

*PROMOTING INTERACTION DURING SOCIODRAMATIC PLAY:
TEACHING SCRIPTS TO TYPICAL PRESCHOOLERS AND
CLASSMATES WITH DISABILITIES*

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We investigated the effects of teaching sociodramatic scripts on subsequent interaction among three triads, each containing 2 typical children and 1 child with autistic characteristics. The same type and rate of teacher prompts were implemented throughout structured play observations to avoid the confounding effects of script training and teacher prompting. After learning the scripts, all children demonstrated more frequent theme-related social behavior. These improvements in social-communicative interaction were replicated with the training of three sociodramatic scripts (i.e., pet shop, carnival, magic show) according to a multiple baseline design. These effects were maintained during the training of successive scripts and when the triads were reconstituted to include new but similarly trained partners. Results provided support for the inclusion of systematic training of scripts to enhance interaction among children with and without disabilities during sociodramatic play.

DESCRIPTORS: communication training, integration, social interaction, sociodramatic play

One often sees preschoolers pretending to wash dishes with no water in the sink, playing doctor when given doctor's toys, or playing house with "dress up" clothes. Such sociodramatic play is typical of 3- to 5-year-olds. In sociodramatic play, role playing is a social activity in which children relate to one another with the roles compatible to a particular theme. These roles tend to be reciprocal in that they reflect complementary social relationships, such as a salesperson and customer or a parent and child (Fein, 1981). Consequently, sociodramatic play has been suggested as a means of improving interaction skills for children with social deficits. Evidence of this potential has been provided in studies of children with disabilities. Odom and Strain (1984) found that children with disabilities demonstrated more social interaction during sociodramatic play than during manipulative play (e.g., water play or cutting and pasting). Strain and Wiegerink (1976) demonstrated increases in coopera-

tive social play in children with atypical social behavior following imaginative play training (e.g., listening to stories and acting out various characters).

Many regular and special educators have incorporated pretend and make-believe play training into curricula for preschool children. The usual approach involves providing specific materials and teacher direction during play. Attempts to enhance the sociodramatic play of normal preschool and school-age children have not always been effective, however. Televised adults reading stories or demonstrating pretend play, construction activities, or enriched real-life experiences have had little influence on children's sociodramatic play (e.g., Fink, 1976; Saltz, Dixon, & Johnson, 1977; Singer & Singer, 1976; Smith & Syddall, 1978). Other, perhaps more direct, approaches have been more successful. Smilansky (1968) compared the effects of three treatments on the development of sociodramatic play in socially disadvantaged Israeli children. Smilansky found no significant gains from an experiential enrichment treatment, but found significant improvements following play-skill training and the greatest improvements using the combined treatments. In a similar study, Lovinger (1974) provided sociodramatic play training to economically disadvantaged preschool children. The play of

Support for this research was provided by Grant G00-87-30526 from the U.S. Department of Education to the University of Pittsburgh. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Department of Education, and no official endorsement should be inferred.

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the experimental group receiving imitative role-play and make-believe training was more complex than the play of a no-treatment control group. In addition, part of the appeal of training sociodramatic play is the presumption of pervasive effects on a variety of cognitive, social, and language skills (Feitelson & Ross, 1973; Garvey, 1977; Rosen, 1974).

Rather than simply identifying sociodramatic themes and specifying roles, it may be possible to capitalize on familiar sequences of actions and dialogues, or scripts, to guide sociodramatic role enactment. Schank and Abelson (1977) introduced the term *script* to explain how individuals organize their knowledge of situations with routine activities and events. Nelson and her colleagues (Nelson, 1981; Nelson & Gruendel, 1979; Nelson & Seidman, 1984) have hypothesized that preschool children organize experiential information in a script-like form that defines the order of events within familiar situations or themes. Nelson and Gruendel (1979) contend that egocentric or noncommunicative speech, which reportedly accounts for 30% to 60% of the language that occurs when young peers are together, results from children's lack of shared knowledge of behavioral routines expected in particular situations. Accordingly, scripts have the potential to facilitate interaction in familiar routines by establishing common behavioral repertoires as children gain experience with conventional social exchanges according to a predetermined script.

Goldstein, Wickstrom, Hoyson, Jamieson, and Odom (1988) provided script training to three triads of preschool children, integrating children with various language impairments and typical classmates. Each triad was taught to enact sociodramatic themes and exchange roles according to prepared scripts. The scripts were flexible in that utterances were not specified and could be tailored to each child's language skills. Thus, children were exposed to a variety of verbal productions appropriate to the theme. Following script training, improvements in social and communicative interaction were demonstrated in structured play settings when the teacher prompted the children to remain in their roles. Increases were seen in untrained as well as trained theme-related verbalizations and actions. This provided evidence that the children were not

simply performing by rote, but were demonstrating some creativity. One limitation of that study was that improvements in interaction were maintained only when teachers prompted children to stay in their roles. Because equally high rates of teacher prompting were not programmed during baseline conditions, the effects of teaching a script were confounded with increased teacher prompting during free-play interactions. The purpose of this study was to investigate the effects of teaching a series of sociodramatic scripts while controlling for differences in teacher prompting among experimental conditions.

METHOD

Participants

Nine children from a developmentally integrated preschool program participated. Two normal children and 1 child with autistic characteristics were included in each of three triads. The children in two of the triads were from one classroom, and the children in the remaining triad were from a second classroom. The children without disabilities ranged in age from 3 years 7 months to 5 years and were at or above age level on the McCarthy Scales of Children's Abilities (McCarthy, 1972) and the Learning Accomplishment Profile—Diagnostic Edition (Lemay, Griffin, & Sanford, 1977). These peers included 5 boys and 1 girl. They had been enrolled in the demonstration project preschool for 6 to 25 months.

At the outset of the study, the 3 children with disabilities (Max, Curt, and Don) had been enrolled in the preschool for 8, 9, and 26 months, respectively. When originally enrolled, all 3 subjects were diagnosed as autistic. At the beginning of this study, Max was no longer rated as autistic. His general cognitive index on the McCarthy Scales was 118, and his listening and speaking quotients on the Test of Language Development—Primary (Newcomer & Hammill, 1977) were 88 and 100, respectively. Despite cognitive and communicative skills within normal limits, he often produced non-social and off-topic verbalizations and exhibited more noncompliant behavior than the 2 other target children.

At the outset of the study, Don and Curt continued to receive ratings in the mild to moderate range on the Childhood Autism Rating Scale (Schopler, Reichler, DeVellis, & Daly, 1980). Don and Curt demonstrated significant delays in cognitive and communicative development. They both received scores of 49 on the McCarthy Scales. Their language development was assessed using the Sequenced Inventory of Communication Development (Hedrick, Prather, & Tobin, 1975). Don's receptive and expressive age-equivalence scores were 28 and 32 months. Curt's receptive and expressive age-equivalence scores were 32 and 28 months. Curt continued to evidence stereotypy (i.e., inappropriate hand and toy play), inappropriate play and laughter, and little spontaneous language coupled with echolalic responding. Don also demonstrated a good deal of echolalic responding and nonsocial mumbling and exhibited some stereotypy (i.e., hand flapping and staring at lights). All 3 target subjects showed low rates of interaction with peers during play times.

Settings

Triads were observed daily during one or sometimes (13% of the days) two of the three sociodramatic play activities: pet shop, magic show, and carnival. Materials appropriate for each activity were available in a play area (approximately 2 m by 3 m). Two teachers monitored the triads from their own classrooms. Free-play observations were conducted in the children's classrooms and in an unused classroom. A shift was made to the unused classroom at the teachers' request in the middle of the posttraining condition for each triad; results indicated that no systematic changes in children's behavior were correlated with this change in setting.

When scripts were being taught, triads were excused from classroom activities for 15-min training sessions. Script training was conducted in the unused classroom.

Target Behaviors

Triads were taught one sociodramatic script at a time. The outline for part of the carnival script appears in Table 1. (Copies of complete scripts are available from the first author upon request.) Each

script involved three assigned roles (e.g., a salesperson, an animal caretaker, and a customer for the pet shop script). Each role included 10 targeted behaviors requiring interaction among peers. Each targeted behavior was specified in a general manner. Depending on language skills, children were taught to produce an interactive behavior consisting of a nonverbal response, a minimal verbal response, an elaborated verbal response, or a combination of a nonverbal and verbal response. The actual behaviors modeled for the children were individualized based upon each child's linguistic and developmental sophistication. For example, the trainer might prompt the carnival booth attendant to give feedback to the customer playing the hoop game in different ways. A nonverbal child might be prompted to clap. A highly verbal child might be prompted to say, "You made it through the hoop again." A less verbal child might be prompted to say, "Good." While providing feedback, the trainers routinely modeled expansions (e.g., "Right, that was a good shot") or restatements (e.g., "Yeah, that's a winner") in an attempt to promote diversity and spontaneity in theme-related behavior.

Sociodramatic Script Training

Script training was conducted for 5 to 10 days following the baseline condition. During this training, each child learned to enact the scripted nonverbal and verbal behaviors for each of the three roles for a particular sociodramatic theme. Training was conducted for each triad in a group format for approximately 15 min per day. To minimize interruptions due to absences, dyads received script training as long as the target subject and 1 of the peers without disabilities were present. One of two research assistants conducted the script training. In general, the teachers did not observe the script training. (Max's teacher consulted on behavior management practices for 4 days during the training of the first script.)

The trainer assigned the children to the three roles. An overview of each role and corresponding targeted behaviors was given prior to role enactment. Then, the trainer followed the script and prompted the children to demonstrate the behaviors specified for each role. A most-to-least prompt hi-

Table 1
An Example of a Sociodramatic Script

Setting: carnival-hoop game

Characters: booth attendant (B), assistant (A), customer (C)

A hula hoop and balls representing a ball toss game were used. A money pouch, tickets, and carnival prizes were used to simulate carnival materials.

	<u>Minimal verbal</u>	<u>Nonverbal</u>	<u>Elaborated</u>
B: Introduces game.	Ball toss.	Holds balls in front of him.	Come one, come all. Play the ball toss game.
C: Requests price.	How much?		How much does the game cost?
B: Names price.	One dollar.	Points to sign with the price.	It costs one dollar for three balls.
C: Requests tickets.	Tickets.	Points to roll of tickets.	I'll buy some tickets.
A: Offers assistance.	How many?		How many tickets would you like?
C: States number of tickets.	Three.	Holds up three fingers.	I'd like three tickets, please.
C: Exchanges money with A.	Here.	Gives money to A.	I need some change please.
A: Receives money from C.	Thanks.	Extends hand to obtain money.	I'll have to get some change.
A: Gives C three tickets.	Tickets.	Gives tickets to A.	Here are your tickets.
C: Receives tickets from A.	Thanks.	Extends hand to obtain tickets.	I hope I win something.
B: Offers assistance and demonstrates game.	Watch me.	Tosses one ball through hoop.	You have to get each ball through the hoop like this.
A: Tells C the prizes available.	Prizes.	Gestures to all the prizes.	These are all the prizes you can win.
C: Gives A a ticket.	Here.	Hands a ticket to A.	Here, this one's a lucky one.
A: Gives C the first ball.	Good luck.	Gives ball to C.	Just remember to throw it straight.
C: Receives first ball from A.	Thanks.	Extends arm to obtain ball.	I hope I can throw this through the hoop.
B: Directs C to throwing area.	Throw here.	Shakes hoop for attention.	You need to throw the ball through this hoop.

erarchy was instituted (Wolery & Gast, 1984). During the initial training sessions, the trainer generally directed the action by telling the children what to do or say; for example, "Max, you're the animal caretaker. Say, 'Do you like it?'" As training progressed, the trainer waited longer for spontaneous performance and provided more nonverbal and more indirect prompts like, "Max, what does the animal caretaker do now?" If time permitted, the teacher assigned the children to different roles once they finished going through the script. This enabled them to practice two or three roles each day.

Training was terminated when a criterion of 80%

independent responding was reached by each child or a maximum of 10 training sessions had been completed. However, training of the initial script was extended for 1 day in Don's group following a dip in performance during Session 10. Max's group failed to demonstrate much improvement after training of their initial script during free-play observations; consequently, five additional training sessions were conducted in an attempt to boost effects. Because of difficulties in managing Max's off-task behavior and a resulting decline in motivation within his group, we instituted a token reinforcement system to reduce off-task behavior after training the first script. The criterion was increased

gradually from 50% to 90% of the time on-task. At the end of each training session, rewards were selected from a variety of edible, tangible (e.g., toys and stickers), and activity (e.g., play with materials) reinforcers. As an additional contingency, a second prize could be earned if the child demonstrated at least 50% of the targeted behaviors independently. This reinforcement system was instituted for all three groups to avoid negative reactions when participants learned that others were earning prizes.

Data collection during training. During training sessions, only targeted behavior was coded. One of the two research assistants scored the children's responses as independently performed or prompted. *Independent* behavior was scored when the child performed the targeted response without a model or a direct instruction from the trainer. This included behavior emitted when the trainer reminded the child to respond, for example, "Max, what do you say now?" or "Max, it's the animal caretaker's turn." Behaviors were coded as *prompted* when the child was told or shown what to do or say by the trainer, such as "Max, tell the customer how much it costs."

Free-Play Observations

Interaction among children was assessed during the first 5 min of play periods. At the outset of the study, teachers were familiarized with the scripts. They were told their instructions, monitoring, and feedback procedures needed to be consistent across treatment conditions. First, it was emphasized that they were not permitted to tell the children what to do or to specify a targeted behavior. They were asked to introduce the activity, explain the three roles, and assign children to roles. The teachers were told they had the option of prompting or praising and could vary their involvement as long as the total number of teacher interventions per session remained the same. Prompts could entail reminding children what behavior had just occurred, whose turn was next, what the theme was, and what their role was. The teachers were asked to maintain a rate of involvement of approximately one prompt or praise statement every 20 s (and later every 25

s). Teachers were told they would be given reminders if they deviated from any of these guidelines.

Switching of roles occurred when the children completed their role-related behavior and any elaboration of the roles had ceased. The procedure for changing roles involved stopping the interval tape, reassigning roles to the children by giving them a general outline of the specific role expectations, and telling them to start playing again. The changing of roles usually occurred once during the 5-min play sessions.

Data collection during free play. Interactions among the target child, peers, and teacher were recorded sequentially, with 10-s interval divisions used to help calculate reliability. Social interaction was characterized by nonverbal or verbal behaviors (or both).

The following social interactions were coded:

1. Targeted social behavior. These were the 30 verbal or nonverbal behaviors (10 per role) targeted for training of each of the three scripts (see Table 1).
2. Related social behavior. Other theme-related verbal or nonverbal behaviors that maintained the interaction among the children or provided an elaboration of the theme were included in this category. For example, a child might have elaborated on the type of animal he or she wished to buy or might have demonstrated a novel trick using the magic show materials, neither of which were targeted behaviors outlined during training. Prompting other children to say their lines, narrating the theme's sequence, demonstrating the action required by the other children, or praising another child for good work were also coded as related social behavior.
3. Unrelated social behavior. This category contained verbal or nonverbal behaviors that were not related to or were not an elaboration of the three scripts. This included verbal utterances such as "Yesterday I went to the zoo," or "Tomorrow is my birthday." Playing peek-a-boo with the other children, playing ring-around-the-rosie with the hoop during carnival, and chasing another child were also coded as unrelated social behaviors.

4. Nonsocial utterances. These included utterances directed to the monitoring teacher and any other utterances that were not interactive (i.e., that were not directed to another child and did not receive a response).

The following teacher intervention categories were coded:

1. General prompts. This category contained prompts that were nonspecific and reminded the triad of the daily activity (e.g., "Remember, we're playing magic show now"). The prompt was neither specific to a particular child nor to a particular role.

2. Specific prompts. Verbal prompts specific to a particular child or character in the script were coded in this category. These prompts reminded an individual child of his or her assigned role, that it was his or her turn, or of a previous line spoken by another child. Examples include "Don, remember, you're the magician," "What does the customer do now?" and "Max, Alex just said he'd like to buy three tickets."

3. Physical prompts. These were defined as any type of physical intervention used in the process of carrying out behavior management procedures (e.g., redirecting the child to the ongoing interaction or assisting a gestural response). Physical prompts when accompanied by a specific prompt were coded as physical prompts with a notation indicating corresponding verbal utterance.

4. Praise. This included statements used to acknowledge the children's behavior according to their assigned roles. The praise statement may have been specific to a particular child or character in the script or may have been general to the entire triad.

Each of the individual categories were coded in sequence as they occurred, with the following exceptions. If a repetitive or perseverative behavior occurred, only the first occurrence was recorded. For example, if "Do you like it?" was repeated five times, it was coded only once. All vocal play (e.g., humming) and inaudible verbalizations were not coded. Separate nonsocial utterances were coded only if there was a 3-s silent pause between utterances.

Interobserver Agreement

Two research assistants were responsible for collecting data during training and free-play sessions. Each session was videotaped using a Panasonic® VHS camcorder (Model 1700) with a wide-angle lens adapter. Data collectors were required to view the videotape before submitting their data sheets. Thus, verbal and nonverbal behaviors missed or miscoded during live observations could be corrected when videotapes were reviewed. Only in the case of training sessions were data coded solely from videotapes for reliability purposes.

A second observer independently scored 60 of the 144 training sessions across all three triads for each of the nine scripts. Interobserver agreement was calculated by dividing the number of agreements by the total number of agreements plus disagreements multiplied by 100. Mean response agreement for targeted behaviors across all three triads and scripts was 86% (range, 73% to 100%).

A second observer independently scored 50 of the 202 observations of structured free play, distributed across experimental conditions. Interobserver agreement percentages for occurrences for each of the seven target child behaviors, seven peer behaviors, and four teacher behaviors (broken down for each triad) are presented in Table 2. Mean interobserver agreement for occurrences of these categories within each session was 88% (range, 63% to 100%), 87% (range, 73% to 96%), and 83% (range, 66% to 98%) for Max's, Don's, and Curt's triads, respectively.

Experimental Design

A multiple probe design across scripts, replicated across three triads, was used to examine the effects of script training on interaction during free play. The order of training for the three scripts was counterbalanced across triads. While a triad was being taught a new script, free-play observations for that script were discontinued.

Baseline. All the children were familiar with one another and had interacted together during free-play times for at least 3 months. During baseline and all subsequent conditions, the teacher as-

Table 2
Interobserver Agreement Percentages (and Number of Occurrences in Parentheses) for Each Coding Category for Each Triad

	Don	Curt	Max
Target child behavior			
Targeted verbal	91 (32)	82 (45)	92 (36)
Targeted nonverbal	81 (31)	88 (48)	85 (40)
Related verbal	77 (31)	72 (25)	76 (49)
Related nonverbal	76 (29)	89 (27)	85 (54)
Unrelated verbal	75 (16)	57 (7)	80 (10)
Unrelated nonverbal	85 (34)	75 (36)	96 (25)
Nonsocial	88 (150)	72 (95)	85 (240)
Peer behavior			
Targeted verbal	93 (57)	81 (88)	84 (144)
Targeted nonverbal	90 (52)	89 (83)	85 (143)
Related verbal	84 (125)	75 (59)	86 (191)
Related nonverbal	77 (65)	79 (61)	92 (145)
Unrelated verbal	92 (107)	83 (66)	96 (23)
Unrelated nonverbal	95 (91)	89 (66)	96 (26)
Nonsocial	88 (24)	80 (50)	69 (35)
Teacher behavior			
General prompt	78 (46)	82 (33)	86 (28)
Specific prompt	86 (153)	88 (128)	92 (231)
Physical prompt	88 (17)	67 (6)	54 (28)
Praise	83 (18)	86 (22)	80 (84)

signed children to their roles, gave them materials for their roles, and provided an overview of the expectations for the three characters in the particular sociodramatic activity. During baseline and throughout the study, teachers were not detected giving any child specific directions about how to play. This was imperative to avoid confounding script training with any other training during free-play time. When children were disruptive, teachers intervened by stopping the activity and reminding the children that they were expected to play the particular sociodramatic activity or by taking away disputed materials.

Posttraining. This condition was the same as the baseline condition, but was initiated after the children had completed training of particular scripts. After a few sessions, teachers were asked to intervene once per 25 s (rather than 20 s) to compensate for a slight increase in their intervention rate after children had been trained.

Generalization. The free-play procedures remained the same in this final condition, except the

triads were changed by regrouping children. The children were familiar with one another, but they had received training with a different triad. Thus, each triad included 1 child from each of the old triads. Thus, Max was paired with 2 children from the other classroom, and Curt and Don were paired with 1 child from the other classroom and 1 child from their own classroom. Each target child remained with his original teacher throughout the study.

RESULTS

Group Performance During Script Training

Figure 1 presents the percentage of independent performance of targeted behaviors during script training for each triad. None of the groups met the 80% criterion within 10 training sessions for the first script. Max's group was given 5 additional days of training after changes during free play were meager compared to the other groups. Note that

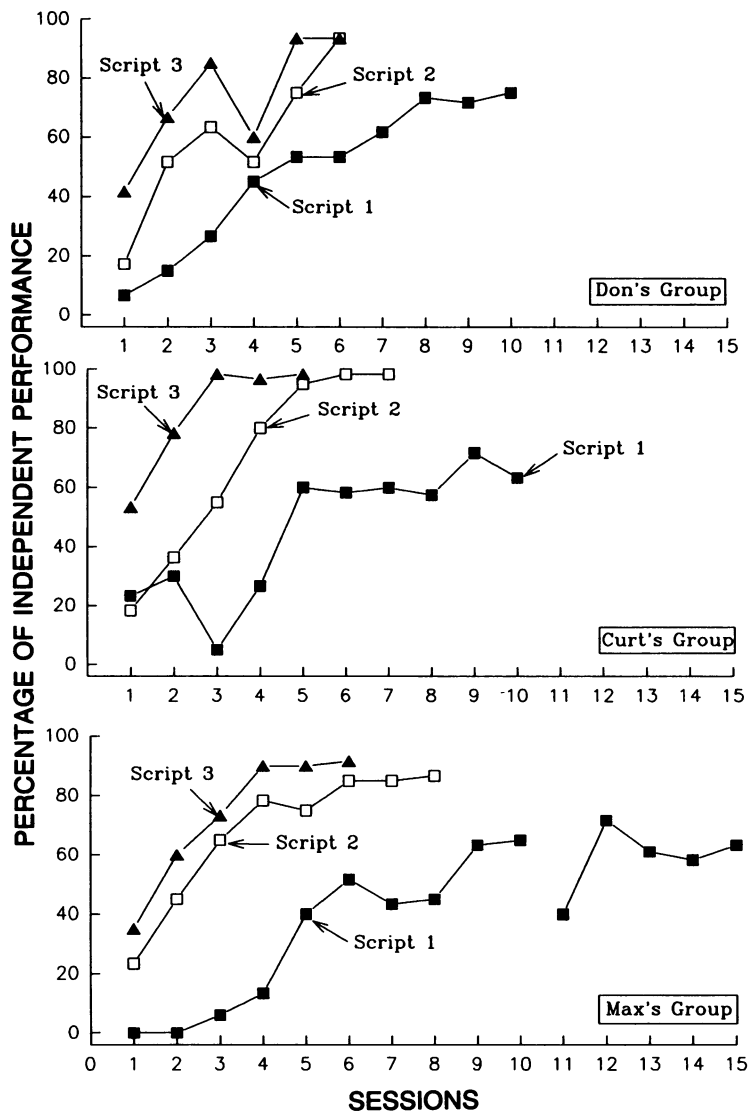


Figure 1. The percentage of independent performance of targeted responses across training sessions for each of the three triads. The break in training for Max's group for Script 1 indicates the reinitiation of training after free-play observations had begun.

all three groups learned the second and third scripts more quickly and exceeded the 80% mastery criterion. Extra training lessons were included to provide additional experience for peers who had been absent or if the target child was showing continued learning. Nevertheless, only five or six sessions were needed to train the third script.

Social Interactions of Target Children

The frequency of theme-related (i.e., targeted plus related) behavior and unrelated behavior across

free-play observations for each of the 3 target children is shown in Figures 2 through 4. All 3 children showed low rates of theme-related behavior during the baseline condition. Max and Don each had several days during baseline with relatively high rates of social interaction. Both Curt and Don demonstrated lower baseline performance than Max, and they demonstrated more improvement following training. Following training, clear improvements in theme-related behavior were demonstrated. Greater increases in social interaction were

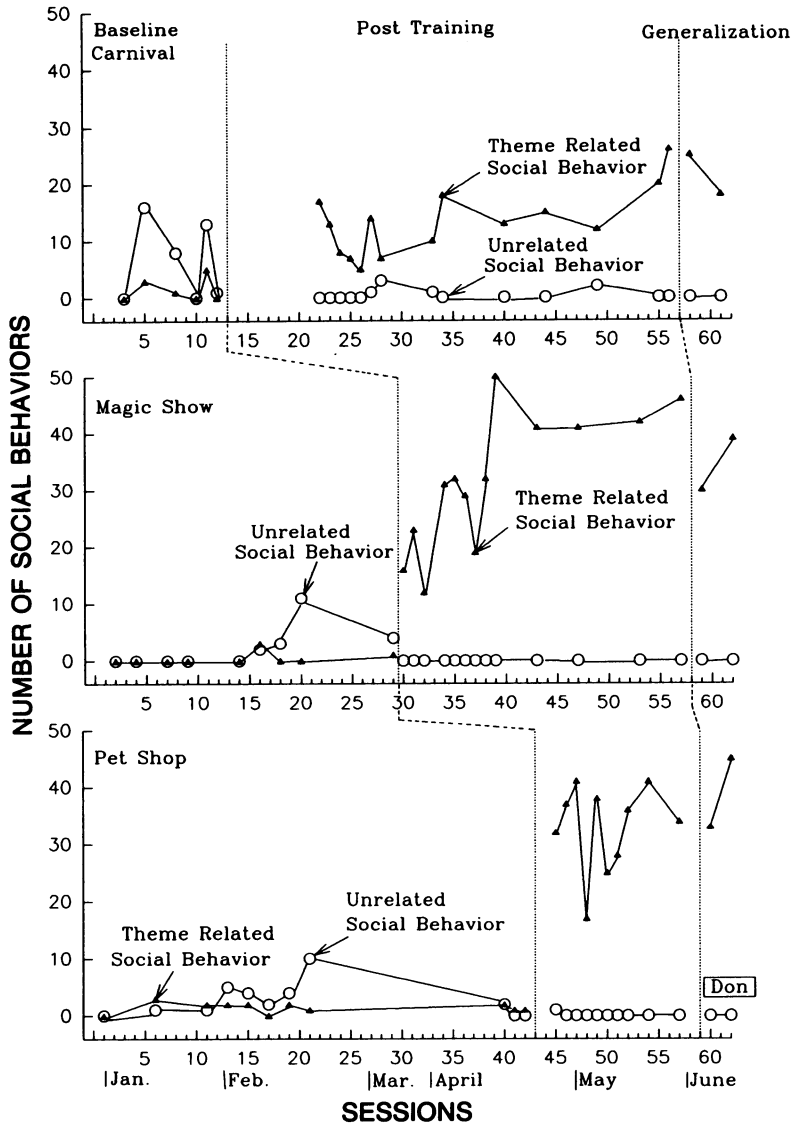


Figure 2. The frequency of theme-related (targeted and related) social behaviors (triangles) and unrelated behaviors (circles) across 5-min sessions for Don.

demonstrated after script training for Curt and Don than for Max. As can be seen in Figure 4, less pronounced improvements and less consistent effects for the three activities were seen for Max. Note that all 3 target subjects demonstrated more striking effects with the training of each successive script. During the generalization condition, all 3 children maintained high levels of social interaction. The frequency of unrelated behavior decreased as scripts were taught, and remained at low levels.

The mean frequency of specific social behaviors

(collapsed across scripts) is presented for all the participants in Table 3. For Curt and Don, improvements in social interaction were demonstrated for targeted and related behaviors. Across each activity, both verbal and nonverbal theme-related behaviors increased following script training, while unrelated verbal and nonverbal behaviors decreased. Max exhibited higher rates of total social behavior than the other target children during the baseline condition, but the majority of his social behavior consisted of verbal and nonverbal behavior unre-

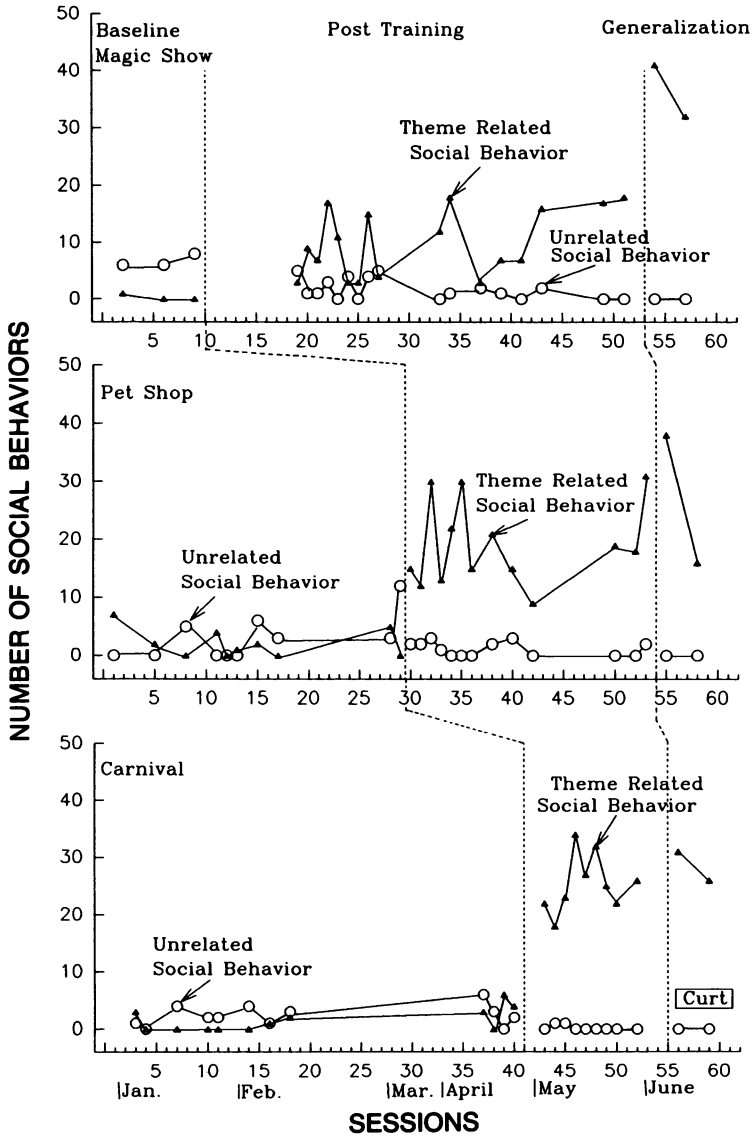


Figure 3. The frequency of theme-related (targeted and related) social behaviors (triangles) and unrelated behaviors (circles) across 5-min sessions for Curt.

lated to the theme. All 3 children demonstrated gains in untrained yet related behavior following script training (except for related nonverbal behavior for Max), but targeted behavior continued to occur more frequently than other theme-related behavior. Although most theme-related interaction behaviors were attributed to nonverbal behavior at the outset of the posttraining condition, more gains accrued in verbal interaction for all 3 children as the study progressed.

Social Interactions of the Nondisabled Peers

Summaries of the frequency of specific social behaviors across free-play observations are also included in Table 3 for the peers. All 6 peers exhibited higher rates of total social behavior during the baseline condition compared to the target children, averaging 10.6 total social behaviors per session, compared to 5.3 exhibited by the target children. Like the target children, the majority of the peers' in-

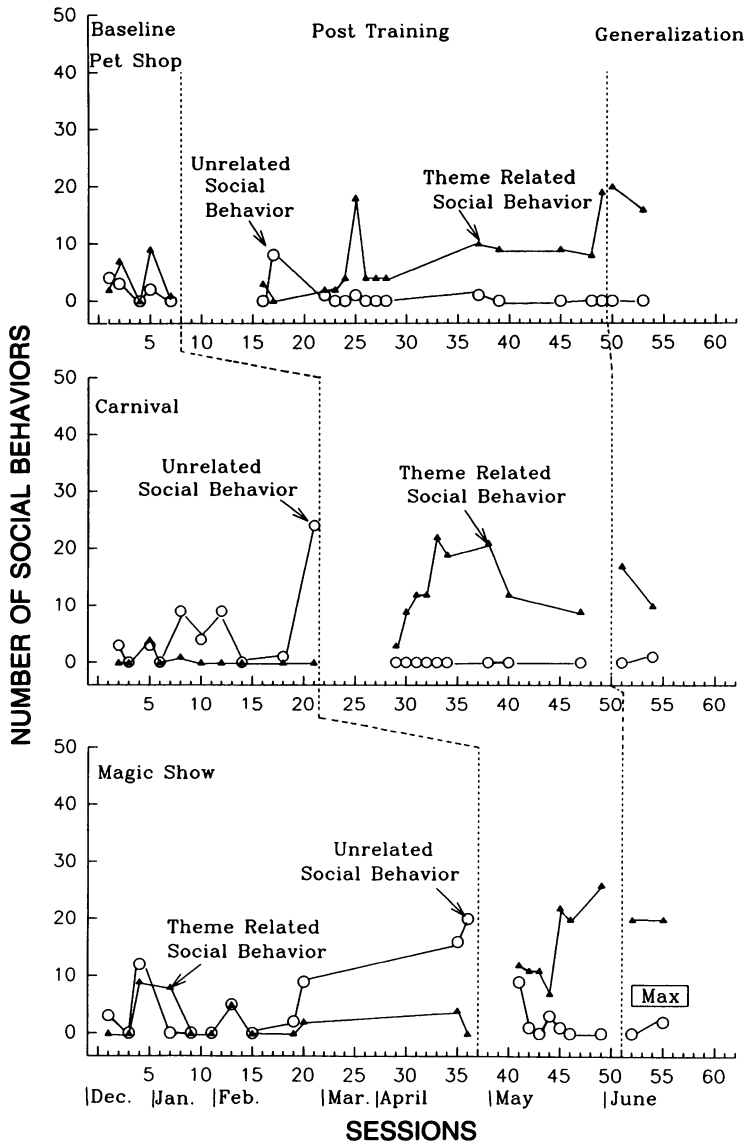


Figure 4. The frequency of theme-related (targeted and related) social behaviors (triangles) and unrelated behaviors (circles) across 5-min sessions for Max.

interactions involved unrelated social behavior. Following script training, substantial increases in targeted behavior were demonstrated by all the peers. Related behavior improved as well, but to a lesser extent. Little unrelated social responding contributed to the total number of social behaviors following script training. During the generalization condition, all peers (except Peer 2 in Don's group) demonstrated further improvement in theme-related social interaction. During the generalization

condition, total social interaction was comprised exclusively of theme-related interaction across all three activities for each peer.

Teacher Intervention

A summary of the teachers' prompts and praise statements for the three triads is shown in Table 4. Other prompts included general prompts to the group and specific verbal and physical prompts to peers. The frequency of teacher intervention was

Table 3
Mean Frequency of Specific Social Behaviors Demonstrated during Free Play for All Scripts for Each Participant

	Don			Don's Peer 1			Don's Peer 2		
	Before training	After training	Generalization	Before training	After training	Generalization	Before training	After training	Generalization
Sessions	26	37	6	26	34	6	25	37	6
Targeted verbal behavior	0.04	6.22	9.33	0.31	7.71	9.83	0.4	6.92	6.17
Targeted nonverbal behavior	0.15	8.84	8.67	0.42	10.76	9.33	0.6	9.73	4.33
Related verbal behavior	0.27	5.41	9.33	2.23	5.88	6.50	3.16	8.14	9.00
Related nonverbal behavior	0.65	4.59	4.17	1.54	6.21	7.33	1.92	4.78	3.33
Unrelated verbal behavior	0.88	0.11	0.00	3.77	0.38	0.00	3.88	0.24	0.00
Unrelated nonverbal behavior	2.46	0.11	0.00	3.19	0.15	0.00	3.00	0.05	0.00
Total social behavior	4.46	25.27	31.50	11.46	31.09	33.00	12.96	29.86	22.83

Table 3
(Continued)

	Curt			Curt's Peer 1			Curt's Peer 2		
	Before training	After training	Generalization	Before training	After training	Generalization	Before training	After training	Generalization
Sessions	25	39	6	22	36	6	25	36	6
Targeted verbal behavior	0.08	5.00	12.17	0.27	5.94	6.50	0.08	4.44	5.33
Targeted nonverbal behavior	0.32	5.28	9.83	0.18	6.75	5.67	0.44	5.92	9.00
Related verbal behavior	0.48	3.05	4.67	1.73	3.61	7.67	0.96	1.58	0.17
Related nonverbal behavior	0.76	3.31	3.83	1.23	3.78	4.17	1.12	2.97	2.67
Unrelated verbal behavior	0.72	0.05	0.00	4.64	0.42	0.00	2.64	0.22	0.00
Unrelated nonverbal behavior	2.4	1.13	0.00	2.41	0.42	0.00	3.52	0.75	0.00
Total social behavior	4.76	17.82	30.50	10.45	20.92	24.00	8.76	15.89	17.17

consistent across experimental conditions. Only in the case of Max's group did the teacher consistently exceed the predetermined level of intervention. The mean rate of teacher involvement before script training for the three triads ranged from 13 to 14 instances per session and ranged from 14 to 19 instances following script training. The larger standard deviations seen after script training resulted

from an initial elevation in prompting followed by a gradual decline over the course of this condition. Because of the requirement that teachers maintain a predetermined schedule of intervention, teachers praised children's efforts more often after script training as less prompting was required. Only in the case of Max did the teacher continue to prompt at a high rate following script training. Max also

Table 3
(Continued)

	Max			Max's Peer 1			Max's Peer 2		
	Before training	After training	Generalization	Before training	After training	Generalization	Before training	After training	Generalization
Sessions	27	30	6	24	29	6	27	29	6
Targeted verbal behavior	0.04	2.80	5.83	0.38	5.90	7.67	0.33	4.41	6.17
Targeted nonverbal behavior	0.11	3.70	5.00	0.21	5.17	10.67	0.15	6.14	8.50
Related verbal behavior	0.33	2.53	4.83	2.83	3.38	2.67	2.11	3.69	2.83
Related nonverbal behavior	1.44	1.77	1.50	2.88	2.86	3.83	2.26	2.83	4.00
Unrelated verbal behavior	2.19	0.37	0.17	1.54	0.17	0.00	1.63	0.10	0.00
Unrelated nonverbal behavior	2.48	0.47	0.33	3.50	0.34	0.00	2.11	0.28	0.00
Total social behavior	6.59	11.63	17.67	11.33	17.83	24.83	8.59	17.45	21.50

received a higher rate of praise statements than other children. Across experimental conditions, the mean rate of teachers' prompts to the target subjects accounted for 46% of the total prompts. The lowest percentage of prompts to target subjects was demonstrated with Curt before script training (31% of all prompts), whereas the highest percentage of prompts was demonstrated with Max after script training (64% of all prompts).

DISCUSSION

Three children with autistic behaviors and 6 nondisabled preschool children learned three sociodramatic scripts. The scripted activities (pet shop, carnival, and magic show) were original in that these activities had not previously been a classroom activity, nor could any of the children elaborate on the events that took place in each of the three situations during the baseline condition. Teachers' overviews of the script and general prompting during baseline did not produce improvements in social interaction during free play. When such prompting followed script training, however, significant improvements in social and communicative interaction among both the children with and children without

disabilities resulted. Training effects were replicated across the three sociodramatic scripts, with each triad learning the second and third scripts more quickly and showing more pronounced effects during free play.

Following the training of each script, the overall frequency of total social behavior increased for all 3 target children. This improvement was attributable largely to increases in targeted behavior. Nevertheless, the increases in related behavior should not be overlooked, because these improvements may represent response generalization. That is, the children demonstrated behaviors not included in script training that elaborated on the theme and their assigned roles. The largest improvement in related behavior was demonstrated by Don following training on the last script; substantial increases in both related verbal and nonverbal behaviors were noted during the posttraining and generalization conditions. This increase was not attributable solely to variations on the original theme, however, because Don began demonstrating related behavior consisting of prompts and praise statements to his peers. During the last script in particular, Don consistently prompted the other children who had forgotten their lines and also praised the children for "doing a good job."

Table 4
Mean Occurrences (and Standard Deviations in Parentheses) of Teacher Intervention

	Before script training	After script training	Generalization
Don's Group			
Number of sessions	26	37	6
Prompts to target subject	5.2	4.5	4.5
Other prompts	8.3	4.3	6.7
Praise statements	0.3	4.8	4.3
Total	13.8 (2.2)	13.6 (3.8)	15.5 (1.2)
Curt's Group			
Number of sessions	25	39	6
Prompts to target subject	4.1	5.4	5.1
Other prompts	9.3	7.2	4.4
Praise statements	0.2	3.8	5.2
Total	13.6 (2.2)	16.4 (4.0)	14.7 (2.3)
Max's Group			
Number of sessions	27	30	6
Prompts to target subject	5.6	8.1	3.7
Other prompts	6.6	4.5	3.5
Praise statements	0.5	6.6	9.8
Total	12.7 (3.2)	19.2 (4.5)	17.0 (1.7)

All 6 of the nondisabled peers exhibited higher rates of total social behavior during the baseline condition compared to the target children. However, following script training, both Don's and Curt's social behavior was commensurate with that of their peers. During the generalization condition, Don's and Curt's theme-related behavior was equal to or greater than that of their peers. Thus, significant gains were demonstrated in the social behavior of 2 children diagnosed as autistic in these sociodramatic play contexts. We expect that additional training using familiar scripted activities would proceed rapidly and could further enhance the ability of children with autism to interact in a variety of sociodramatic activities with their nondisabled peers. Unfortunately, we did not collect baseline data on more familiar activities because of the expense and the greater likelihood of losing experimental control.

Less pronounced effects were demonstrated with Max following script training. Although significant increases in theme-related behavior were noted during the final generalization phase for Max, he continued to demonstrate lower rates of interaction

than his peers. Although Max demonstrated more advanced language skills, his rate of social interaction remained lower than the other target children as well. This was due to Max's noncompliant behavior and off-topic verbalizations directed at the teacher and other children. On several occasions, Max told the trainers that he would not participate. In addition, Max frequently recited various roles in their entirety from sociodramatic themes enacted during a previous session. Max's noncompliant behavior during free-play sessions fluctuated and paralleled the level of noncompliance displayed in his classroom. Despite his interfering behavior, Max eventually interacted with peers more consistently than he did before script training.

Teachers might prompt children by telling them what to do or what to say to whom during sociodramatic play activities. In effect, teachers often carry out script training (albeit unsystematically) during free-play time. The use of the multiple baseline design demonstrated clearly that teacher prompting by itself did not result in improved social interaction. By teaching scripts in separate training sessions, it was possible to establish common reper-

toires for all the children in relatively few (5 to 10) sessions. Consequently, during free play teachers can avoid telling the children what to do or what to say. Once children are taught all the roles and routines of a theme, they may only need to be "kept on track" through teacher prompting.

Teachers gradually reduced their prompting after script training (except for Max). In the future, it may be advisable to encourage reducing the rate of prompting further as children learn a larger variety of scripts. Nevertheless, teachers should continue to provide some low rate of prompts and praise statements in order to prevent episodes that require intervention, such as disputes over materials or aggressive behavior. The increase in praise statements following script training represented an inadvertent qualitative difference between experimental conditions. The increased frequency of praising appeared to be a reaction to the reduced need to prompt children to enact their sociodramatic roles and to the request that teachers maintain a fairly constant rate of involvement throughout the study. We cannot dismiss the possibility that praise statements played a role in increasing the rate of theme-related behavior during free play. It appeared more likely that reciprocal interaction among children was a more powerful reinforcer for theme-related social behavior, at least initially. When applying these results to educational practice, teaching numerous scripts, scheduling a variety of sociodramatic activities, and varying interaction partners seem essential to avoid the development of stereotypic routines or boredom that may in turn dilute the reinforcement value of peer interaction.

In the present study, behavior taught during script instruction was maintained in a different period and setting (free play in the classroom) than where it was originally taught. In addition, children generalized these behaviors to new triads of similarly trained children. In addition to establishing common behavioral repertoires, script training provided a set of common stimuli for all of the children. It is likely that common stimuli were largely responsible for facilitating generalization. Although children encountered variations in script perfor-

mance when teamed with new group members, the scripts structured the occurrence of discriminative stimuli similar to those encountered during training.

Composing triads of heterogeneous peers may benefit both children with disabilities and typical children in preschool classrooms by enhancing interaction through observational learning and may, in turn, offer improvement opportunities for language learning from peers. In fact, it appeared that creating new triads during the generalization condition enhanced the quality of social interaction and language performance. Once the children learned the scripts and enacted them repeatedly, little novel behavior was demonstrated. It appeared that each triad developed a routine in which each child could predict what and how the other members of the group would enact each role. Variations and spontaneity were seen in the children's enactments before routines began to develop for the new triads. Reorganizing triads on a regular basis may help to encourage variety and creativity.

In summary, teaching sociodramatic scripts to typical preschoolers and their classmates can increase subsequent social and communicative interaction among peers. Creating triads with new but similarly trained partners did not appear to represent an obstacle to generalization. To the contrary, it seemed to increase the likelihood of variety and creativity during social interactions. Teaching a variety of scripts may establish overlapping repertoires of behaviors that make it easier to teach each subsequent script, and can potentially offer preschoolers a large set of social interaction skills they can apply during sociodramatic play and perhaps in activities of daily life. In addition, teachers may find that script training is preferable to prompting children through sociodramatic play because of the overall reduction in training time required and the ease of maintaining high-quality interactions during free play.

REFERENCES

- Fein, G. (1981). Pretend play in childhood: An integrative review. *Child Development*, 52, 1095-1118.

- Feitelson, D., & Ross, G. S. (1973). The neglected factor—play. *Human Development*, *16*, 202–223.
- Fink, R. S. (1976). Role of imaginative play in cognitive development. *Psychological Reports*, *39*, 895–906.
- Garvey, C. (1977). *Play*. Cambridge, MA: Harvard University Press.
- Goldstein, H., Wickstrom, S., Hoyson, M., Jamieson, B., & Odom, S. (1988). Effects of sociodramatic script training on social and communicative interaction. *Education and Treatment of Children*, *11*, 97–117.
- Hedrick, D., Prather, E., & Tobin, A. (1975). *Sequenced inventory of communication development*. Seattle, WA: University of Washington Press.
- Lemay, D., Griffin, P., & Sanford, A. (1977). *Learning accomplishment profile—diagnostic edition*. Winston-Salem, NC: Kaplan Press.
- Lovinger, S. (1974). Socio-dramatic play and language development in preschool disadvantaged children. *Psychology in the Schools*, *11*, 313–320.
- McCarthy, D. (1972). *Manual for the McCarthy scales of children's abilities*. New York: The Psychological Corporation.
- Nelson, K. (1981). Social cognition in a script framework. In J. H. Flavell & L. Ross (Eds.), *Social cognitive development: Frontiers and possible futures* (pp. 97–118). Cambridge: Cambridge University Press.
- Nelson, K., & Gruendel, J. M. (1979). At morning it's lunchtime: A scriptal view of children's dialogues. *Discourse Processes*, *2*, 73–94.
- Nelson, K., & Seidman, S. (1984). Playing with scripts. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 45–71). Orlando, FL: Academic Press.
- Newcomer, P., & Hammill, D. (1977). *Test of language development—Primary*. Los Angeles: Western Psychological Services.
- Odom, S. L., & Strain, P. S. (1984). Classroom-based social skills instruction for severely handicapped preschool children. *Topics in Early Childhood Special Education*, *4*(3), 97–116.
- Rosen, L. (1974). The effects of sociodramatic play on problem-solving behavior among culturally disadvantaged preschool children. *Child Development*, *45*, 920–927.
- Saltz, E., Dixon, D., & Johnson, J. (1977). Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control. *Child Development*, *48*, 367–380.
- Schank, R. C., & Abelson, R. P. (1977). *Scripts, plans, goals and understanding: An inquiry into human knowledge structures*. Hillsdale, NJ: Erlbaum.
- Schopler, E., Reicher, R. J., DeVellis, R. F., & Daly, F. (1980). Toward objective classification of childhood autism: Childhood autism rating scale. *Journal of Autism and Developmental Disorders*, *10*, 91–103.
- Singer, J. L., & Singer, D. G. (1976). Imaginative play and pretending in early childhood. In A. Davids (Ed.), *Child personality and psychopathology* (pp. 69–112). New York: Wiley-Interscience.
- Smilansky, S. (1968). *The effects of socio-dramatic play on disadvantaged preschool children*. New York: Wiley.
- Smith, P. K., & Syddall, S. (1978). Play and non-play tutoring in preschool children: Is it play or tutoring which matters? *British Journal of Educational Psychology*, *48*, 315–325.
- Strain, P. S., & Wiegnerink, R. (1976). The effects of sociodramatic activities on social interaction among behaviorally disordered preschool children. *Journal of Special Education*, *10*, 71–75.
- Wolery, M., & Gast, D. L. (1984). Effective and efficient procedures for the transfer of stimulus control. *Topics in Early Childhood Special Education*, *4*(3), 52–77.

Received May 19, 1991

Initial editorial decision September 12, 1991

Revision received January 30, 1992

Final acceptance February 21, 1992

Action Editor, Samuel Odom