

*TEACHING CHILDREN WITH AUTISM TO
ASK QUESTIONS ABOUT HIDDEN OBJECTS*

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We taught 2 4-year-old children with autism to ask questions of an adult who held a closed box with a toy inside. The treatment package (modeling, prompting, and reinforcement) was evaluated with a multiple baseline design across the three question forms during training, generalization, and follow-up evaluations. The first question form (“What’s that?”) produced the name of the hidden item. The second form (“Can I see it?”) produced sight of it, and the third form (“Can I have it?”) produced the item itself. Both children learned to ask questions about hidden objects.

DESCRIPTORS: autism, questions, language acquisition, verbal behavior

Most children with autism fail to engage in typical social interactions. For example, often they are not skilled in asking questions (Charlop & Milstein, 1989). According to Charlop and Milstein, asking questions must often be explicitly taught. Researchers have demonstrated recently that behavioral techniques are effective in teaching children with autism to ask questions. For example, Taylor and Harris (1995) taught young children to ask “What’s that?” when presented novel pictures in a classroom, and then when encountering new objects on a walk in the school building. Similarly, Koegel, Camarata, Valdez-Menchaca, and Koegel (1998) taught children to ask “What’s that?” in training and nontraining settings with novel items as reinforcers. The current study extends the work of previous researchers in

several ways. First, a wider range of questions was taught in a step-wise fashion. Second, three question forms were evaluated. Third, generalization and maintenance of question asking were assessed.

METHOD

Participants and Materials

The participants, Ana and Betty, were 4-year-old girls with autism who had received intensive behavioral in-home training. Neither child asked questions prior to the onset of this study. Both children repeated statements, requested items by saying “I want —,” and responded to questions. The experimenters provided about 60 small boxes varying in shape, color, and texture, with attractive objects hidden inside (e.g., a sparking spinning wheel, a winding frog that jumped). In one session the child viewed approximately 14 to 18 boxes.

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Measurement and Interobserver Agreement

The experimenters collected data on the frequency of each child's questions emitted during 10-min sessions. Each self-initiated question constituted one instance of the behavior, even if the child emitted them together and there was no time in between them (e.g., "Can I see it? Can I see it?"). An independent observer sat in the room to obtain interobserver agreement on 38% of the sessions for Ana and 30% of the sessions for Betty. The experimenters calculated agreement by dividing the lower frequency of the questions by the higher frequency and multiplying by 100%. The mean interobserver agreement across all phases for Ana was 94% (range, 69% to 100%) during training and a mean of 91% (range, 66% to 100%) during generalization. The mean interobserver agreement for Betty was 95% (range, 66% to 100%) during training and 93% (range, 66% to 100%) during generalization.

Procedure

The treatment package was evaluated with a multiple baseline design across the three response forms, in all settings.

Baseline. The child sat across from the experimenter in the child's bedroom. The experimenter had the boxes in a bag and presented one box at a time during 10-min sessions. The experimenter did not explicitly prompt any behavior, but opened the box with an object inside and made a comment about the object (e.g., "Oh, I like this one!"). The experimenter did not show the object to the child. The experimenter changed to a new box after approximately 20 s of no response from the child.

Training the first response form ("What's that?"). The experimenter held the box and made a comment about the object inside the box. She then prompted the child to repeat the question "What's that?" by modeling the question in a firm tone of voice.

When the child repeated the question, the experimenter told the child what was inside the box and gave the box with the object inside to the child. The child could play with the toy for approximately 20 s; then a new box was presented. When the child repeated the question correctly for two consecutive opportunities, the experimenter faded the echoic prompt by providing a partial prompt. For example, the experimenter provided the word "What's" instead of providing the whole question. The prompt was gradually reduced until the child asked "What's that?" without a prompt. If the child produced three consecutive errors (saying the question incorrectly or saying nothing within 3 s of presenting the box), the experimenter provided the full echoic prompt again. This procedure was repeated until the transfer of control from the echoic prompt to the box itself was accomplished. That is, the echoic prompt was eliminated when the child initiated the question without any prompt each time the box was presented in two consecutive sessions. At this point, training of the second response form began, and no more prompts were provided for the first question.

Training the second response form ("Can I see it?"). This procedure started the same way as the first response form. However, when the child self-initiated "What's that?" the experimenter told her the name of the object inside the box but neither showed it nor gave it to her. The experimenter then prompted the child to repeat, "Can I see it?" When the child repeated the question correctly, the experimenter said, "Sure, I can show it to you," and gave the box to the child. The procedure to fade and eliminate the echoic prompt and the criterion to move on to train the next response form were the same as for the first response form.

Training the third response form ("Can I have it?"). The procedure started the same

way as the first and second response forms. However, when the child self-initiated "What's that?" the experimenter told her the name of the object inside but neither showed it nor gave it to her. When the child self-initiated "Can I see it?" the experimenter showed her the object inside the box but did not give it to her. The experimenter then prompted the child to repeat, "Can I have it?" When the child repeated the question correctly, the experimenter said, "Of course, I can give this toy to you," and gave the box to the child. The procedure to fade and finally eliminate the echoic prompt was the same as for the first and second response forms.

Generalization. Immediately after each session in the child's bedroom, the procedure was repeated in the living room with the child's mother. The mother presented the remainder of the boxes but never provided any prompts. The contingencies of reinforcement during all generalization sessions corresponded to the training sessions that preceded them. For example, during training of the second response form, the mother was instructed to tell the child what was inside the box but not to show it to her when she said "What's that?" At the beginning of each generalization session, the mother received verbal instructions on how to reinforce each self-initiated question. This was necessary because the contingencies of reinforcement varied according to the training of each response form. Data on generalization were collected in all phases.

Follow-up. This phase was conducted 20 days after the treatment phase ended for Ana and 11 months after the treatment phase ended for Betty. The experimenter and the mother did not provide any prompts for the children to ask any of the questions, but they responded to all self-initiated questions the same way as during the training in the third phase.

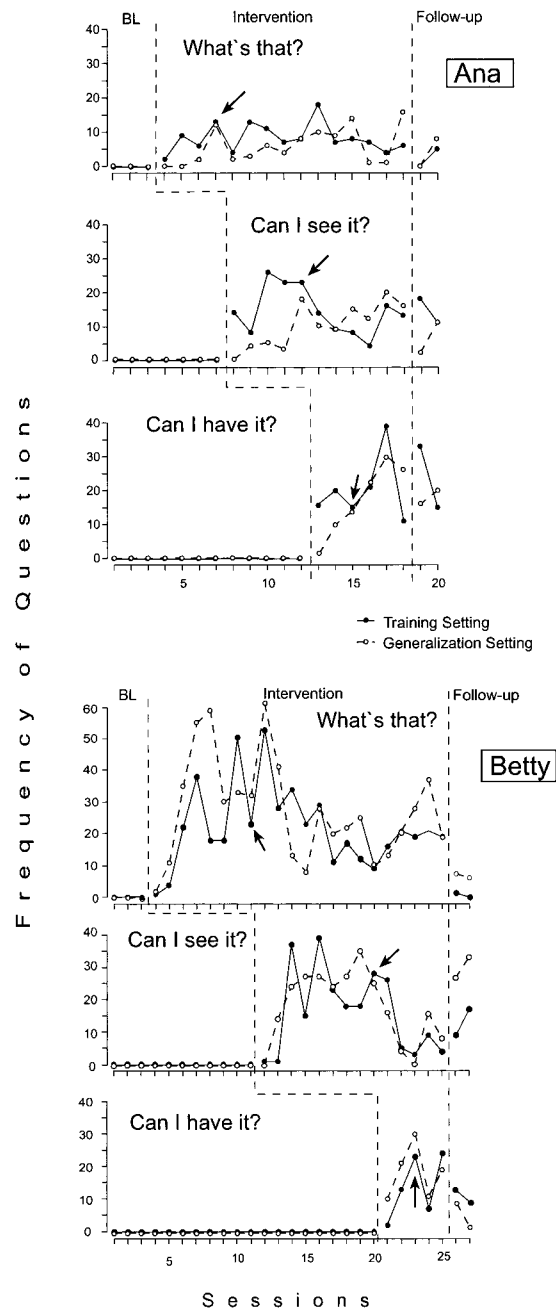


Figure 1. Frequency of questions asked during 10-min sessions in training and generalization settings during baseline, intervention, and follow-up for Ana and Betty. The arrows in the intervention phases indicate when the echoic prompts were eliminated.

RESULTS AND DISCUSSION

The children learned to ask three types of questions about hidden objects. Figure 1 shows that during baseline, the children asked no questions in any of the three forms in either setting. During the intervention, Ana's frequency of questions increased substantially for all three questions, with means of 8.2 for "What's that?," 14.3 for "Can I see it?," and 20.8 for "Can I have it?" Similar results were obtained in the generalization setting, and they were maintained during follow-up. The frequency of questions for Betty also increased from baseline levels during the intervention. Her mean for "What's that?" was 22.0, for "Can I see it?" it was 16.2, and for "Can I have it?" it was 14.4. During generalization and follow-up, she also maintained the high levels of questioning. The maintenance of asking questions in both girls may be due to the fact that these three questions may have entered into naturally occurring reinforcement contingencies.

During the training of the third response form ("Can I have it?"), the second response form ("Can I see it?") showed a substantial decrease (from a mean of 19.2 to a mean of 11.3 for Ana and from a mean of 20.0 to a mean of 9.4 for Betty). The first response class ("What's that?") was not affected (with means of 8.7, 9.4, and 8.1 for Ana and means of 21.6, 24.0, and 19.2 for Betty). Although the second response form decreased significantly, it was not extinguished.

This may have been because, by the third phase of the training, all three responses received a differential outcome that corresponded to naturally occurring consequences for these types of questions. That is, the first two response forms may have entered into new contingencies of reinforcement (e.g., obtaining just the name of the object, or just the sight of it).

This study demonstrated an effective procedure to establish and maintain high levels of different question forms. However, the role of the specific consequences in the maintenance of each question form is unknown. Also, it is not known whether these responses were ultimately reinforced by access to the item. They may have formed one functional response class. Future studies should address these issues.

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