actions of others (e.g., Williams, Carnerero, & Pérez-González, 2006). However, for tacts of objects, it is important eventually to establish the question "What is this?" as a supplementary source of control as long as it is not the primary source of control and as long as its use does not impede maintenance in its absence. Ultimately, the question "What is this?" would set the occasion for the reinforcement of tacting at the outset of a social interaction and eventually exert conditional auditory stimulus control when a learner needs to tact various aspects or uses of a nonverbal stimulus (e.g., "What color is this?" or "What do you do with this?"). It is currently unclear which of a number of training arrangements would be most beneficial for this outcome. For example, supplemental questions could be explicitly introduced early or late in the curriculum. In addition, teaching targets simultaneously under both conditions (object only, object + question) might produce a beneficial type of multiple-treatment interference. Furthermore, it is currently unknown



whether including supplemental questions when teaching tacts of objects (e.g., “What is this?”) would interfere with the subsequent acquisition of other responses to questions such as “What color is it?” or “What shape is it?” Given the ubiquity of tact training in the habilitation of individuals with developmental disabilities, more research on procedures for facilitating acquisition and maintenance is warranted.

## REFERENCES

- Braam, S. J., & Sundberg, M. L. (1991). The effects of specific versus nonspecific reinforcement on verbal behavior. *The Analysis of Verbal Behavior, 9*, 1–17.
- Coleman, S. L., & Stedman, J. M. (1974). Use of a peer model in language training in an echolalic child. *Journal of Behavior Therapy and Experimental Psychiatry, 5*, 275–279.
- DeLeon, I. G., & Iwata, B. A. (1996). Evaluation of a multiple-stimulus presentation format for assessing reinforcer preferences. *Journal of Applied Behavior Analysis, 29*, 519–532.
- Koehler, L. J., Iwata, B. A., Roscoe, E. M., Rolider, N. U., & O’Steen, L. E. (2005). Effects of stimulus variation on the reinforcing capability of nonpreferred stimuli. *Journal of Applied Behavior Analysis, 38*, 469–484.
- Leaf, R., & McEachin, J. (Eds.). (1999). *A work in progress: Behavior management strategies and a curriculum for intensive behavioral treatment of autism*. New York, NY: DRL Books.
- Lovaas, O. I. (2003). *Teaching individuals with developmental delays: Basic intervention techniques*. Austin, TX: Pro-Ed.
- Partington, J. W., Sundberg, M. L., Newhouse, L., & Spengler, S. (1994). Overcoming an autistic child’s failure to acquire a tact repertoire. *Journal of Applied Behavior Analysis, 27*, 733–734.
- Skinner, B. F. (1957). *Verbal behavior*. New York, NY: Appleton-Century-Crofts.
- Sundberg, M. L. (2008). *Verbal behavior milestones assessment and placement program*. Concord, CA: AVB Press.
- Sundberg, M. L., Endicott, K., & Eigenheer, P. (2000). Using intraverbal prompts to establish tacts for children with autism. *The Analysis of Verbal Behavior, 17*, 89–104.
- Sundberg, M. L., & Partington, J. W. (1998). *Teaching language to children with autism or other developmental disabilities*. Pleasant Hill, CA: Behavior Analysts, Inc.
- Volkert, V. M., Lerman, D. C., Trosclair, N., Addison, L., & Kodak, T. (2008). An exploratory analysis of task-interspersal procedures while teaching object labels to children with autism. *Journal of Applied Behavior Analysis, 41*, 335–350.
- Williams, G., Carnerero, J. J., & Pérez-González, L.A. (2006). Generalization of tacting actions in children with autism. *Journal of Applied Behavior Analysis, 39*, 233–237.
- Williams, G., & Greer, R. D. (1993). A comparison of verbal-behavior and linguistic-communication curricula for training developmentally delayed adolescents to acquire and maintain vocal speech. *Behaviorology, 1*, 31–46.

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