JOURNAL OF APPLIED BEHAVIOR ANALYSIS 2011, **44,** 421–434 NUMBER 3 (FALL 2011)

ESTABLISHING BOOKS AS CONDITIONED REINFORCERS FOR PRESCHOOL CHILDREN AS A FUNCTION OF AN OBSERVATIONAL INTERVENTION

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We tested the effects of an observational intervention (Greer & Singer-Dudek, 2008) on establishing children's books as conditioned reinforcers using a delayed multiple baseline design. Three preschool students with mild language and developmental delays served as the participants. Prior to the intervention, books did not function as reinforcers for any of the participants. The observational intervention consisted of a situation in which the participant observed a confederate being presented with access to books contingent on correct responses and the participant received nothing for correct responses. After several sessions of this treatment, the previously neutral books acquired reinforcing properties for maintenance and acquisition responses for all three participants.

Key words: conditioned reinforcement, observational learning, books as conditioned reinforcers, observing responses

In educational applications of behavior analysis, the development of a variety of stimuli that function as reinforcers is one of the fundamental goals for children with limited interests and preferred stimuli (Greer, 2002; Skinner, 1953). Several studies have demonstrated the effectiveness of stimulus–stimulus pairings in conditioning new stimuli as reinforcers. For example, Greer, Dorow, Wachhaus, and White (1973) conditioned previously nonpreferred music stimuli as reinforcers by pairing those selections with adult approval, which was a conditioned reinforcer. The effects of conditioning new stimuli, such as toys and other activities, range from replacing stereotypical behaviors and passivity with play (Greer, Becker, Saxe, & Mirabella, 1985; Longano & Greer, 2006; Nuzzolo-Gomez, Leonard, Ortiz, Rivera, & Greer, 2002) to inducing novel vocal verbal behavior in children with limited vocal verbal repertoires (Miguel, Carr, & Michael, 2002; Sundberg, Michael, Partington, & Sundberg, 1996; Yoon & Bennett, 2000). Recent research has also demonstrated that conditioning stimuli as reinforcers for certain early observing responses results in functional repertoires that can accelerate children's rates of learning (Delgado, Greer, Speckman, & Goswami, 2009; Keohane, Delgado, & Greer, 2008; Keohane, Luke, & Greer, 2008).

Tsai and Greer (2006), for example, used a stimulus–stimulus pairing procedure to condition children's picture books in free-play settings. They found that after books were conditioned as reinforcers, the number of instructional trials required to acquire novel textual responses (i.e., see and say words) decreased for all four participants. Moreover, prior to the book-conditioning procedure, none of the children selected books in free-play settings, whereas three of the four participants maintained a preference for books after the procedure, even when given a choice of other stimuli (e.g., toys and games). These results further indicated that the rate of acquiring responses to new print stimuli was accelerated as a function of conditioned reinforcement for looking at books. Presumably, the print and picture stimuli in the books were naturally

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doi: 10.1901/jaba.2011.44-421

reinforcing, thus increasing the likelihood that the children would attend to print stimuli during reading instruction.

Although numerous studies have demonstrated its effectiveness, the stimulus–stimulus pairing procedure, like those used in the studies cited above, can be time consuming and does not necessarily result in generalization to other reinforcers because each stimulus needs to be conditioned separately. The present study was conducted to test whether a procedure involving an observational intervention would be successful in conditioning educationally relevant stimuli as reinforcers.

Observational learning involves social learning conditions. In one of the first studies to evaluate this approach to conditioning, Greer and Singer-Dudek (2008) conditioned reinforcers for six preschoolers with language delays after determining that small, translucent plastic discs (for five participants) and small pieces of string (for one participant) did not reinforce responding on either maintenance or acquisition tasks. During the intervention, a peer confederate was given the nonpreferred stimuli contingent on correct responses to a maintenance task that both the peer and the participant performed simultaneously, while the participant was denied access to the neutral stimuli. A partition prevented the participants from observing the peer's responses, but they could see the peer's head and shoulders and could see the delivery of the discs or strings to the peer. All six participants emitted mands for or attempted to take the peer confederate's discs or strings by the end of the intervention. A return to the initial maintenance and acquisition tasks demonstrated that the discs and strings had been conditioned as reinforcers for responding on all tasks. This procedure has been used to condition food (Greer, Dorow, Williams, McCorkle, & Asnes, 1991) and teacher praise (Greer, Singer-Dudek, Longano, & Zrinzo, 2008) as reinforcers for both new and existing behaviors.

The present study tested the applied utility of the findings of Greer and Singer-Dudek (2008) by using items that have been identified as educationally significant and that have been demonstrated to lead to faster acquisition of reading responses: children's picture books (Tsai & Greer, 2006). We sought to condition picture books as reinforcers for children whose behaviors were not reinforced by access to books. In addition, none of the prior studies that used a similar observational intervention included assessments of the reinforcing effects of the conditioned stimuli outside the experimental settings (Greer & Singer-Dudek, 2008; Greer et al., 2008; Singer-Dudek, Greer, & Schmelzkopf, 2008). The present study included assessment of the function of books in a generalized setting (the free-play area) both before and following the observational intervention.

METHOD

Participants and Setting

Three preschool children with mild to moderate language or developmental delays participated in this study. All three participants (Katie, Abigail, and Evan) had received the diagnosis of ''preschooler with a disability,'' a diagnosis used in New York State that serves as the basis for early intervention services. The participants received this diagnosis due to deficits in language development and social skills; Katie and Evan also emitted high rates of noncompliance and physical aggression. The participants attended a private publicly funded preschool located in a suburb of a major metropolitan area that implemented a behavioral approach to all aspects of education. The participants were accustomed to receiving frequent praise and tokens for correct responses to academic, social, communication, and self-management instruction, in addition to reinforcement for following classroom rules. Hence, their behavior was under instructional control, and the stimuli that functioned as reinforcers for each were well known.

Katie was a 4-year-old girl who could tact pictures using complete sentences (e.g., ''It's a bird!''); count to 20; identify letters, numbers, and colors; and trace letters, numbers, and shapes. When given the choice of a variety of reinforcers, she primarily selected food items or the free-play area. While in the free-play setting, she played with toys and blocks but did not spend much time looking at books. Abigail was a 4-year-old girl who could speak in full sentences; trace letters, numbers, and shapes; count to 20; and identify all of the letters of the alphabet, as well as numbers up to 50. When given a choice of reinforcers, she often selected coloring activities. During time in the free-play setting, she occasionally played with dolls and toys but did not look at books. She spent a lot of time lying on the floor and not engaged in any appropriate leisure activity. Evan was a 4-year-old boy who could tact pictures using a single word (e.g., ''bird''); count to 10; and point to letters, numbers, and colors. When offered a variety of reinforcers, he often chose food items. When given the opportunity to go to the toy area, he often emitted stereotypy, which included crossing his eyes while putting his hands to his nose and face. He was not observed to look at books while in the free-play setting.

All three participants had at least three educationally appropriate reinforcers, such as tokens, toys, blocks, or puzzles. These items had previously reinforced both academic responding and socially appropriate behaviors. The menu of backup reinforcers in the classroom included these and other items, in addition to access to books; however, casual observations by the classroom teacher revealed that these participants did not exchange tokens for books. Moreover, the participants did not accept brief access to books as reinforcement for correct academic responding or during free time when books offered.

Three other preschool children were selected to serve as peer confederates. These children were not classmates of the participants, although they attended the same school. Two of the peer confederates were diagnosed as a preschooler with a disability, due to language and academic delays, and the third was a typically developing peer. We selected peers who were unfamiliar to the participants because we wanted to minimize the possibility that the peers had a social history with the participants. The possibility of the participants and the peer confederates interacting was limited to 30 min of recess each day when the two classes were in the same proximity (the playground or the gym).

All phases of the experiment took place in the participants' classroom (approximately 8 m by 8 m). The classroom was equipped with student-sized tables for small-group and individual instruction in addition to the accoutrements typical to a classroom for young children, which included a play area and a bookshelf that held dozens of children's picture books, paperback and hardcover, some with text and some without. All sessions were conducted at a separate child-sized table located at the back of the classroom while the other children were present and engaged in other instructional activities in other parts of the room. During many of the pre- and postintervention conditions as well as the observational intervention, another adult was nearby, serving as an independent observer.

Response Measurement and Interobserver Agreement

Data were collected on the number of correct responses to maintenance tasks, the number of correct responses to three acquisition tasks under pre- and postobservational intervention conditions, and the percentage of 5-s whole intervals (in 5 min) of observation of books in free-play settings. We chose similar tasks for each of the participants for maintenance and acquisition tests, but the actual target responses were individualized for each participant, according to the instructional programs in place for each.

Pre- and postobservational intervention. We measured correct responses to three acquisition tasks and a maintenance task during sessions conducted before and after the observational intervention. A correct response was defined as the participant beginning to emit the target response within 2 s of the antecedent. An incorrect response was defined as the participant emitting a nontarget response, beginning the correct response after the 2-s interresponse time, or performing an incorrect action followed by the correct action (a self-correction). Omissions or refusals to respond were also counted as incorrect.

Observational intervention. We measured the participant's correct responses to another maintenance task (matching shapes) as well as attempts to access the books during the observational intervention. A correct response to the matching shapes task was defined as the participant placing the target exemplar directly on top of the corresponding shape on the mat. An incorrect response was scored if the participant placed the target exemplar on top of a different (nonexemplar) shape or if the participant refused to respond or otherwise omitted a response (e.g., threw the stimuli on the floor). Attempts to gain access to books were defined as (a) vocal mands (e.g., "What about me?" and "Where is my book?") and other vocalizations, such as whines, moans, and statements such as, "ooh!" or (b) nonvocal attempts such as reaching or grabbing for the peer's book or straining to look at the book while the peer held it.

Free-play setting probes. Observing books was considered to have occurred if the participant looked at the book for the entire 5-s interval without any instances of stereotypy or passivity. Stereotypy was defined as any repetitive, nonfunctional behavior that did not involve manipulation of the books in the manner they were intended. Passivity included lying on the floor of the play area, staring, and otherwise remaining still and not actively engaged in looking at books. An occurrence of observing books was also recorded if the participant finished reading a book and selected a new book during an interval, as long as there were no occurrences of stereotypy or passivity or selection of other items.

A trained observer recorded the participants' responses independently and simultaneously with the experimenter. Interobserver agreement was calculated for the participants' responses to the maintenance and acquisition tasks using point-by-point correspondence. The number of agreements was divided by the number of agreements plus disagreements and multiplied by 100%. During the observational intervention, interobserver agreement was obtained for participants' attempts to gain access to the books in addition to their responses to the maintenance task. An agreement was counted when the observer's record of the participant's response matched that of the experimenter (i.e., correct or incorrect) or when an attempt to access the peer's book was scored by both observers.

During the pre- and postobservational intervention sessions, interobserver agreement was conducted for a mean of 33% (range, 27% to 45%) of sessions for the maintenance task for all three participants. Agreement ranged from 95% to 100% for each participant, with a mean of 99% for all three participants. Interobserver agreement was obtained for a mean of 32% (range, 31% to 33%) of sessions for the acquisition tasks across all three participants. Percentage of agreement ranged from 90% to 100% for each participant, with a mean of 99% for all three participants. During the observational intervention, interobserver agreement was obtained for 100% of the sessions, and 100% agreement was obtained for all measures and participants.

Design

We used a delayed multiple baseline design across participants that consisted of measuring responses to two types of tasks before and after

an observational intervention. An experimental analysis of the reinforcing effects of books (Phase B) compared to food items (Phase A), counterbalanced across participants (BABA for Katie and Evan and ABAB for Abigail), was conducted for a maintenance task (responses that were already in the participants' repertoires) before and after the observational intervention. To assess whether books functioned as conditioned reinforcers for new responses, we obtained pre- and postobservational intervention measures of the numbers of correct responses to three acquisition tasks for each participant. In addition, we conducted pre- and postobservational intervention probes of how much time the participants spent selecting and looking at books in the play area, when other reinforcers (e.g., toys and dolls) were present.

Preobservational Intervention Conditions

Maintenance task. We wanted to test the reinforcing effects (or lack thereof) of the neutral stimuli by comparing performance on a mastered task when the experimenter presented known reinforcers or neutral stimuli following correct responses. The maintenance task was compliance with one-step (Abigail and Evan) and two-step (Katie) vocal directions (e.g., ''touch your nose,'' ''stand up,'' or ''clap your hands and jump''). This was a task for which all participants had met a mastery criterion (90% correct on two consecutive sessions) prior to the study. The participants would perform the responses only when known reinforcers were provided. Thus, engaging in these tasks did not appear to be a conditioned reinforcer nor hold naturally reinforcing properties.

Each session consisted of 20 different directions. The experimenter and participant faced each other, and the experimenter delivered the antecedent (either one- or two-step directions), followed by a 2-s interresponse interval. Following incorrect responses or refusals, the experimenter briefly looked away and ignored the participant's behavior for 2 s and then presented the next direction. Correct responses resulted in the presentation of a book or a known reinforcer.

During the A phases, we used items that had previously reinforced correct responses to instruction or items for which the participants had previously exchanged tokens. For all three participants, these were food items (e.g., candy or chips). Following each correct response, small amounts of the food items were placed in a translucent receptacle to which the participant was given access at the conclusion of the session. The receptacle was located on the table next to the participant during the session, so that it was in view but slightly out of reach. We did not allow the participant to consume the food until the end of the session to eliminate the possibility that he or she would not fully consume each item before the start of the next trial.

During the book (B) phases, 20 children's picture books (with and without words) were collected from the classroom library prior to each session. These books were randomly chosen, and the selection of books was different for each session. After each correct response, the experimenter selected and opened one book and handed it to the participant or placed it on the table in front of him or her. The experimenter removed the book after 5 s if the participant did not look at it. If the participant looked at the book, it was removed when there was a natural pause in which he or she turned the page or looked up from the book. At no time did the experimenter deliver any other type of attention (e.g., praise, eye contact, smiles, or other gestures). Two to four sessions of the maintenance task were conducted each day. The total time it took to complete the pre- and postintervention tests for the maintenance task was 3 weeks each, for a total of approximately 6 weeks.

Acquisition tasks. The purpose of the test for learning and acquisition was to determine if looking at books would reinforce accurate

responses to instructional tasks. At the same time that the maintenance tests occurred, we tested the effects of the presentation of books on three acquisition tasks. Acquisition tasks were identified as responses that were not in the participants' repertoires. They had not had any previous instruction on the target responses, and preintervention probes revealed that they were unable to emit correct responses to these tasks. For Katie, the acquisition tasks were (a) textual responses to four unfamiliar words, (b) pointing to three printed three-digit numbers, and (c) vocal responses to three personal identification questions (e.g., ''What state do you live in?''). The acquisition tasks for Abigail included (a) tacting pictures of three animals (e.g., dingo, lynx), (b) pointing to three two-digit numbers, and (c) answering three personal identification questions. Evan's acquisition tasks were (a) tacting pictures of three animals (e.g., buffalo, baboon), (b) pointing to three single-digit numbers, and (c) answering three personal identification questions.

Each acquisition task was presented in blocks of 20 instructional trials. The experimenter and participant sat next to each other while the experimenter delivered the instructional antecedent and consequence. The participant received books contingent on correct responses. The experimenter selected and opened one book from a previously collected pile of children's picture books and handed it to the participant. The experimenter removed the book after 5 s if he or she did not look at it. If the participant looked at the book, it was removed when there was a natural pause. At no time did the experimenter deliver praise or any other potential reinforcer (e.g., eye contact, smiles, or other gestures). Unlike the procedures for the maintenance task, corrections were given following incorrect responses or omissions. Corrections consisted of the experimenter representing the antecedent (e.g., ''What state do you live in?'') followed by the correct response (i.e., ''New York'') and providing an opportunity for the participant to repeat the correct response. No reinforcement was delivered for repeating the response during the correction procedure. One session (20 trials) of each acquisition task was conducted each day. The three target responses were rotated randomly across each 20-trial session. It took approximately 1 week to complete the tests of the preintervention acquisition tasks and 2 days to 2 weeks to complete the postintervention tests, depending on the participants' responses.

Free-play probes. We conducted probes before and after the observational intervention to determine the percentage of 5-s whole intervals out of 60 (5 min) the participants spent looking at books while in the free-play setting. The free-play setting was a carpeted and cordoned-off area of the classroom that contained age- and developmentally appropriate toys, dolls, games, educational activities (e.g., coloring materials, building blocks, pattern blocks), computers for children's use that had simple educational video games, and bookshelves that held a variety of picture books. During these probes, no consequences were delivered for any response.

Observational Intervention

During the intervention, the participant and the peer confederate were seated next to each other at a table. An opaque divider was placed between them so that each could see the face and shoulders of the other, but could not see the table top in front of the other and could not view each other's responses. A maintenance task (matching shapes) was presented to both children simultaneously. The matching task was something for which all three participants and the peer confederates had previously met a mastery criterion (at least 90% correct responding). The peer confederates were selected because books functioned as reinforcers for them (indicated by their preference for books following periods of instruction, as reported by their classroom teachers). The confederates did not receive any special training or instructions from the experimenter; they were simply asked

if they would like to come to another classroom to perform a task and look at books. The confederates consistently looked at books when they were presented following each correct response.

A piece of construction paper (9 in. by 13 in.) that displayed 10 different two-dimensional common shapes (e.g., triangle, square, star) was placed on the table in front of each child. The experimenter presented the antecedent, "match [shape]," and simultaneously handed each child an index card with a two-dimensional shape on it similar in relevant properties to one of the shapes on the paper mat. Each child was to place the index card directly on top of the corresponding shape on the paper. The cards were removed following each trial. Each session of the intervention consisted of 10 trials. Two to four sessions of the observational intervention were conducted each day. The intervention took approximately 1 week to complete.

One picture book was delivered to the peer confederate (a different book for each response) for 5 s following each of his or her responses to the matching task, while the participant was denied access to books or any other type of reinforcement (praise), even if he or she emitted the correct matching response. No other form of reinforcement was delivered to the peer. When the peer was looking at a book, the partition was removed so that the participant could observe the peer looking at the book. The intervention continued for a minimum of eight sessions. This was based on the mean number of sessions that had been required to condition reinforcers with this procedure in prior studies (Greer & Singer-Dudek, 2008; Singer-Dudek et al., 2008).

In summary, the observational intervention was constructed such that both children were given identical tasks and were expected to respond to an antecedent presented to each simultaneously, although they could not see each other's responses. The peer confederates received books following their responses (all of which were correct for all three confederates). The participants were denied books, even when their responses were correct, while they observed their peer receive and look at books.

Postobservational Intervention

After the intervention was terminated, we implemented the identical procedures as described above for the preobservational intervention conditions (maintenance tasks, acquisition tasks, and free-play probes). For the acquisition tasks, the postobservational intervention sessions continued until a clear trend or absence of trend was determined or until the participant mastered the task, which was defined as 90% accuracy or better for one session. The total time from the start of the preintervention tests to the completion of the postintervention tests, including the observational intervention, was approximately 8 weeks for each participant.

RESULTS

Figure 1 shows the number of correct responses to the maintenance task under each condition for all participants. During the preintervention condition, all three participants emitted low levels of responding to the maintenance task when books were delivered following correct responses (B phases) and high levels of responding when food items were delivered as the reinforcers (A phases). After the observational intervention, all of the participants emitted high levels of responding when both books and food items were delivered following correct responses.

Figure 2 shows the number of correct responses on each of the three acquisition tasks prior to and following the observational intervention for all participants. Prior to the observational intervention, all three participants emitted few correct responses. Correct responding increased for all participants after the observational intervention, and all participants with the exception of Evan met the mastery criterion with all tasks.

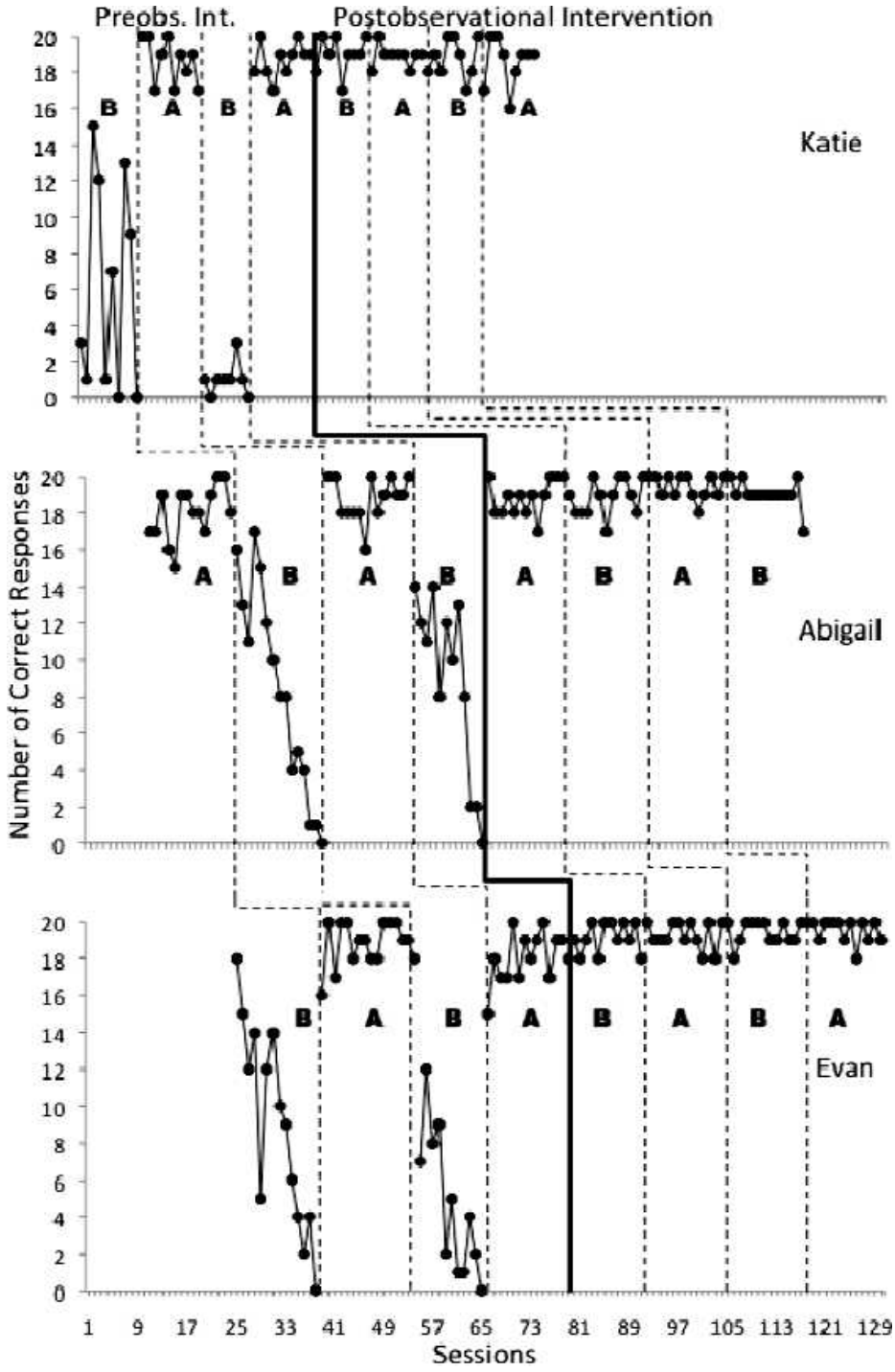

Figure 1. Number of correct responses to the maintenance task during alternating A (food items) and B (books) phases before and after the observational intervention (indicated by the thick black condition change line) for Katie (top), Abigail (middle), and Evan (bottom) before and after the observational intervention.

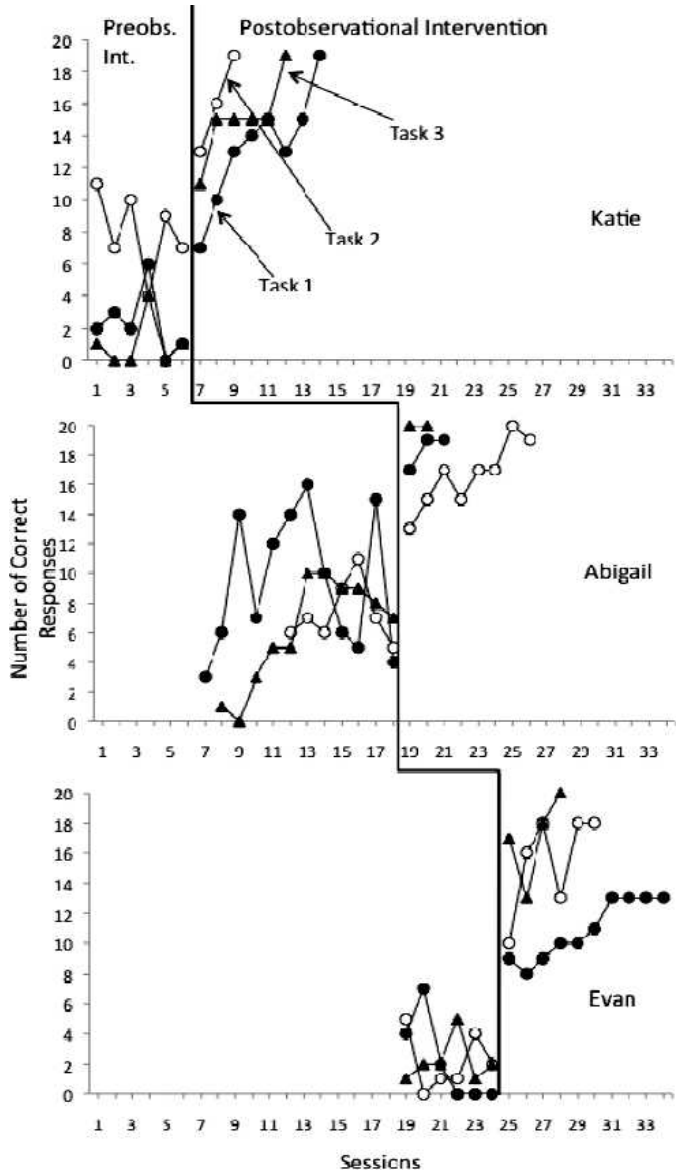

Figure 2. Number of correct responses to the three learning tasks for Katie (top), Abigail (middle), and Evan (bottom) before and after the observational intervention.

Figure 3 shows data from the free-play probes. Prior to the observational intervention, Katie (top) was the only child who selected books from the free-play area and looked at them during the probe. She looked at books for 30% of the 5-s intervals during the preobservational intervention probe and 100% of the 5-s intervals during the postintervention probe. Although neither Abigail (middle) nor Evan (bottom) selected books during the preobservational intervention probe, they looked at books for 68% and 90% of intervals, respectively, following the intervention.

Figure 4 shows the number of correct responses to the maintenance task and the number of attempts to gain access to the peer's

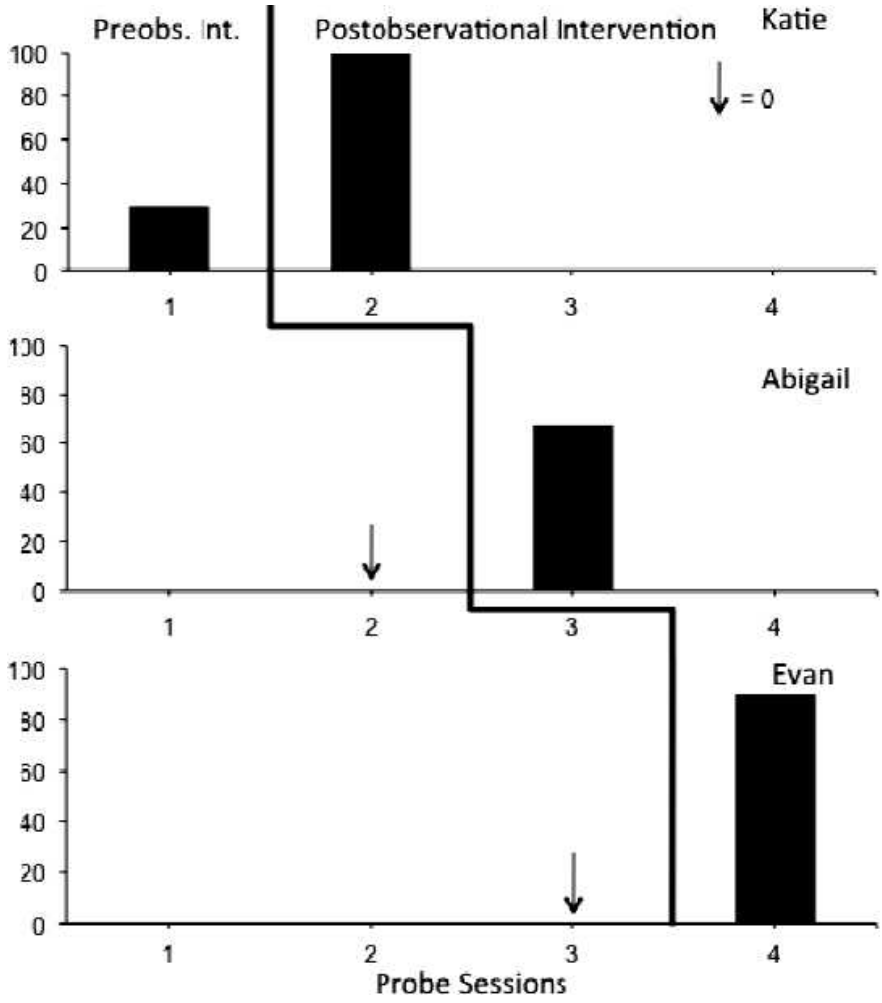

Figure 3. Percentage of 5-s intervals out of 60 that participants looked at books in the free-play area before and after the observational intervention for Katie (top), Abigail (middle), and Evan (bottom).

books during the observational intervention for all participants. Katie responded correctly to every presentation of the maintenance task. Both Abigail's and Evan's correct responses to the maintenance task initially decreased, but leveled off after Sessions 6 and 7, respectively, with slight variability but no trend. Attempts to gain access to the books were overall stable for Katie and Abigail, demonstrating some variability but no clear trend. Evan's attempts to gain access to the books was initially variable with no trend but began to increase in later sessions.

DISCUSSION

We examined the effects of an observational intervention on the emergence of books as conditioned reinforcers for responding on acquisition and maintenance tasks for three preschool children with language and developmental delays. A functional relation was demonstrated between the observational intervention and the emergence of books as conditioned reinforcers for both types of tasks. These findings are similar to those reported previously (Greer & Singer-Dudek, 2008;

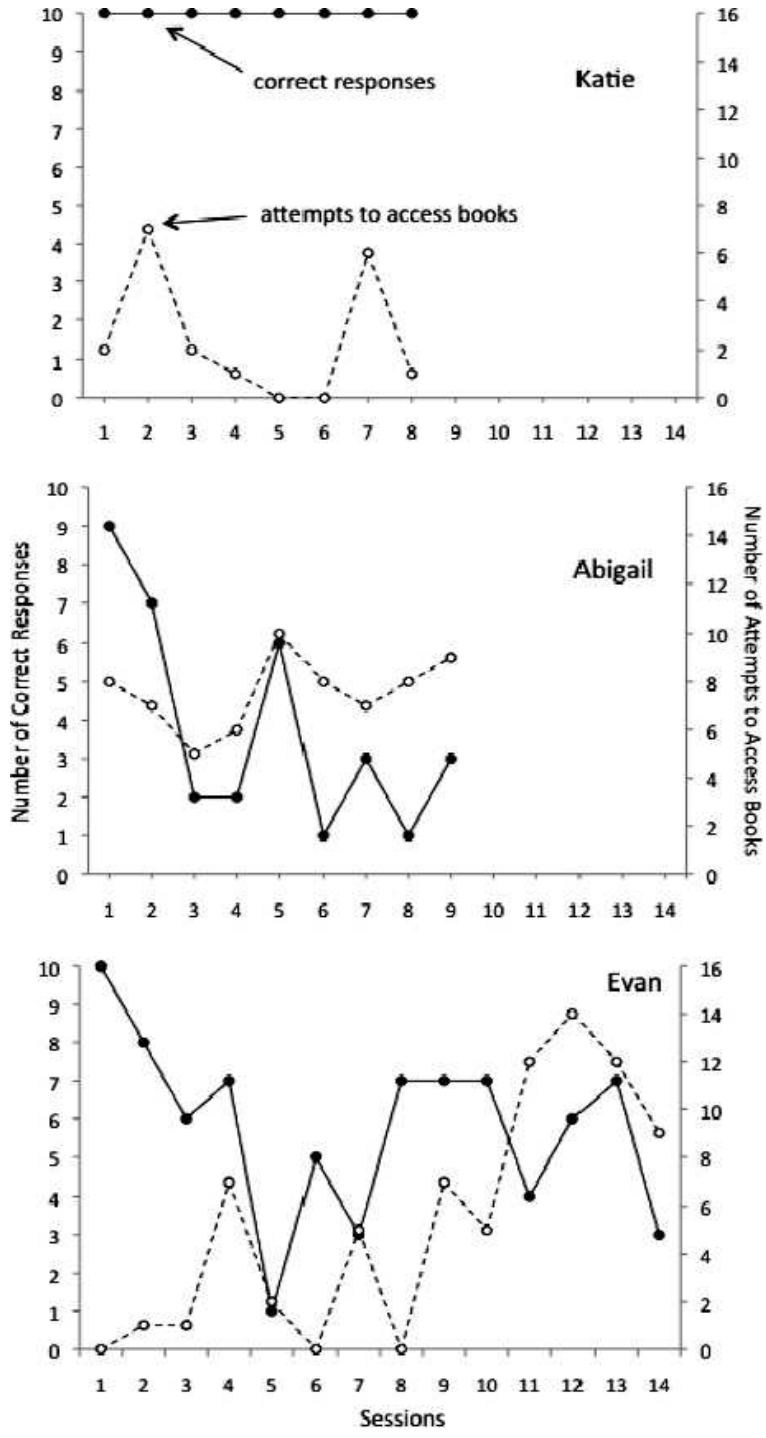

Figure 4. Number of correct responses to the maintenance task and number of attempts to gain access to books during the observational intervention for Katie (top), Abigail (middle), and Evan (bottom).

Greer et al., 2008; Singer-Dudek et al., 2008). Our study extended these findings by demonstrating the utility of this procedure in conditioning educationally relevant stimuli. Our study also found that the reinforcing properties of these stimuli appeared to be maintained in the free-play area when other known reinforcers were available, which is something that had not been evaluated in prior experiments. Furthermore, the objects that had been neutral (books) prior to the intervention continued to function as reinforcers for both maintenance and acquisition tasks up to 4 weeks after the observational intervention.

The conditioning of new reinforcers typically occurs by pairing known reinforcers with neutral stimuli. The neutral stimuli can occur either simultaneously with or contiguous to the established reinforcers (Catania, 1998; Kelleher & Gollub, 1962; Williams, 1994). For example, for typical children, picture books are often paired with physical contact, vocal praise, and attention (already established reinforcers) from caregivers; thus, the books become conditioned reinforcers via these simultaneous or episodic pairings. Rather than using stimulus–stimulus pairings, which can be tedious and time consuming, our intervention consisted of a procedure in which the participants were denied access to stimuli while they observed a peer confederate receive them. The participants observed only the delivery of the books to the peers, not the responses that led to the delivery. With other types of observational learning, new responses are learned from indirect or observational contact with contingencies of instruction received by others (e.g., Greer, Singer-Dudek, & Gautreaux, 2006). However, our participants did not observe the behavior that preceded the delivery of the reinforcer, nor were they learning a new response. They observed only the delivery of what were initially neutral stimuli. Thus, the participants did not imitate the behavior of the peer because they did not observe it. What we report herein are results from an observational intervention that led to the establishment of new conditioned reinforcers, which is a different type of observational learning.

Results of other studies suggest some possible explanations for this finding. Bruzek and Thompson (2007), for example, found that young children (2 to 3 years old) did not merely imitate their peers' behaviors while playing with toys; they sought to gain access to the stimuli with which they had observed their peers engage. Although the participants in our study did not imitate the behaviors of their peers that led to the delivery of the books, they could have imitated the actions of the peers looking at the books during the postobservational sessions when books were delivered. This would have then enabled the participants to contact other stimuli that functioned as reinforcers, such as the pictures in the books or even the imitative responses themselves, which may have served as conditioned stimuli that were paired with the books. Hay and Ross (1982) studied conflict in dyads of typically developing 21-month-olds and found that 75% of conflicts were over toys or other objects. The most numerous of these conflicts occurred when identical objects were readily available and, after the conflict was over, the victor rarely played with the toy in question. Caplan, Vespo, Pederson, and Hay (1991) obtained similar results when studying triads of 1- and 2-year-olds. Conflicts over toys were just as frequent in the presence of ample duplicate toys as when toys were scarce. One possible explanation for these findings is that the presence of the peer or the peer's interest in an object was discriminative for a loss of opportunity to play with the item, thus creating a motivating operation by which the toy momentarily became a desired object.

The decision to terminate the observational intervention was based solely on a minimum number of sessions rather than on participants' responses to the task or their attempts to access books. As indicated by Evan's data (Figure 4, bottom), his attempts to gain access to the books increased as we extended the number of

sessions of the observational intervention. Specific behaviors that we could have measured as indicators that the neutral stimuli had become conditioned reinforcers included not only attempts to gain access to the stimuli directly, but also attempts to peek over the divider to see the peer's responses, sit in the peer's chair, and remove or destroy the materials associated with the task or the stimuli being conditioned. Future studies should consider including frequency or rate of such behaviors as criteria for termination of the observational intervention.

Correct responding on the acquisition tasks increased immediately after the observational intervention for all participants. These results could be attributed to latent learning (Greer & Singer-Dudek, 2008). That is, the participants may have learned the correct responses as a result of the correction procedure employed during the preintervention sessions but did not perform the correct response in the absence of reinforcement. Future studies could explore other ways to evaluate changes in responding on the acquisition tasks, such as measuring the number of trials to criterion across a variety of tasks under different reinforcement conditions (before and after intervention).

The participants had numerous opportunities to observe their peers looking at books prior to the study. Thus, it is not clear why the observational intervention was necessary to establish the books as conditioned reinforcers. Future studies should examine whether peers themselves (or simply the presence of an unfamiliar peer) function as conditioned reinforcers prior to the observational intervention. Future research should also test whether the effects of conditioning books using this procedure would lead to faster acquisition of textual responding, as shown by Tsai and Greer (2006) and Delgado et al. (2009).

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Received April 21, 2010
Final acceptance January 10, 2011
Action Editor, Nicole Heal