



Effects of Instructor Intonation on the Response of Children with Autism

Cassandra C. Drees, Tasha M. Rieck, Cierra A. Micke & Kevin P. Klatt

University of Wisconsin-Eau Claire



Introduction

Autism is classified as a pervasive developmental disorder characterized by delays or abnormal functioning in social interaction, social communication, and imaginative play. Consequently, interventions for autism often address communication by teaching children verbal skills. Although research has been conducted showing behavioral interventions can be used successfully to teach new skills (e.g., Koegel, Koegel, Frea, & Smith, 1995), recommendations pertaining to how teachers present the intervention has been much less studied. For example, recommendations for teaching new skills has include having the teacher vary voice tone and display enthusiasm during instruction (Knoblock, 1983).

In another study, Santargangelo and Dryer (1988) defined the intonation of "motherese" as including a "higher pitch, rising inflection and a prolongation of stressed words." Results of their research indicated higher levels of both responding and eye contact when a motherese voice tone was used, as compared to both conversational and enthusiastic voice intonation.

Lamers and Hall (2003) compared children with autism to their typical peers to see if there was preference for a specific voice tone. The first study examined preference for intonation in children with autism. Researchers conducted a preference assessment using recorded monotone, conversational, and enthusiastic voice tones reading the same story. Children with autism who showed a preference for one of the three voice tones participated in a follow up study. During the second study, researchers examined the children's rate of response to instructions given in the three voice tones utilized during the first study. Results indicated that voice preference did not affect response rate. These results were found despite the child's preference, indicating that response to voice tone was not affected by preference.

The purpose of the present study was to investigate whether performance differences on learned tasks occur when instruction is presented in a conversational versus an enthusiastic voice tone for young children with autism.

Method

Participants

Two children diagnosed with autism participated in this study. William was a 2-year-old boy who received approximately 4 hours of ABA therapy each week from a Midwestern university autism clinic. Nicole was a 4-year-old girl who received ABA therapy from the same university autism clinic approximately 5 hours per week. She also received 4.5 hours of in-home ABA therapy each week. In addition to their diagnosis of autism, participants were selected based on their ability to respond to a three or more word instruction.

Setting

Sessions were conducted at a Midwest university in an on-campus therapy room during a 50 min ABA therapy session. The therapy room consisted of table and chair for the participant and tangible and edible items. A one-way mirror allowed for observation of the session by participants' parent and other therapists.

Materials

Data Sheets. The data sheets consisted of the five trials for each voice intonation and had a space to circle the participant's response. Possible responses included: CR (correct response), IR (incorrect response), NR (No response) and PB (problem behavior.) Problem behavior included any tantrum behavior defined as screaming, crying, aggression, or self-injurious behavior.

Experimental design

An alternating treatment, single subject experimental design was used (Cooper, Heron, & Heward, 1987).

Procedure

Target Selection. For each participant a skill was identified that had previously been taught and were now occasionally tested to ensure that the skill was still present. Once the skill was identified to be used for the study it was not tested outside of the research condition. Each skill identified for this study was presented in both conditions.

Baseline. Data were collected before implementing each maintenance target. Targets were probed during a typical teaching session to see if the skill was present. Only skills previously demonstrated were selected.

Condition One. Participants were presented with five instructions requiring a vocal verbal response. Each instruction was presented in a conversational intonation. The conversational tone was defined as an even (typical) paced delivery of the instruction with a moderate (above monotone) pitch and a moderate (typical) volume. Instructions were delivered by a student therapist who had prior training in ABA therapy and no direct ties to the study, to control for potential researcher bias. All five targets in this condition were presented consecutively, with a variable interval between conditions.

Condition Two. Participants were presented with five instructions in an enthusiastic intonation. An enthusiastic voice tone was defined as a varied (changing) pace, exaggerated pitch, and elevated volume. Both enthusiastic pitch and enthusiastic volume were defined as being above conversational. The procedure was the same as in condition one and the same student therapist from condition one presented the trials.

Results

Figure one indicates the percentage of William's responses in each response category. In the enthusiastic condition, 88% of William's responses were correct, 8% of his responses were incorrect, and 4% of the trials were categorized as no response. William's responding during the conversational condition was 84% correct, 16% incorrect, and 0% of responses were categorized as no response or problem behavior.

Figure two indicates the percentage of Nicole's responses in each response category. During the enthusiastic condition, 100% of Nicole's responses were correct. In the conversational condition, 99% of her responses were correct, while 1% were incorrect.

Figure three shows William's percentage of correct responses across sessions and conditions. Figure four shows Nicole's percentage of correct responding across sessions and conditions. For both participants there were no differences in correct responding between the enthusiastic and conversational conditions. Across both conditions, William had more incorrect responses than Nicole did, but these incorrect responses occurred in both conditions.

Reliability on the child's response was taken for each trial for 100% of the sessions. Overall reliability was 98% for William and 99% for Nicole. Treatment integrity by another student therapist was taken for each trial to ensure that the student therapist was presenting the trials correctly and the procedure was being followed. Treatment integrity was calculated at 100% for both William and Nicole. Another student therapist was given operational definitions for each voice tone in addition to role-playing with the researchers and the therapist delivering the trials conducted treatment fidelity. The therapist rated the voice tone for each trial based on the operational definitions of enthusiastic and conversational. Treatment fidelity was calculated at 100% for both Nicole and William.

Discussion

In attempting to use the best methods to teach new skills, previous researchers suggested varying voice tone and displaying enthusiasm when teaching children with autism (Knoblock, 1983). Lamers and Hall (2003) showed that there were no significant differences found in responding between the conversational and enthusiastic voice tone. In addition, response to voice tone was not related to preference for a voice tone. The present study found similar results, showing there was no difference in the rate of responding when using an enthusiastic voice tone as compared to a conversational voice tone.

It is important to note that this study evaluated only enthusiastic and conversational intonations in the delivery of an instruction. This means that conclusions cannot be drawn about the use of enthusiastic and conversational intonation during praise, or any other aspect of teaching. Nor can final conclusions be made about the general use of enthusiasm during teaching. This study examined one aspect of enthusiasm, intonation.

Further research in other areas of enthusiasm including facial affect or body movement is warranted to better determine use of enthusiasm during teaching. In addition, other areas of prosody could be examined, including stress on certain words and syllables. Researchers could also seek participants of various ages. The use of enthusiastic and conversational intonation during other areas of teaching, such as praise and instructor reaction to incorrect responses could be examined, to further discover the effect that teacher intonation has on children with autism.

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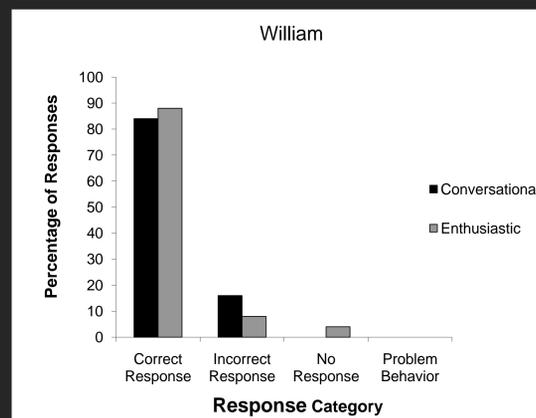


Figure 1. William's responses across all sessions separated into the four response categories

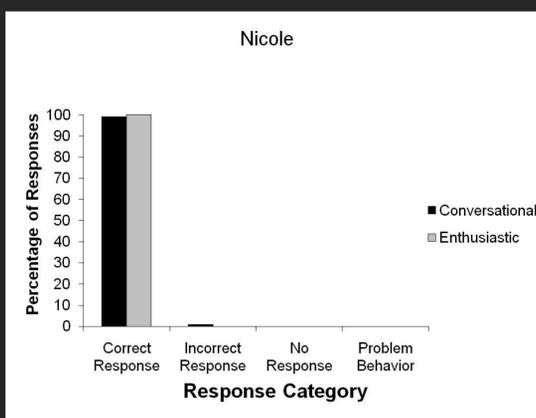


Figure 2. Nicole's responses across all sessions separated into the four response categories

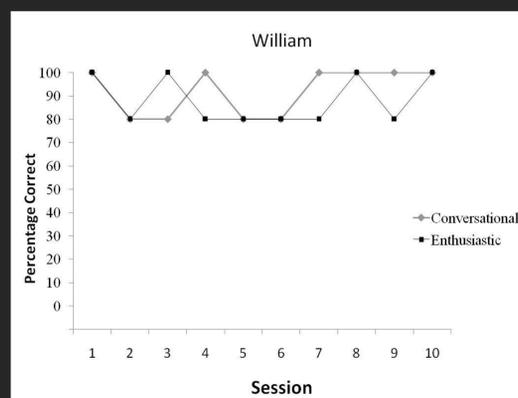


Figure 3. The percentage of correct responses across sessions and conditions for William.

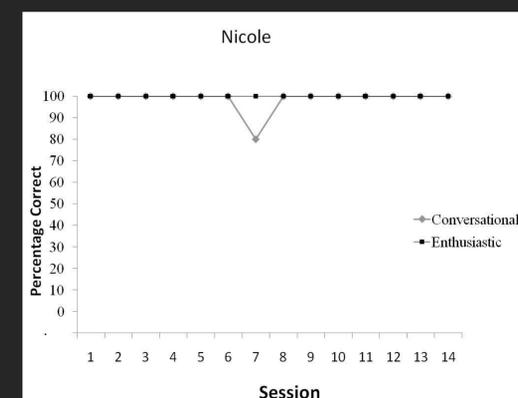


Figure 4. The percentage of correct responses across sessions and conditions for Nicole